

Internship Report for SDET Learning Path

Internship report submitted in partial fulfillment of the requirement
for the degree

of
Bachelor of Technology

in
Computer Science & IT Engineering

By

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to



Department of Computer Science & Engineering and Information
Technology

Jaypee University of Information Technology, Solan-173234,

Himachal Pradesh

Candidate's Declaration

I hereby declare that the work presented in this report entitled “**Internship Report for SDET Learning Path**” in partial fulfilment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and IT Engineering** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology Waknaghat is an authentic record of my own work carried out over a period from March 2021 to May 2021 under the supervision of Mr. Abhijeet Joshi (Trainer at cognizant)

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

Shivansh Dubey, 171044

This is to certify that the above statement made by the candidates is true to the best of my knowledge.

Mr. Abhijeet Joshi
(Trainer at Cognizant)

Dated: 21st May 2021

Project Report Undertaking

I Mr. /Ms. Shivansh Dubey Roll No. 171044
Branch: Information Technology is doing my internship with Cognizant
Technology Solutions from 21 March 2021 to 18 Aug 2021

As per procedure I have to submit my project report to the university related to my work that I have done during this internship.

I have compiled my project report. But due to COVID-19 situation my project mentor in the company is not able to sign my project report.

So I hereby declare that the project report is fully designed/developed by me and no part of the work is borrowed or purchased from any agency. And I'll produce a certificate/document of my internship completion with the company to TnP Cell whenever COVID-19 situation gets normal.

Signature  _____

Name Shivansh Dubey

Roll No. 171044

Date 21st May 2021

Acknowledgment

This is a matter of pleasure for me to acknowledge my deep sense of gratitude to Jaypee University and my college, Jaypee university of information technology for giving me an opportunity to explore my abilities via this internship program. I would like to express my sincere gratitude to our TnP officer, Mr. Pankaj Kumar and our faculty Coordinator, Dr. Nafis U Khan for this opportunity. I also wish to express my gratitude to my internship supervisor, for their valuable guidance and advice in completing this project.

I would like to record my sincere appreciation and gratitude towards all the officials and employees of cognizant, without whose kind assistance, my internship program would not have succeeded. The facts and other vital information provided by them have contributed towards making this report as comprehensive as possible. I am indeed thankful to them

Last but not the least, I would like to express my sincere thanks to all my family members, friends and well-wishers for their immense support and best wishes throughout the internship duration and the preparation of this report. I believe that this report will be a valuable asset not only for academic institution, but will also be useful for all those who are interested to learn about internship experiences in auditing and consulting firm.

Date: 21st May 2021

Abstract

At Gen c program in Cognizant we are divided into certain domains each domain has specific amount of training period varying from 12 weeks to 19 weeks. Internship includes various events such as educational workshops, webinars, Udemey courses, and group work assignments.

A large IT company based in the United States and India Cognizant employed a large number of Indians last year, and it now employs about 3 lakh employees. The Cognizant Corporation also recruits and hires international workers from all around the globe.

Cognizant provides up with various services to a large number of clients in IT industry they also have tie with one of the fastest growing companies. Work culture is just as professional as expected.

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Chapter 1. Introduction

1.1 Background

To get a Gen-C position, you would take a position in a certain organisation until the internship is over. They placed us in an internship that is of 19 weeks in length, which consisted of training programs, webinars, UdeMy classes, and project work projects.

Basic idea to provide us with the training program is to make us industry ready and thus train us in such a way that we can give our 100% in the business unit once we are deployed. Cognizant trains us on the basis of profile we get in the organization currently

I am in one of biggest training period provided by cognizant in terms of weeks also they provide us with so many free resources and a batch trainer who looks after our doubts and also takes technical session daily. We also have our coach and mentors who provide us with all the necessary domain knowledge and things that are booming in the industry right now so overall it is a good experience for a fresher to learn so many different things so early in our professional career. In addition to trainees, every year many colleges give associateships to graduates of cognizant courses of study. This candidate is impressive, since he or she comes from all across India.

They put a lot of time, effort, resources and money into teaching the intern before they start doing it in the real world. We are also provided with a real time project at the end of our internship which gives us a chance to apply all the necessary skills that we have learned through out our training period. And hence we provide with the solution and work with a proper team to learn the basics of team work and how team works in a project.

1.2 Values

By and large, these are the ideals of the organisation:

Their biggest asset is the employees. To keep high-quality partnerships with our customers, knowledgeable peers, retailers, the suppliers, community leaders, and the general public, we have to treat all of them with dignity.

We are working to gain long-term consumer satisfaction through respecting each individual's company and customer interests, as well as doing so with utmost dedication and honesty, and we want to have a long-term and positive impact on each customer by serving as an impartial adviser.

Everyone in the company will uphold the commitments to excellence, justice, integrity, and professionalism in all of their operations. Keys to Success:

1. Be upfront and truthful in completion of project
2. Finish the work on time
3. How can we finish the job ?
4. Finish the job on budget
5. SME mentors and trainers will provide us with all the necessary information and advice which we need to complete the tasks successfully
6. Open minded students are always appreciated

1.3 Objectives

In order to concentrate on what we are the company doing best, Cognizant would aim to focus on a few areas and be a national market leader. In Expanding the company to be simultaneously growth-inducing and manageable.

Chapter 2: Functional Testing

2.1 Stage 1 – QEA Basics

Starting up with some basics of testing we were initially given a course of udey which was software testing complete bootcamp initially we study about types of testing and how testing is performed and what are the best practices used by a tester.

2.2 Week 1

Throughout the internship, all of the competency-based classes must be complete (not only the Udey ones). Since reading about the core quality assurance concepts in week 1, we worked on things like practical monitoring and app testing. following the online Udey courses, we performed a quick hands-on, which was required for all interns, and then a lengthy final exam which was used for the performance assessment. As critical as covering all the bases of QEA, Agile, and black box and white box testing was for the creative part of this week, so that we will be able to design effectively.

2.2.1 Concepts Studied.

1. Flexible testing: reflects the principles of agile product growth. In contrast to the Waterfall testing, Agile testing can begin early in a project and works together with progress. The Agile Testing approach is non-iterative, not done in a certain order, but it is done during the creation phase.
2. A test plan for agile: Includes test data specifications, test environment conditions, and results from the previous version. Agile technique, as opposed to waterfall methodology, puts the focus on writing and revising a test plan each time a release is done. Agile test programmes usually include:
 1. Elements which are being experimented with
 2. Often known as either as function checking
 3. loading and stress testing
 4. Minimizing risk in the infrastructure Strategy implementation

To see if a system works or not Which is part of the testing phase to ensure that consistency goals are met. "Verification" and "as well as "validation" are components of the whole software development phase." The term "software testing" should not be limited to a single action. The methodical set of operations aid in the validation of your applications. The life cycle of software testing is referred to as an STLC.

phases of STLC are :

1. Analysis of Requirements
2. Test Preparation
3. The development of test cases and the establishment of a test environment
4. Execution of the Test
5. Closure of the Test Cycle

There are various types of testing which are well defined for various things .some of them are functional testing , non functional testing , black box testing, white box testing, smoke testing, regression testing

Some of the important type of testing includes ,

Black Box testing this type of tesing doesn't include internal technical knowledge to test a particular application but is used in vide variety of places

White Box testing this type of testing generally requires a knowledge of internal structure as well.

Retesting this is done when there is a particular type of update for an application so to ensure that all the other functionalities works fine this testing is done.

Regression testing this testing is also done to ensure the functionality of application is working fine after the update

Smoke testing this testing is also done for specific build functionality.

Table 2.2 All Possible Test Cases with the Given Constraint

Test Case ID	Test Case #	Test Case Description	Prerequisites	Steps to reproduce	Expected result
TSD 001	TCD 001	Search for Hotels in India with valid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select the date from the list box 2. Select check in date from the check in list box 3. Select check out date from Check out list box 4. Select Number of Rooms from the rooms list box 5. Select Number of adults from adults list box 6. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed The hotel matches the criteria entered should be displayed to the user
TSD 002	TCD 002	Search for Hotels in India with invalid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select invalid date from the list box 2. Select check in date from the check in list box 3. Select check out date from Check out list box 4. Select Number of Rooms from the rooms list box 5. Select Number of adults from adults list box 6. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 003	TCD 003	Search for Hotels in India with invalid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select invalid date from the list box 2. Select invalid check out date from the check out list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 004	TCD 004	Search for Hotels in India with invalid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select invalid date from the list box 2. Select invalid check in date from the check in list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 005	TCD 005	Search for Hotels in India with invalid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select invalid date from the list box 2. Select invalid check out date from the check out list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 006	TCD 006	Search for Hotels in India with invalid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select invalid date from the list box 2. Select invalid check in date from the check in list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 007	TCD 007	Search for Hotels in India with invalid input	Fla Travels website launched and the radio button, where it is mentioned India should be selected	1. Select invalid date from the list box 2. Select invalid check in date from the check in list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 008	TCD 008	Search for Hotels in International with valid input	Fla Travels website launched and the radio button, where it is mentioned International should be selected	1. Select the date from the list box 2. Select check in date from the check in list box 3. Select check out date from Check out list box 4. Select Number of Rooms from the rooms list box 5. Select Number of adults from adults list box 6. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed The hotel matches the criteria entered should be displayed to the user
TSD 009	TCD 009	Search for Hotels in International with invalid input	Fla Travels website launched and the radio button, where it is mentioned International should be selected	1. Select invalid date from the list box 2. Select invalid check in date from the check in list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 010	TCD 010	Search for Hotels in International with invalid input	Fla Travels website launched and the radio button, where it is mentioned International should be selected	1. Select invalid date from the list box 2. Select invalid check out date from the check out list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message
TSD 011	TCD 011	Search for Hotels in International with invalid input	Fla Travels website launched and the radio button, where it is mentioned International should be selected	1. Select invalid date from the list box 2. Select invalid check in date from the check in list box 3. Select invalid Number of Rooms from the rooms list box 4. Select Number of adults from adults list box 5. Select Number of children from children list box 7. Click on the Search button	The entered data should be displayed Check in date should be displayed Check out date should be displayed Number of rooms selected should be displayed Number of adults entered should be displayed Number of children entered should be displayed No hotel matches the criteria entered should be displayed as we entered one invalid input and give error message

Table 2.3 Defect Report with possible defects

Serial no.	Defect id	Description	Reproducible (yes/no)	Steps to reproduce	Severity	Priority
1	DFD_001	On clicking "International" radio button the "country" list box is not displayed Expected Result: The country list box should be displayed Actual Result: The country list box not displayed Impacted Test case: TCD_008	Yes	Prerequisites: Fla travels website launched and "India" location radio button already selected Steps to reproduce: 1. Launch the "www.rajtravel" website 2. Select "International" radio button	Medium	Medium
2	DFD_002	Enter check-in date greater than check-out date and clicking "Search" after selecting all other valid details the website is showing all the lies Expected Result: Error message displaying "Invalid check-in and Check-out dates" and no other results should be shown Actual Result: All the records are displayed to the user despite of invalid dates in "check-in" and "check-out" Impacted Test case: TCD_002, TCD_003	Yes	Prerequisites: Fla travels website launched and "India" location radio button already selected Steps to reproduce: 1. Launch the "www.rajtravel" website 2. Choose any of the radio button "India" or "International" 3. Select a valid check-in date which is greater than check-out date 4. Click "Search"	Medium	Medium
3	DFD_003	After selecting "Delhi" from city list box and clicking "Submit" after entering all the required fields, hotel details of city "Calcutta" are displayed Expected Result: hotel details for city "Delhi" should be displayed to the user Actual Result: hotel details for city "Calcutta" are displayed to the user Impacted Test case: TCD_001	Yes	Prerequisites: Fla travels website launched and "India" location radio button already selected Steps to reproduce: 1. Launch the "www.rajtravel" website 2. Choose the location radio button "India" 3. Select the city "Delhi" from the city list box 4. Click "Search"	Medium	Medium

Chapter 3 Java Programming Fundamentals

3.1 Week-2

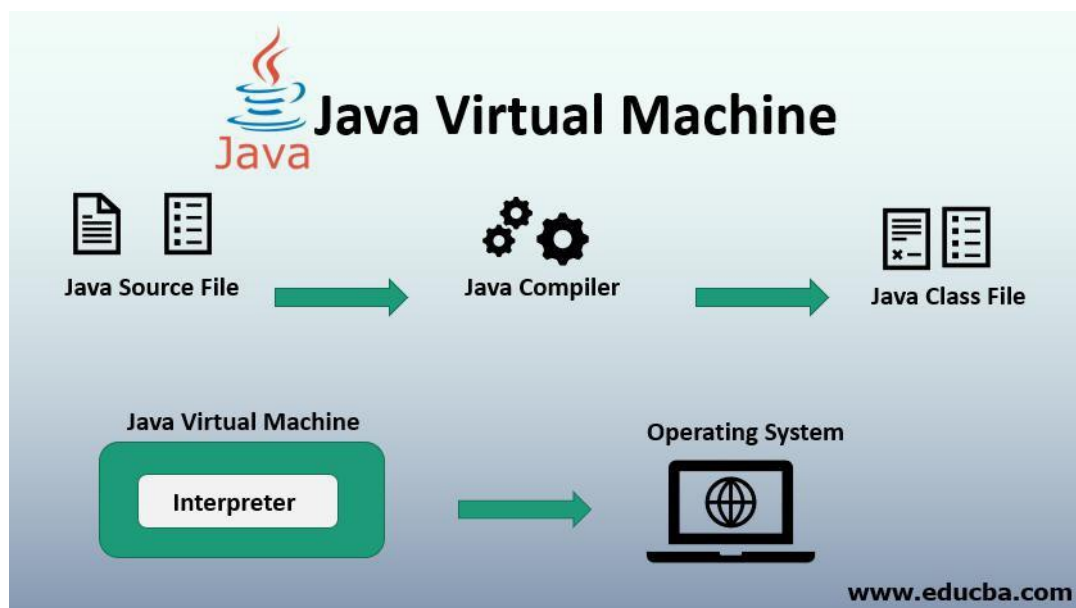
3.1.1 Java Overview

Java is a general purpose, class-oriented object-oriented programming, built for high-level, independent design. It lets Java developers write once and run on every computer that has a Java, eliminating the need for sacrificing functionality. Usually, Java programmes are compiled to bytecode, and run on every Java Virtual Machine (JVM) platform. C and C++ have identical syntax, but less low-level services. The Java Virtual Machine (JVM) features versatile functions (such as introspection and dynamic code execution). According to GitHub, Java is one of the most common programming languages for end - user web - based applications as of 2019. The Java programming language was created by Sun Microsystems and made available on Sun's Java programming language in 1995. These compilers, as well as the APIs, implementations, and DLLs, are distributed by Sun under non-open source licences. As the Java Community Design objectives are in use, Sun relicensed its Java innovations under GNU GPL. Oracle provides its own Virtualization Layer, however the default Vm, OpJVM, is open-source and used by many programmers on Linux distros. The new edition is Java 16, with the current stable long-term version launched on September 25, 2018. Oracle will launch the final no more minimal cost improvements for legacy Java 8 for commercial exploitation, but will keep providing public updates for Java 8 personal use as well.

These five were central to the design of Java: usability, security, portability, expressiveness, efficiency, scalability, and extensibility, performance, and versatility, and reliability.

3.1.2 JVM

At runtime, the JVM serves as a Java programme host. A JVM runs the code that invokes the key function that is included in a Java source file. Feature is needed for a successful installation of Java Runtime Environment. disposable from the wealth of acronyms All runs on Java, which ensures that if you can understand and write Java code, you can be certain it will work on every Java-powered machine. This can all be done because of the Java Virtual Machine (JVM). A .class file (which is a filename containing bytecode) is created whenever we compilation the .java document. This class file progresses through many distinct stages as it is executed. It gives you the entire picture of the Virtual machine



3.1.3 Java Identifiers

In computer languages, identifiers are used for the purpose of recognition. Any kind of name that can be used as a symbol can be called a class name, like variables, methods, constructors, and class names

3.1.4 Data Types

Java has 8 primitive data types which are used in almost every program that we code so it is very important for us to understand the basic primitive data types these are

Int, float, long, byte, short, char, double, Boolean these particular types are used in java but there are also some user defined data types like Array String objects etc.

3.1.5 Variables

Variables are generally the storage spots in which we store our values everything in stored in the memory stack before hand we use it that's why in java we cannot use a variable before it's declared and initialized. Each variables holds a spot int memory and we use variables almost in every type of program so it is very necessary that variables naming convention and how to initialize and declare it is well known before it's use there can be static and non static variables A static variable cannot be referenced and its value can not be changed by referencing but non static variable can be changed by the help of new keyword

3.1.6 Type conversion

In java there are two type of conversion explicit and implicit in explicit conversion we specifically tells the compiler to convert a data type to another data type but java uses the concept of auto boxing to convert the data type to another data type implicitly. Also we have the concept of wrapper class in java so it is also very useful in conversions as it has in built functions to perform certain conversion.

3.1.7 Loops

Loops are the most powerful tool in any programming language these are also used almost in every program we provide it some instructions and on the basis on that instruction we can iterate over and over again to perform particular task FOR loops are provided by for various reasons, but this is one of the more notable ones. As compared to a while loop, a for loop initialises, tests, and increments/decrements in one sentence, the for method offers simpler, readable form in which iterates a certain number of times.

There are two versions of the while loop; while, which only verifies the position after performing states in the block, and do while, which tests for the conditions while performing sentences.

3.1.8 Decision making

Programming choices are the same as life-altering choices. We sometimes require a line of statement to be executed for such circumstances in programming. circumstances that have been predetermined They're programmed by a computer such that when the software changes, the flow of operations changes as well.

If the state is true, the blocks will be executed. Unless, of course, we prefer to do something else. Here's where the if comes in. We will use the Else Statement to execute the following sentence of statement if a condition is wrong

```
if (condition) {  
    // block of code to be executed if the condition is true  
}
```

Fig 3.2 Syntax for if statement

if statements mean an if statement inside an if statement. Switch-Case The switch statement is a multiway branch statement. It provides an easy way to dispatch execution to different parts of code based on the value of the expression.

The RETURN statement is used to explicitly return from a method. That is, it causes a program control to transfer back to the caller of the method

3.1.9 Static Variable

A static element is also known as a class variable which is often considered a static. You can access it by class name or using its value and is exclusive to the class, but not always.

3.1.10 Non Static variable

Any variable of a class which is not static is called a non-static variable or an instance variable

3.1.11 Classes and Objects

Object-Oriented Programming is built on object - oriented as their core principle revolve in the actual world. Objects are derived from class-A classes; Class-A classes are self-defined blueprints or mock-ups that aid in the construction of others. The property or process may be called from every entity of that kind. This part will appear in a class declaration, generally::

A class may be public or a member function may provide public access.

Class defines a type which is used to define a type, whether it is well-designed. A letter, and then be followed by additional letters, numbers, or numbers, that are each followed by an alphabetically-delimited sequence of underscores" best-and-division classification)if some (parent) class name is followed by the term "extends", then a parent class extends class A class may only be a subset of one class. combination of features the class name and their inclusion in the section, if any, if present. More than one user type should be used to enforce an interface.

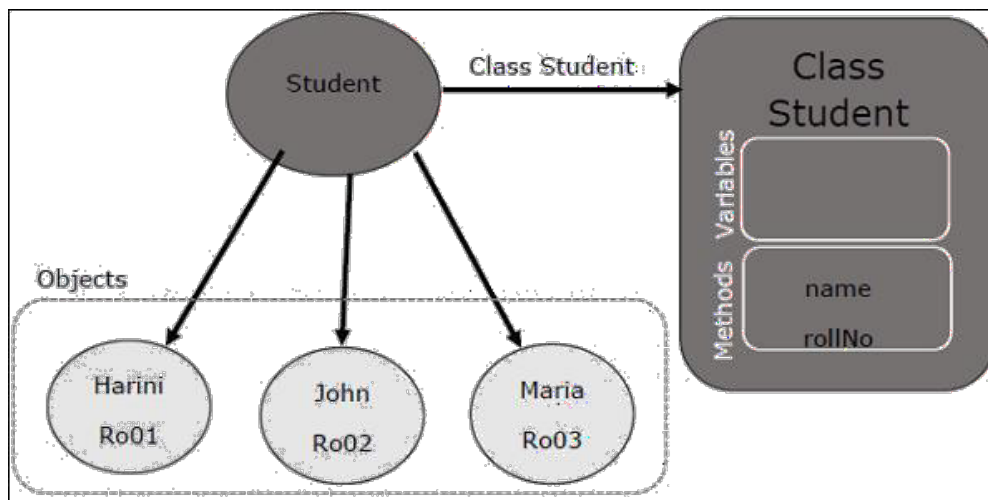


Fig 3.3 Relationship between class and object in JAVA

3.1.12 Interfaces

Class methods, while the variables declared inside an implementation are by concrete, by design . A class interface defines what it must do, but not how. This is the class's strategy. an interface consists of capabilities such as an interface-capable It indicates what procedures the class would adhere to. Complete abstraction is best realised with music. Multiple inheritance is not possible in Java, but having an implementation achieves it. In addition, it is utilised to facilitate loose pairing. Art is used to approximate truth.

As a result, again, then, why do we use class hierarchies if we are not using concrete ones? cloaking the particular structure, but hiding the functionality from the public The fact that abstract classes represent the concept of showing/hiding .

3.1.13 Abstraction

Data Abstraction leaves out the unnecessary information such that only the important facts appear to the viewer. The marginal or the non-essentials units are never shown to the customer. Ex: A car is regarded as an automobile rather than its particular components.

Hide-and-and-polymorph groups and Polymorph-only approaches An arbitrary class is created with the superclass. An abstract method must be formulated without defining any concrete data and must be defined without describing the code..

3.1.14 encapsulation

The packing up of data into a single device is known as encapsulation. It's the glue that holds coding and the information it tries to manipulate together.

3.1.15 Run Time Polymorphism

Polymorphism is one of the aspects that Java embraces the notion of method overriding. Java looks up the instance method to call when an overridden method is invoked from a superclass reference. To conclude, this is all decided on the fly. Method execution relies on the form of the object being invoked.

Overloading makes methods have the same name, but various parameter types and different numbers of input parameters, while boxing restricts methods to just have the same name.

3.2 Week – 3

3.2.1 Collections

All items that are seen as a single entity are classified as an array. The “Collection Framework” was used as a separate project, holding all of the collections groups and their associated interfaces. A program is a system of pre-made classes and objects that makes an architecture easier to design.

The below are some of the benefits of the Collection Framework:

1. API that is consistent
2. Increases software pace and consistency thus reducing programming commitment.
3. The Object Interface expands the iterable interface which is enforced by all of the collection new framework classes. This gui includes many of the simple methods that any database has, such as applying data to the collection, extracting data from the collection, removing data, and so on.

3.2.2 Iterators

In the Collection system, iterators are used to go over a list and extract items one at a time. Each of the three ideas is an iterator. Enumeration This is used to retrieve items from existing collections . It works for every Collection object; it's an iterator in all collections. Use Iterator, they can read and delete operations at the same time. This is an enhanced variant of Enumeration that provides the feature of having an aspect that can be removed. List Iterators like Array List are just to be used for list, LinkedList and several other collections. With bi-directional possibilities In applications where we need to walk the elements of a List, we must use a List Iterator. This cursor offers a greater variety of features than the iterator. This is similar to the Java collection framework which is an implementation of the

Collection interface. This list is used to provide a skeletal application of the List interface, using a database as the underlying data warehouse .

AbstractSequentialList should be preferred to this type of associative list for linked list results.

3.2.3 ArrayList

A List is a built-in component of the Java programming interface which exists in the java.util..kit. Dynamically generated arrays in Java is a great thing. Though that may be faster than regular arrays, such arrays may be extremely helpful in highly dynamic software programmes, particularly when quite a lot of simulation is involved. In the java.util.concurrent bundle, this class is located.

3.2.4 HashMap

The HashMap class is a member of the set APIs. In the java.util.concurrent bundle, this class is located. It implements the basics of the Java Map interface. The dataset may be accessed through two types of indexes: (Key and Value) and a user defined sequence number . Concepts refer to other concepts; one concept refers to another; an idea points to ideas . If you attempt to repeat the key, the variable is automatically replaced. Unsynchronized Hash function is somewhat close to the Hash Map.

3.2.5 Sets

The Java.util.util.Set interfaces provide an attribute type where duplicate values are not allowed to be kept. It consists of a mathematical series. Providing the java.util.util.Set implementation

Since the HashSet class is a part of the code, it is efficient at implementing a hash table.Enum set class, which is available on the collection's API, has been one of the enumeration types using the set protocol.

3.2.6 Exception Handling

An anomaly is an unnecessary or accidental occurrence, which happens during the program's operation, such as a run-time failure, which is usually considered an exception in all applications.

Since it supports exceptions such as `ClassNotFoundException`, `IOException`, `SQLException`, and others, exception management is needed for programs to be robust. Exception management preserves natural system behavior. For error management, an exception usually interferes with the usual flow of the program.

3.2.7 File Handling

With the aid of the `java.io` kit, you can do virtually every operation involving endpoints in Java. All these things go to or have come from an input or an output system. As part of the `java.io` kit, the stream offers numerous built-in data types including primitives, objects, localizable strings, and more.

It is a series of data represented as a river. Streams may be divided into two classes: clearly noxious and harmless.

Source – To interpret metadata, use the `Source`. To write data to a target, use the `OutputStream`. The aim of the Byte Streams in Java is to transfer ASCII characters and to read and display 8-bit bytes. While there are several file input/output stream-related classes, the most commonly encountered ones are those that are subclasses of class `java.io.InputStream`. `READ`, `WRITE` the whole files

A stream is a flow of data. The origin stream reads data and the target is where it is written.

3.3 Week 4

3.3.1 Java JDBC

Java JDBC connectivity is a very strong tool which can act as a API for Database and front end. A query API can query the database and gives out a specific result we have used this jdbc API in our hands on as well as assessments also jdbc is used as we can query using java and data base connection is very important for backend working. JAVA DATABASE CONNECT is, in short, has the same functionality as JDBC, thereby enabling non-database-specific applications to run on any and all Java programs.

Chapter 4 Web UI interface and Data Source

4.1 Week 6

In this particular week we were required to complete the courses offered by udemy in HTML and learn x path and xml, Jason from scratch to apply on various front end ui written in HTML and build a solid foundation in basics of selenium web drivers.

4.1.1 HTML

For Html we are acquired with one course which focus on hmtl basic tags and how css works Html is core of any web application because it provides us with the structure of web page in this course we learned about some basic tags which are very necessary to start with HTML also I have done some hands on and quizzes regarding the topics

Basic Tags used in html are:

<Html>

<title>

<head>

<p>

<body>

<div>

<class> etc.

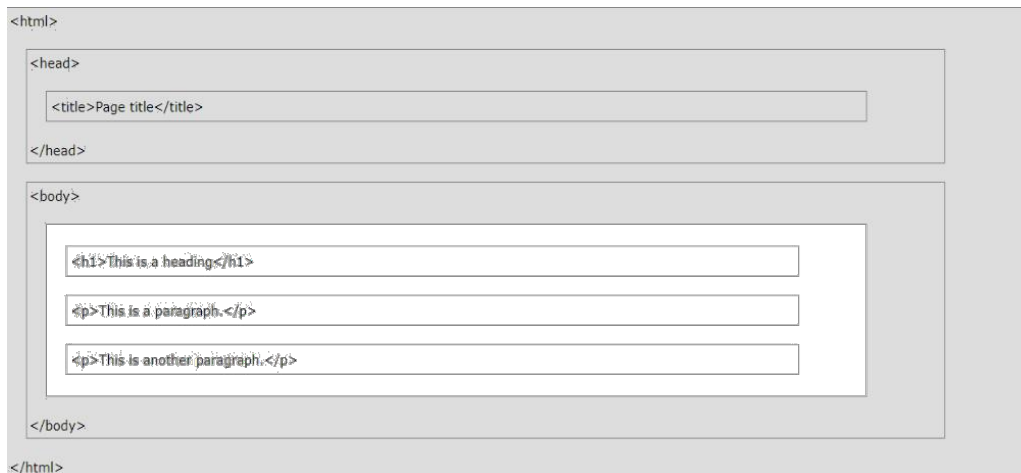


Fig 4.1:HTML Page Structure

```

<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>TravelClient</title>
  <base href="/">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta3/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-e
</head>
<body>
  <app-root></app-root>
</body>
</html>

```

Fig 4.2: Sample of HTML code

4.1.2 XML

This is a type of markup language which is used without using any predefined tags we can define our own tags based upon the type of scenario or case study is given xml documents are often received and hence we should be able to do hands on regarding this topic so we were also provided with some case study were we have to write the Xml file.

XML isn't a suffix, it's a declarative. The Hypertext Transfer Protocol (HTTP) is commonly used for the transport of report information

<?xml version = "1.0" encoding ="UTF-8">

Hands on for xml :

A small business has one department. That department has one employee. The employee details is given in the table below.

Parent Element is "Department"

Employee

| empid | name | salary | email | phoneno |
|-------|------|--------|---------------|------------|
| 1001 | Tom | 20000 | tom@gmail.com | 9874563210 |

```

<Department>
  <Employee>
    <empid>1001</empid>
    <name>Tom</name>
    <salary>20000</salary>
    <email>tom@gmail.com</email>
    <phoneno>9874563210</phoneno>
  </Employee>
</Department>

```

Fig 4.3 XML Document For Employee and Department

4.1.3 JSON

JSON is a language-agnostic way of expressing data that uses a text format built on JavaScript object syntax. This is often seen in the context of "the technique used to convey data around the internet in websites" you may encounter it often, so here we can see a sample Jason doc where formatting is correct.

```
{
  "squadName": "Super hero squad",
  "homeTown": "Metro City",
  "formed": 2016,
  "secretBase": "Super tower",
  "active": true,
  "members": [
    {
      "name": "Molecule Man",
      "age": 29,
      "secretIdentity": "Dan Jukes",
      "powers": [
        "Radiation resistance",
        "Turning tiny",
        "Radiation blast"
      ]
    },
    {
      "name": "Madame Uppercut",
      "age": 39,
      "secretIdentity": "Jane Wilson",
      "powers": [
        "Million tonne punch",
        "Damage resistance",
        "Superhuman reflexes"
      ]
    },
    {
      "name": "Eternal Flame",
      "age": 1000000
    }
  ]
}
```

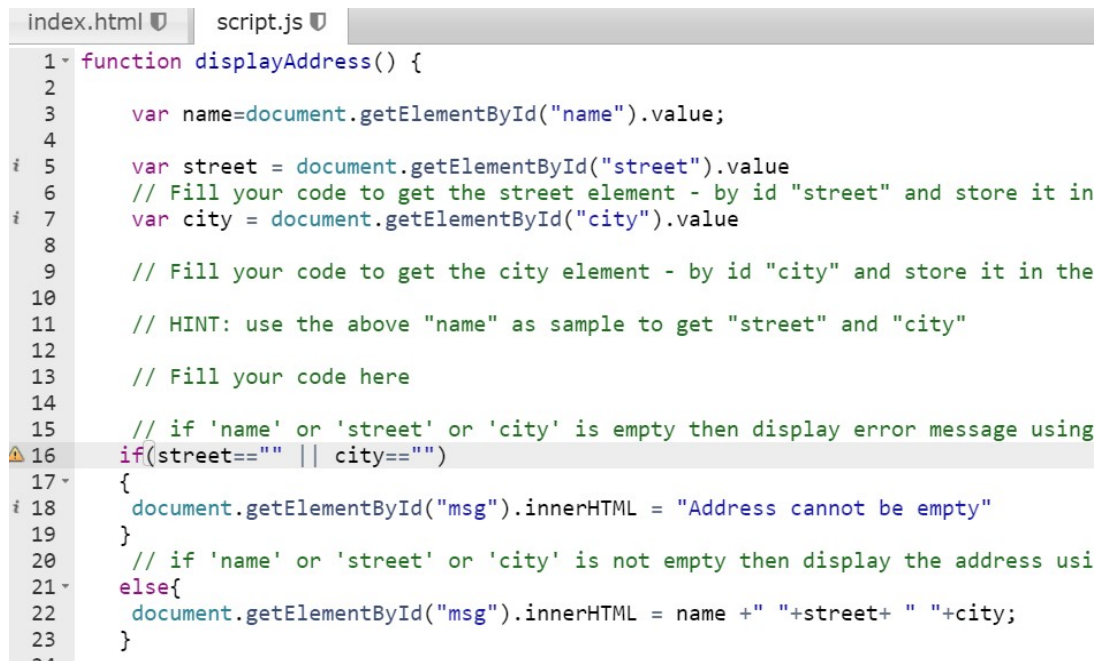
Fig 4.4 Sample of JSON

4.2 week 7

At the end of this week, everybody would have to take online Udemy courses offered by Cognizant to finish the hands-on, in-person assignments and get an online evaluation score greater than 70%. In this particular course we have to learn about JavaScript. This light weight language is very powerful in combining with web pages and provide them customization power.

JavaScript is used to create scripts for HTML pages to provide them customization and extra functionality. In browser-based environments, CouchDB, Adobe Acrobat, and Node.js are among the prime examples. JavaScript is prototype-based, multi-paradigm, multi-structured, JavaScript; prototype-based, single-threaded, object-oriented, interactive. Learn more about the JavaScript language.

JavaScript also supports objects, data types, variables, and data structures, so that's why this language is also used by many candidates in competitive programming as well. In the Udemy course we learned about basic things of JavaScript but we also get a chance to work on hands-on where we used HTML and JavaScript to build a small web site for retrieving weather information using API call.



```
index.html | script.js
1 function displayAddress() {
2
3     var name=document.getElementById("name").value;
4
5     var street = document.getElementById("street").value
6     // Fill your code to get the street element - by id "street" and store it in
7     var city = document.getElementById("city").value
8
9     // Fill your code to get the city element - by id "city" and store it in the
10
11     // HINT: use the above "name" as sample to get "street" and "city"
12
13     // Fill your code here
14
15     // if 'name' or 'street' or 'city' is empty then display error message using
16     if(street==" " || city==" ")
17     {
18         document.getElementById("msg").innerHTML = "Address cannot be empty"
19     }
20     // if 'name' or 'street' or 'city' is not empty then display the address usi
21     else{
22         document.getElementById("msg").innerHTML = name + " "+street+ " "+city;
23     }
24 }
```

Fig 4.5 Sample Javascript Code.

4.3 Week 8

We just have to do two things this week: accept the Udemy courses that are offered by the company and learn css as well as boot strap for enhancing front end ui and also work for some basic projects

4.3.1 CSS

CSS refers to cascading style sheet now this is also one of the most powerful thing to make our websites more cool looking and beautiful we can use css in two ways inline css and outline css we can use css in hml doc or we can make a separate style sheet and use it to enhance our website for this week we are also provided with some hands on where we have to complete several html files and use css to enhance it.

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes. CSS (Cascading Style Sheets) is the code that styles web content. Like HTML, CSS is not a programming language. It's not a markup language either. CSS is a style sheet language. CSS is what you use to selectively style HTML elements

```
body {  
    background-color: lightblue;  
}  
  
h1 {  
    color: white;  
    text-align: center;  
}  
  
p {  
    font-family: verdana;  
    font-size: 20px;  
}
```

Fig 4.6 CSS Code

4.3.2 Bootstrap

This intuitive and mobile-first CSS platform is free and open source. It includes concept templates in the form of CSS and JavaScript.

sites by making it work the same across all different platforms, including desktops, tablets, smartphones, and TVs (as opposed to web apps). It's to use Bootstrap's paint, scale, font, and style options to your web project. For that purpose, the most important thing is to evaluate the designers. Both HTML items in the project are styled with Bootstrap after they have been applied to a Bootstrap project. They produce more-or-less monotonous appearance for prose, tables, and heterogeneous appearance for type elements through web browsers. It is also possible for developers to use Bootstrap classes to modify their content further by taking advantage of them. Bootstrap has headings in either light or dark colours, bigger text, different pull quotations, and bold headings, and some text with a standout. Many of the Bootstrap features are those that impact the whole website. The component element is referred to as "Container", as all other page elements are attached to it. Either a fixed-width container or a fluid-width container is accessible. On the width of the web page, always. But, based on the height of the computer, the width of the web page can vary.

Along with other JavaScript libraries such as jQuery plugins, Bootstrap often provides JavaScript components in the form of plugins. Any jQuery UI plugins have extra configuration elements such as boxes, tooltips, carousels, and rollovers. To know what Bootstrap's components are, you should use the official documentation. The fields also get additional features, for example, auto-completion. You'll still use our regular grid structure while using Bootstrap containers. Containers have three important functions: they are used to store, pad, and sometimes to divide up the material. In the vast majority of cases, however, a nested container is not needed.

Bootstrap framework is very easy to use and there is an official documentation available for using bootstrap which can be found on their official website

```

<head>
<title>Bootstrap Example</title>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
<style>
/* Remove the navbar's default margin-bottom and rounded borders */
.navbar {
margin-bottom: 0;
border-radius: 0;
}
/* Set height of the grid so .sidenav can be 100% (adjust as needed) */
.row.content {height: 450px}
/* Set gray background color and 100% height */
.sidenav {
padding-top: 20px;
background-color: #f1f3f4;
height: 100%;
}
/* Set black background color, white text and some padding */
footer {
background-color: #555;
color: #fff;
padding: 15px;
}
</style>
</head>
<body>
<nav class="navbar navbar-inverse">
<div class="container-fluid">
<div class="navbar-header">
<button type="button" class="navbar-toggle" data-toggle="collapse" data-target="#myNavbar">
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand" href="#">Logo</a>
</div>
<div class="collapse navbar-collapse" id="myNavbar">
<ul class="nav navbar-nav">
<li class="active"><a href="#">Home</a></li>
<li><a href="#">About</a></li>
<li><a href="#">Projects</a></li>
<li><a href="#">Contact</a></li>
</ul>
<ul class="nav navbar-nav navbar-right">
<li><a href="#"><span class="glyphicon glyphicon-log-in"></span> Login</a></li>
</ul>
</div>
</div>
</nav>
<div class="row content">
<!-- Fill necessary code for column 1 here -->
<div class="col-sm-2 sidenav" id="col1">
<div> Our Branches </div>
<div>
<p>394 St. Courtland Drive  
egg Harbor Township, NJ 08034</p>
<p>76 East Middle River Street  
Rutherford, NJ 07070</p>
</div>
<!-- Fill necessary code for column 2 here -->
<div class="col-sm-8 text-left" id="col2">
<div>welcome</div>
<div>
<p>You know, little of this, little of that. Do you have any kalhua? I know how he likes to present himself. Father's weakness is vanity. Hence the plot. Please see him, Jeffrey. He's a good man. And thorough. They call Los Angeles the City of Angels. I didn't find it to be that much, but I'll allow as there are some nice folks there. 'Course, I can't say I seen London, and I never been to France, and I ain't never seen no queen in her damn undies as the fella says. But I'll tell you what, after seeing Los Angeles and thisahere story I'm about to unfold wal, I guess I seen somethin' ever' hit as stupefyin' as ya'd see in any a those other places, and in English too, so I can die with a smile on my face without feelin' like the good Lord cheated me. </p>
<div>

</div>
<!-- Fill necessary code for column 3 here -->
<div class="col-sm-2 sidenav" id="col3">
<div>Categories</div>
<div class="well">
<a href="#">Advice from Our Experts</a>
</div>
<div class="well">
<a href="#">Our Blogs</a>
</div>
<div class="well">
<a href="#">How to Use Our Product</a>
</div>
</div>
</div>
</div>

```

Fig 4.7 Bootstrap Example contains navbar, grid system

4.4 Week 9 and Week 10

This week only, you have to submit udemy courses offered by the company as well as complete the exercises and the comprehensive skills exam. It was on our own as well as we had to learn how to use the database using Mysql and SQL. Since completing the online Udemy modules, we did the hands-on and then the on-the-the-job assessments. It was crucial to be able to explain more of the basics of the database this week so we covered the different facets of the database, including the structure, querying, and syntax with MySQL. In addition, it used HTML and CSS to design a functional web page.

It was created by Microsoft in conjunction with the idea of the relational database management framework, known as Microsoft SQL Server. As a database simply stores and retrieves the data that other programmes request—on the same or other computers (including the Internet). We believe there are at least a dozen distinct flavours of Microsoft SQL Server marketed to different audiences and consumers, with varying requirements, with up to tens of thousands of concurrently used systems in mind. It is divided into various subcomponents such as clauses, blocks, definitions, functions, commands, procedures, and clauses.

4.4.1 DDL and DML

In this week we started by learning basics of SQL. Like data definition language and data manipulation language. Also we have worked some of the basic hands-on of MySQL.

Examples of selecting data from database

```
Select * from customers ;
```

```
Using where clause – Select* from customers where name =' shivansh' ;
```

Alter Table customer

```
Set coloumns 1 = name;
```

These are some basic syntax and queries that can be used to manipulate and define data in MySQL.

4.4.2 Aggregate functions

The GROUP BY clause will group documents in a result set based on the values of one or more columns that are similar. It's sometimes used in conjunction with aggregate functions to query data from related documents. The GROUP BY clause may be placed after the FROM or WHERE clauses, but must come before any ORDER BY or LIMIT clauses.

The HAVING clause is used to filter the GROUP BY clause's outcome set classes. HAVING is often used in conjunction with logical operators to filter outcome sets into categories dependent on aggregate properties. Only records (rows) from years of more than 5 movies published each year will be returned by the specified question

Aggregate functions perform a calculation on a set of values and return a single value:

- COUNT()
- SUM()
- MAX()
- MIN()
- AVG()

4.4.3 Multiple Tables

In a SQL table, the primary key column is used to uniquely classify each document. It is impossible for a primary key to be NULL. Customer id is the unique Column so to find data from more than one table to access multiple table we have to use joins and correlated sub queries both of these have almost same type of functionality but we can use it in different ways.

There are many joins such as self join, inner join, left join, right join, full join all of these have some specific functionality and we can use it in specific cases

Just like joins subqueries are also there basically subqueries are used in just a way that the outer sub query runs for every inner sub query and forms a iteration to give the expected result.

There are two types of subqueries correlated and non correlated sub queries –

Non Correlated sub queries doesn't have a relation between them means inner subquery can also work independent of outer subquery but in case of Correlated subqueries inner subquery can't work without the working of outer subquery

For ex – Non correlated – select name from(select *id from bank) customers;

Correlated subquery – select id,name from(select c.count(id) , p.name from customer as c) people as p;

Chapter 5 Conclusion

5.1 Conclusion

I'm currently doing my intern with cognizant, and I've grown a lot through it. It's helped me shape my personality and equip me with the understanding of these innovations.

My last internship assignment is still with cognizant internship, and I will try my very utmost to complete it.

I'd like to express my gratitude in advance to the cognizant mentors, SME, tutor, and teacher who led me through my internship at cognizant and answered all of my questions. Coaches, Sme, Mentor, and Tutor were all pleasant people who assisted me if I made a mistake and influenced me during my internship.

My instructor, in particular, put in extra energy and during intern and forwarded all of our questions to the company's higher authorities, whether they were relevant to retaking the evaluation, logistical issues encountered during the assessment, or having more time to complete the project.

Since cognizant is a top fortune organisation in the technology industry, I would strongly advise my juniors to plan well for the offer and get the internship opportunity from the cognizant.

I'd like to express my gratitude to my TNP officer, Mr. Pankaj Kumar, and faculty member, Dr. Nafis.U Khan , for their assistance and dedication during entire placement period, as I understand how difficult it is to handle a placement drive.

Reference

1. Cognizant Hand book
2. Internship experience
3. Assessment
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shivansh_dubey_major

by Shivansh Dubey

Submission date: 21-May-2021 10:16PM (UTC+0530)

Submission ID: 1591297790

File name: final_report-converted.pdf (1.04M)

Word count: 5542

Character count: 27011

Chapter 1. Introduction

1.1 Background

To get a Gen-C position, you would take a position in a certain organisation until the internship is over. They placed us in an internship that is of 19 weeks in length, which consisted of training programs, webinars, Udemey classes, and project work projects.

Basic idea to provide us with the training program is to make us industry ready and thus train us in such a way that we can give our 100% in the business unit once we are deployed. Cognizant trains us on the basis of profile we get in the organization currently

I am in one of biggest training period provided by cognizant in terms of weeks also they provide us with so many free resources and a batch trainer who looks after our doubts and also takes technical session daily. We also have our coach and mentors who provide us with all the necessary domain knowledge and things that are booming in the industry right now so overall it is a good experience for a fresher to learn so many different things so early in our professional career. In addition to trainees, every year many colleges give associateships to graduates of cognizant courses of study. This candidate is impressive, since he or she comes from all across India.

They put a lot of time, effort, resources and money into teaching the intern before they start doing it in the real world. We are also provided with a real time project at the end of our internship which gives us a chance to apply all the necessary skills that we have learned through out our training period. And hence we provide with the solution and work with a proper team to learn the basics of team work and how team works in a project.

1.2 Values

By and large, these are the ideals of the organisation:

Their biggest asset is the employees. To keep high-quality partnerships with our customers, knowledgeable peers, retailers, the suppliers, community leaders, and the general public, we have to treat all of them with dignity.

We are working to gain long-term consumer satisfaction through respecting each individual's company and customer interests, as well as doing so with utmost dedication and honesty, and we want to have a long-term and positive impact on each customer by serving as an impartial adviser.

Everyone in the company will uphold the commitments to excellence, justice, integrity, and professionalism in all of their operations. Keys to Success:

1. Be upfront and truthful in completion of project
2. Finish the work on time
3. How can we finish the job ?
4. Finish the job on budget
5. SME mentors and trainers will provide us with all the necessary information and advice which we need to complete the tasks successfully
6. Open minded students are always appreciated

1.3 Objectives

In order to concentrate on what we are the company doing best, Cognizant would aim to focus on a few areas and be a national market leader. In Expanding the company to be simultaneously growth-inducing and manageable.

Chapter 2: Functional Testing

2.1 Stage 1 – QEA Basics

Starting up with some basics of testing we were initially given a course of UdeMy which was software testing complete bootcamp initially we study about types of testing and how testing is performed and what are the best practices used by a tester.

2.2 Week 1

Throughout the internship, all of the competency-based classes must be complete (not only the UdeMy ones). Since reading about the core quality assurance concepts in week 1, we worked on things like practical monitoring and app testing. Following the online UdeMy courses, we performed a quick hands-on, which was required for all interns, and then a lengthy final exam which was used for the performance assessment. As critical as covering all the bases of QEA, Agile, and **black box and white box testing** was for **the** creative part **of** this week, so that we will be able to design effectively.

2.2.1 Concepts Studied.

1. Flexible testing: reflects the principles of agile product growth. In contrast to the Waterfall testing, Agile testing can begin early in a project and works together with progress. The Agile Testing approach is non-iterative, not done in a certain order, but it is done during the creation phase.
2. A test plan for agile: Includes test data specifications, test environment conditions, and results from the previous version. Agile technique, as opposed to waterfall methodology, puts the focus on writing and revising a test plan each time a release is done. Agile test programmes usually include:
 1. Elements which are being experimented with
 2. Often known as either as function checking
 3. loading and stress testing
 4. Minimizing risk in the infrastructure Strategy implementation

To see if a system works or not Which is part of the testing phase to ensure that consistency goals are met. "Verification" and "as well as "validation" are components of the whole software development phase." The term "software testing" should not be limited to a single action. The methodical set of operations aid in the validation of your applications. The life cycle of software testing is referred to as an STLC.

phases of STLC are :

1. Analysis of Requirements
2. Test Preparation
3. The development of test cases and the establishment of a test environment
4. Execution of the Test
5. Closure of the Test Cycle

There are various types of testing which are well defined for various things .some of them are functional testing , non functional testing , black box testing, white box testing, smoke testing, regression testing

Some of the important type of testing includes ,

Black Box testing this type of tesing doesn't include internal technical knowledge to test a particular application but is used in vide variety of places

White Box testing this type of testing generally requires a knowledge of internal structure as well.

Retesting this is done when there is a particular type of update for an application so to ensure that all the other functionalities works fine this testing is done.

Regression testing this testing is also done to ensure the functionality of application is working fine after the update

Smoke testing this testing is also done for specific build functionality.

Chapter 3 Java Programming Fundamentals

3.1 Week-2

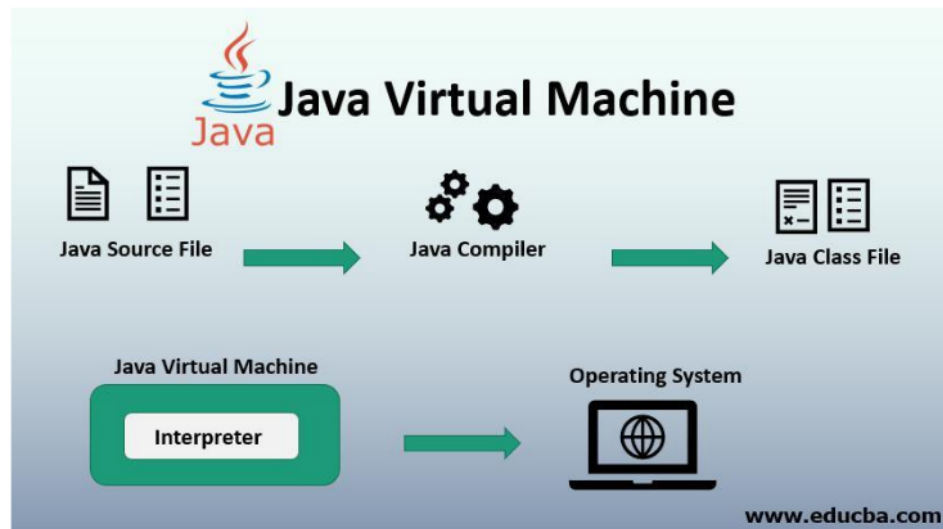
3.1.1 Java Overview

Java is a general purpose, class-oriented object-oriented programming, built for high-level, independent design. It lets Java developers write once and run on every computer that has a Java, eliminating the need for sacrificing functionality. Usually, Java programmes are compiled to bytecode, and run on every Java Virtual Machine (JVM) platform. C and C++ have identical syntax, but less low-level services. The Java Virtual Machine (JVM) features versatile functions (such as introspection and dynamic code execution). According to GitHub, Java is one of the most common programming languages for end - user web - based applications as of 2019. The Java programming language was created by Sun Microsystems and made available on Sun's Java programming language in 1995. These compilers, as well as the APIs, implementations, and DLLs, are distributed by Sun under non-open source licences. As the Java Community Design objectives are in use, Sun relicensed its Java innovations under GNU GPL. Oracle provides its own Virtualization Layer, however the default Vm, OpJVM, is open-source and used by many programmers on Linux distros. The new edition is Java 16, with the current stable long-term version launched on September 25, 2018. Oracle will launch the final no more minimal cost improvements for legacy Java 8 for commercial exploitation, but will keep providing public updates for Java 8 personal use as well.

These five were central to the design of Java: usability, security, portability, expressiveness, efficiency, scalability, and extensibility, performance, and versatility, and reliability.

3.1.2 JVM

At runtime, the JVM serves as a Java programme host. A JVM runs the code that invokes the key function that is included in a Java source file. Feature is needed for a successful installation of Java Runtime Environment. disposable from the wealth of acronyms All runs on Java, which ensures that if you can understand and write Java code, you can be certain it will work on every Java-powered machine. This can all be done because of the Java Virtual Machine (JVM). A .class file (which is a filename containing bytecode) is created whenever we compilation the .java document. This class file progresses through many distinct stages as it is executed. It gives you the entire picture of the Virtual machine



3.1.3 Java Identifiers

In computer languages, identifiers are used for the purpose of recognition. Any kind of name that can be used as a symbol can be called a class name, like variables, methods, constructors, and class names

3.1.4 Data Types

Java has 8 primitive data types which are used in almost every program that we code so it is very important for us to understand the basic primitive data types these are

Int, float, long, byte, short, char, double, Boolean these particular types are used in java but there are also some user defined data types like Array String objects etc.

3.1.5 Variables

Variables are generally the storage spots in which we store our values everything is stored in the memory stack before hand we use it that's why in java we cannot use a variable before it's declared and initialized. Each variable holds a spot in memory and we use variables almost in every type of program so it is very necessary that variable naming convention and how to initialize and declare it is well known before it's use there can be static and non static variables A static variable cannot be referenced and its value can not be changed by referencing but non static variable can be changed by the help of new keyword

3.1.6 Type conversion

In java there are two types of conversion explicit and implicit in explicit conversion we specifically tell the compiler to convert a data type to another data type but java uses the concept of auto boxing to convert the data type to another data type implicitly. Also we have the concept of wrapper class in java so it is also very useful in conversions as it has in built functions to perform certain conversion.

3.1.7 Loops

Loops are the most powerful tool in any programming language these are also used almost in every program we provide it some instructions and on the basis on that instruction we can iterate over and over again to perform particular task FOR loops are provided by for various reasons, but this is one of the more notable ones. As compared to a while loop, a for loop initialises, tests, and increments/decrements in one sentence, the for method offers simpler, readable form in which iterates a certain number of times.

There are two versions of the while loop; while, which only verifies the position after performing states in the block, and do while, which tests for the conditions while performing sentences.

3.1.8 Decision making

Programming choices are the same as life-altering choices. We sometimes require a line of statement to be executed for such circumstances in programming, circumstances that have been predetermined. They're programmed by a computer such that when the software changes, the flow of operations changes as well.

If the state is true, the blocks will be executed. Unless, of course, we prefer to do something else. Here's where the if comes in. We will use the Else Statement to execute the following sentence of statement if a condition is wrong

```
if (condition) {  
    // block of code to be executed if the condition is true  
}
```

Fig 3.2 Syntax for if statement

3 if statements mean an if statement inside an if statement. **1** Switch-Case The switch statement is a multiway branch statement. It provides an easy way to dispatch execution to different parts of code based on the value of the expression.

3 The RETURN statement is used to explicitly return from a method. That is, it causes a program control to transfer back to the caller of the method

4 3.1.9 Static Variable

A static element is also known as a class variable which is often considered a static. You can access it by class name or using its value and is exclusive to the class, but not always.

4 3.1.10 Non Static variable

Any variable of a class which is not static is called a non-static variable or an instance variable

3.1.11 Classes and Objects

Object-Oriented Programming is built on object - oriented as their core principle revolve in the actual world. Objects are derived from class-A classes; Class-A classes are self-defined blueprints or mock-ups that aid in the construction of others. The property or process may be called from every entity of that kind. This part will appear in a class declaration, generally::

A class may be public or a member function may provide public access.

Class defines a type which is used to define a type, whether it is well-designed. A letter, and then be followed by additional letters, numbers, or numbers, that are each followed by an alphabetically-delimited sequence of underscores" best-and-division classification)if some (parent) class name is followed by the term "extends", then a parent class extends class A class may only be a subset of one class. combination of features the class name and their inclusion in the section, if any, if present. More than one user type should be used to enforce an interface.

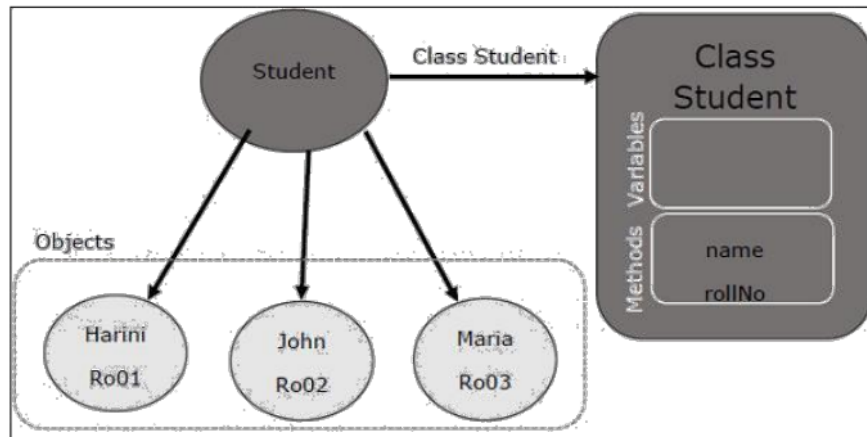


Fig 3.3 Relationship between class and object in JAVA

3.1.12 Interfaces

Class methods, while the variables declared inside an implementation are by concrete, by design . A class interface defines what it must do, but not how. This is the class's strategy. an interface consists of capabilities such as an interface-capable It indicates what procedures the class would adhere to. Complete abstraction is best realised with music. Multiple inheritance is not possible in Java, but having an implementation achieves it. In addition, it is utilised to facilitate loose pairing. Art is used to approximate truth.

As a result, again, then, why do we use class hierarchies if we are not using concrete ones? cloaking the particular structure, but hiding the functionality from the public The fact that abstract classes represent the concept of showing/hiding .

3.1.13 Abstraction

Data Abstraction leaves out the unnecessary information such that only the important facts appear to the viewer. The marginal or the non-essentials units are never shown to the customer. Ex: A car is regarded as an automobile rather than its particular components.

Hide-and-and-polymorph groups and Polymorph-only approaches An arbitrary class is created with the superclass. An abstract method must be formulated without defining any concrete data and must be defined without describing the code..

3.1.14 encapsulation

⁶ The packing up of data into a single device is known as encapsulation. It's the glue that holds coding and the information it tries to manipulate together.

3.1.15 Run Time Polymorphism

⁹ Polymorphism is one of the aspects that Java embraces the notion of method overriding. Java looks up the instance method to call when an overridden method is invoked from a superclass reference. To conclude, this is all decided on the fly. Method execution relies on the form of the object being invoked.

Overloading makes methods have the same name, but various parameter types and different numbers of input parameters, while boxing restricts methods to just have the same name.

3.2 Week – 3

3.2.1 Collections

All items that are seen as a single entity are classified as an array. The “Collection Framework” was used as a separate project, holding all of the collections groups and their associated interfaces. A program is a system of pre-made classes and objects that makes an architecture easier to design.

The below are some of the benefits of the Collection Framework:

1. API that is consistent
2. Increases software pace and consistency thus reducing programming commitment.
3. The Object Interface expands the iterable interface which is enforced by all of the collection new framework classes. This gui includes many of the simple methods that any database has, such as applying data to the collection, extracting data from the collection, removing data, and so on.

3.2.2 Iterators

In the Collection system, iterators are used to go over a list and extract items one at a time. Each of the three ideas is an iterator. Enumeration This is used to retrieve items from existing collections . It works for every Collection object; it's an iterator in all collections. Use Iterator, they can read and delete operations at the same time. This is an enhanced variant of Enumeration that provides the feature of having an aspect that can be removed. List Iterators like Array List are just to be used for list, LinkedList and several other collections. With bi-directional possibilities In applications where we need to walk the elements of a List, we must use a List Iterator. This cursor offers a greater variety of features than the iterator. This is similar to the Java collection framework which is an implementation of the

Collection interface. This list is used to provide a skeletal application of the List interface, using a database as the underlying data warehouse .

AbstractSequentialList should be preferred to this type of associative list for linked list results.

3.2.3 ArrayList

A List is a built-in component of the Java programming interface which exists in the java.util.kit. Dynamically generated arrays in Java is a great thing. Though that may be faster than regular arrays, such arrays may be extremely helpful in highly dynamic software programmes, particularly when quite a lot of simulation is involved. In the java.util.concurrent bundle, this class is located.

3.2.4 HashMap

The HashMap class is a member of the set APIs. In the java.util.concurrent bundle, this class is located. It implements the basics of the Java Map interface. The dataset may be accessed through two types of indexes: (Key and Value) and a user defined sequence number . Concepts refer to other concepts; one concept refers to another; an idea points to ideas . If you attempt to repeat the key, the variable is automatically replaced. Unsynchronized Hash function is somewhat close to the Hash Map.

3.2.5 Sets

The Java.util.util.Set interfaces provide an attribute type where duplicate values are not allowed to be kept. It consists of a mathematical series. Providing the java.util.util.Set implementation

Since the HashSet class is a part of the code, it is efficient at implementing a hash table.Enum set class, which is available on the collection's API, has been one of the enumeration types using the set protocol.

3.2.6 Exception Handling

An anomaly is an unnecessary or accidental occurrence, which happens during the program's operation, such as a run-time failure, which is usually considered an exception in all applications.

Since it supports exceptions such as `ClassNotFoundException`, `IOException`, `SQLException`, and others, exception management is needed for programs to be robust. Exception management preserves natural system behavior. For error management, an exception usually interferes with the usual flow of the program.

3.2.7 File Handling

With the aid of the `java.io` kit, you can do virtually every operation involving endpoints in Java. All these things go to or have come from an input or an output system. As part of the `java.io` kit, the stream offers numerous built-in data types including primitives, objects, localizable strings, and more.

It is a series of data represented as a river. Streams may be divided into two classes:

clearly noxious and harmless.

Source – To interpret metadata, use the `Source`. To write data to a target, use the `OutputStream`. The aim of the Byte Streams in Java is to transfer ASCII characters and to read and display 8-bit bytes. While there are several file input/output stream-related classes, the most commonly encountered ones are those that are subclasses of class `java.io.InputStream`. `READ`, `WRITE` the whole files

A stream is a flow of data. The origin stream reads data and the target is where it is written.

3.3 Week 4

3.3.1 Java JDBC

Java JDBC connectivity is a very strong tool which can act as a API for Database and front end. A query API can query the database and gives out a specific result we have used this jdbc API in our hands on as well as assessments also jdbc is used as we can query using java and data base connection is very important for backend working. `JAVA DATABASE CONNECT` is, in short, has the same functionality as JDBC, thereby enabling non-database-specific applications to run on any and all Java programs.

Chapter 4 Web UI interface and Data Source

4.1 Week 6

In this particular week we were required to complete the courses offered by udey in HTML and learn x path and xml, Jason from scratch to apply on various front end ui written in HTML and build a solid foundation in basics of selenium web drivers.

4.1.1 HTML

For Html we are acquired with one course which focus on hmtl basic tags and how css works Html is core of any web application because it provides us with the structure of web page in this course we learned about some basic tags which are very necessary to start with HTML also I have done some hands on and quizzes regarding the topics

Basic Tags used in html are:

<Html>

<title>

<head>

<p>

<body>

<div>

<class> etc.

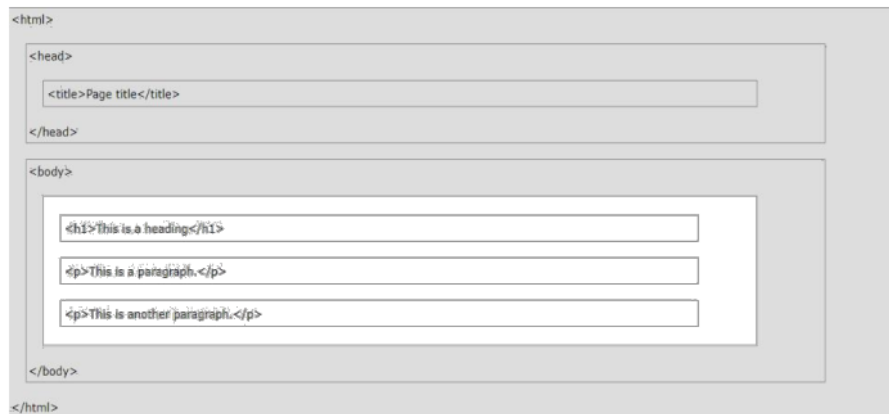


Fig 4.1:HTML Page Structure

```

<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>TravelClient</title>
  <base href="/">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta3/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-e
```

Fig 4.2: Sample of HTML code

4.1.2 XML

This is a type of markup language which is used without using any predefined tags we can define our own tags based upon the type of scenario or case study is given xml documents are often received and hence we should be able to do hands on regarding this topic so we were also provided with some case study were we have to write the Xml file.

XML isn't a suffix, it's a declarative. The **H**ypertext Transfer Protocol (HTTP) is commonly used for the transport of report **information**

```
<?xml version = "1.0" encoding ="UTF-8">
```

Hands on for xml :

A small business has one department. That department has one employee. The employee details is given in the table below.

Parent Element is "Department"

Employee

| empid | name | salary | email | phoneno |
|-------|------|--------|---------------|------------|
| 1001 | Tom | 20000 | tom@gmail.com | 9874563210 |

```

<Department>
  <Employee>
    <empid>1001</empid>
    <name>Tom</name>
    <salary>20000</salary>
    <email>tom@gmail.com</email>
    <phoneno>9874563210</phoneno>
  </Employee>
</Department>
```

Fig 4.3 XML Document For Employee and Department

4.1.3 JSON

JSON is a language-agnostic way of expressing data that uses a text format built on JavaScript object syntax. This is often seen in the context of "the technique used to convey data around the internet in websites" you may encounter it often, so here we can see a sample Jason doc where formatting is correct.

```
{
  "squadName": "Super hero squad",
  "homeTown": "Metro City",
  "formed": 2016,
  "secretBase": "Super tower",
  "active": true,
  "members": [
    {
      "name": "Molecule Man",
      "age": 29,
      "secretIdentity": "Dan Jokes",
      "powers": [
        "Radiation resistance",
        "Turning tiny",
        "Radiation blast"
      ]
    },
    {
      "name": "Madame Uppercut",
      "age": 39,
      "secretIdentity": "Jane Wilson",
      "powers": [
        "Million tonne punch",
        "Damage resistance",
        "Superhuman reflexes"
      ]
    },
    {
      "name": "Eternal Flame",
      "age": 1000000,

```

Fig 4.4 Sample of JSON

4.2 week 7

At the end of this week, everybody would have to take online Udemy courses offered by Cognizant to finish the hands-on, in-person assignments and get an online evaluation score greater than 70%. In this particular course we have to learn about java script this light weight language is very powerful in combining with web pages and provide them customization power .

Java Script is used to create scripts for html pages to provide them customization and extra functionality In browser-based environments, CouchDB, Adobe Acrobat, and Node.js are among the prime examples. prototype-based, multi-paradject, multi-structured, JavaScript; prototype-based, single-threaded, object-oriented, interactive Learn more about the JavaScript language.

Java script also supports objects data types variables and data structures so that's why this language is also used by many candidates in competitive programming as well In the udemy course we learned about basic things of js but we also get a chance to work on hands on where we used HTML and js to build a small web site for retrieving weather information using API call.

```
index.html | script.js
1 function displayAddress() {
2
3     var name=document.getElementById("name").value;
4
5     var street = document.getElementById("street").value
6     // Fill your code to get the street element - by id "street" and store it in
7     var city = document.getElementById("city").value
8
9     // Fill your code to get the city element - by id "city" and store it in the
10
11     // HINT: use the above "name" as sample to get "street" and "city"
12
13     // Fill your code here
14
15     // if 'name' or 'street' or 'city' is empty then display error message using
16     if(street==" " || city==" ")
17     {
18         document.getElementById("msg").innerHTML = "Address cannot be empty"
19     }
20     // if 'name' or 'street' or 'city' is not empty then display the address usi
21     else{
22         document.getElementById("msg").innerHTML = name + " "+street+ " "+city;
23     }
24 }
```

Fig 4.5 Sample Javascript Code.

4.3 Week 8

We just have to do two things this week: accept the UdeMy courses that are offered by the company and learn css as well as boot strap for enhancing front end ui and also work for some basic projects

4.3.1 CSS

CSS refers to cascading style sheet now this is also one of the most powerful thing to make our websites more cool looking and beautiful we can use css in two ways inline css and outline css we can use css in hml doc or we can make a separate style sheet and use it to enhance our website for this week we are also provided with some hands on where we have to complete several html files and use css to enhance it.

5 CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes. CSS (Cascading Style Sheets) is the code that styles web content. Like HTML, CSS is not a programming language. It's not a markup language either. CSS is a style sheet language. CSS is what you use to selectively style HTML elements

```
body {
  background-color: lightblue;
}

h1 {
  color: white;
  text-align: center;
}

p {
  font-family: verdana;
  font-size: 20px;
}
```

Fig 4.6 CSS Code

4.3.2 Bootstrap

This intuitive and mobile-first CSS platform is free and open source. It includes concept templates in the form of CSS and JavaScript.

sites by making it work the same across all different platforms, including desktops, tablets, smartphones, and TVs (as opposed to web apps). It's to use Bootstrap's paint, scale, font, and style options to your web project. For that purpose, the most important thing is to evaluate the designers. Both HTML items in the project are styled with Bootstrap after they have been applied to a Bootstrap project. They produce more-or-less monotonous appearance for prose, tables, and heterogeneous appearance for type elements through web browsers. It is also possible for developers to use Bootstrap classes to modify their content further by taking advantage of them. Bootstrap has headings in either light or dark colours, bigger text, different pull quotations, and bold headings, and some text with a standout. Many of the Bootstrap features are those that impact the whole website. The component element is referred to as "Container", as all other page elements are attached to it. Either a fixed-width container or a fluid-width container is accessible. On the width of the web page, always. But, based on the height of the computer, the width of the web page can vary.

Along with other JavaScript libraries such as jQuery plugins, Bootstrap often provides JavaScript components in the form of plugins. Any jQuery UI plugins have extra configuration elements such as boxes, tooltips, carousels, and rollovers. To know what Bootstrap's components are, you should use the official documentation. The fields also get additional features, for example, auto-completion. You'll still use our regular grid structure while using Bootstrap containers. Containers have three important functions: they are used to store, pad, and sometimes to divide up the material. In the vast majority of cases, however, a nested container is not needed.

Bootstrap framework is very easy to use and there is an official documentation available for using bootstrap which can be found on their official website

4.4 Week 9 and Week 10

This week only, you have to submit udemy courses offered by the company as well as complete the exercises and the comprehensive skills exam. It was on our own as well as we had to learn how to use the database using Mysql and SQL. Since completing the online Udemy modules, we did the hands-on and then the on-the-the-job assessments. It was crucial to be able to explain more of the basics of the database this week so we covered the different facets of the database, including the structure, querying, and syntax with MySQL. in addition, it used html and css to design a functional web page

It was created by Microsoft in conjunction with the idea of the relational database management framework, known as Microsoft SQL Server. As a database simply stores and retrieves the data that other programmes request—on the same or other computers (including the Internet). We believe there are at least a dozen distinct flavours of Microsoft SQL Server marketed to different audiences and consumers, with varying requirements, with up to tens of thousands of concurrently used systems in mind. It is divided into various subcomponents such as clauses, blocks, definitions, functions, commands, procedures, and clauses

4.4.1 DDL and DML

In this week we started by learning basics of sql Like data definition language and data manipulation language also we have worked some of the basic hands on of my SQL .

Examples of selecting data from database

Select * from customers ;

Using where clause – Select* from customers where name =' shivansh' ;

Alter Table customer

Set coloumns 1 = name;

These are some basic syntax and queries that can be used to manipulate and define data in MYSQL.

4.4.2 Aggregate functions

The GROUP BY clause will categorize documents in a result set based on the values of one or more columns that are similar. It's sometimes used in conjunction with aggregate functions to query data from related documents. The GROUP BY clause may be placed after the FROM or WHERE clauses, but must come before any ORDER BY or LIMIT clauses.

The HAVING clause is used to better sort the GROUP BY clause's outcome set classes. HAVING is often used in conjunction with logical operators to filter outcome sets into categories dependent on aggregate properties. Only records (rows) from years of more than 5 movies published each year will be returned by the specified question

10

Aggregate functions perform a calculation on a set of values and return a single value:

- COUNT()
- SUM()
- MAX()
- MIN()
- AVG()

4.4.3 Multiple Tables

In a SQL table, the primary key column is used to uniquely classify each document. It is impossible for a primary key to be NULL. Customer id is the unique Column so to find data from more than one table to access multiple table we have to use joins and correlated sub queries both of these have almost same type of functionality but we can use it in different ways.

11

There are many joins such as self join, inner join, left join, right join, full join all of these have some specific functionality and we can use it in specific cases

Just like joins subqueries are also there basically subqueries are used in just a way that the outer sub query runs for every inner sub query and forms a iteration to give the expected result.

There are two types of subqueries corelated and non corelated sub queries –

Non Corelated sub queries doesn't have a relation between them means inner subquery can also work independent of outer subquery but in case of Corelated subqueries inner subquery can't work without the working of outer subquery

For ex – Non corelated – select name from(select *id from bank) customers;

Corelated subquery – select id,name from(select c.count(id) , p.name from customer as c) people as p;

Chapter 5 Conclusion

5.1 Conclusion

I'm currently doing my intern with cognizant, and I've grown a lot through it. It's helped me shape my personality and equip me with the understanding of these innovations.

My last internship assignment is still with cognizant internship, and I will try my very utmost to complete it.

I'd like to express my gratitude in advance to the cognizant mentors, SME, tutor, and teacher who led me through my internship at cognizant and answered all of my questions. Coaches, Sme, Mentor, and Tutor were all pleasant people who assisted me if I made a mistake and influenced me during my internship.

My instructor, in particular, put in extra energy and during intern and forwarded all of our questions to the company's higher authorities, whether they were relevant to retaking the evaluation, logistical issues encountered during the assessment, or having more time to complete the project.

Since cognizant is a top fortune organisation in the technology industry, I would strongly advise my juniors to plan well for the offer and get the internship opportunity from the cognizant.

I'd like to express my gratitude to my TNP officer, Mr. Pankaj Kumar, and faculty member, Dr. Nafis.U Khan , for their assistance and dedication during entire placement period, as I understand how difficult it is to handle a placement drive.

shivansh_dubey_major

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