

# ONLINE JOB SEARCH SYSTEM

Project Report submitted in partial fulfillment of the requirement for  
the degree of

Bachelor of Technology.

in

**Computer Science & Engineering**

under the Supervision of

*Ms. Nishtha Ahuja*

By

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to



Jaypee University of Information and Technology

Waknaghat, Solan – 173234, Himachal Pradesh

## ***Certificate***

This is to certify that project report entitled “Online Job Search System”, submitted by Tanya Gera in partial fulfillment for the award of degree of Bachelor of Technology in Computer Science & Engineering to Jaypee University of Information Technology, Waknaghat, Solan has been carried out under my supervision.

This work has not been submitted partially or fully to any other University or Institute for the award of this or any other degree or diploma.

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**Designation**

**Assistant Professor(Grade-1)**

**Signature**

**Date:**

**15/05/2015**

## **ACKNOWLEDGEMENT**

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Tanya Gera

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# 1. ABSTRACT

## 1.1 INTRODUCTION TO JAVA:

Java is an object oriented platform independent programming language. It provides many object oriented features such as, simple, object oriented, robust, and secure, Architecture Neutral, portable, Interpreted Multithreaded and dynamic. It provides tools for developing GUI tools like windows, Button, Text, Scrollbar, label etc. we can do web-based programming etc.

## 1.2 INTRODUCTION TO JDK:

The Java Development Kit (JDK) is a Sun Microsystems product aimed at Java developers. Since the introduction of Java, it has been by far the most widely used Java SDK. On 17 November 2006, Sun announced that it would be released under the GNU General Public License (GPL), thus making it free software. This happened in large part on 8 May 2007 and the source code was contributed to the OpenJDK.

The JDK has as its primary components a selection of programming tools, including:

- `java` – The loader for Java applications. This tool is an interpreter and can interpret the class files generated by the `javac` compiler. Now a single launcher is used for both development and deployment. The old deployment launcher, `jre`, no longer comes with Sun JDK.
- `Javac` – The compiler, which converts source code into Java byte code.
- `jar` – The archiver, which packages related class libraries into a single JAR file. This tool also helps manage JAR files.
- `javadoc` – The documentation generator, which automatically generates documentation from source code comments.
- `jdb` – The debugger.
- `javap` – The class file disassembler.

- appletviewer – This tool can be used to run and debug Java applets without a web browser.
- javah – The C header and stub generator, used to write native methods.
- javaws – The Java Web Start launcher for JNLP applications.
- extcheck – This utility can detect JAR-file conflicts.
- apt – The annotation-processing tool
- jhat – (Experimental) Java heap analysis tool.
- jstack – (Experimental) This utility prints Java stack traces of Java threads.
- jstat – (Experimental) Java Virtual Machine statistics monitoring tool.
- jstatd – (Experimental) jstat daemon.
- jinfo – (Experimental) This utility gets configuration information from a running Java process or crash dump.
- jmap – (Experimental) This utility outputs the memory map for Java and can print shared object memory maps or heap memory details of a given process or core dump.
- idlj – The IDL-to-Java compiler. This utility generates Java bindings from a given IDL file.
- policytool – The policy creation and management tool, which can determine policy for a Java runtime, specifying which permissions are available for code from various sources.
- VisualVM – visual tool integrating several command line JDK tools and lightweight performance and memory profiling capabilities.
- wsimport – Generates portable JAX-WS artifacts for invoking a web service.

## **1.3 INTRODUCTION TO SERVLET:**

A servlet is a Java programming language class used to extend the capabilities of servers that host applications accessed via a request-response programming model. Servlet dynamically extend the functionality of a Web server. Although Servlet can respond to any type of request, they are commonly used to extend the applications hosted by Web servers like Apache tomcat, JBoss, Web logic etc. For such applications, Java Servlet technology defines HTTP-specific Servlet classes.

## **1.4 INTRODUCTION TO JSP:**

Java Server Pages (JSP) is a Java technology that allows software developers to create dynamically-generated web sites, with HTML, XML, or other document types, in response to a Web client request. The technology allows Java code and certain pre-defined actions to be embedded into static content.

The JSP syntax adds additional XML-like tags, called JSP actions, to be used to invoke built-in functionality. Additionally, the technology allows for the creation of JSP tag libraries that act as extensions to the standard HTML or XML tags. Tag libraries provide a platform independent way of extending the capabilities of a Web server.

JSPs are compiled into Java Servlets by a JSP compiler. A JSP compiler may generate a servlet in Java code that is then compiled by the Java compiler, or it may generate byte code for the servlet directly. JSPs can also be interpreted on-the-fly, reducing the time taken to reload changes.

Architecturally, JSP may be viewed as a high-level abstraction of servlets that is implemented as an extension of the Servlet 2.1 API. Both servlets and JSPs were originally developed at Sun Microsystems.



## **1.5 INTRODUCTION TO JAVA DATABASE CONNECTIVITY (JDBC):**

The Java Database Connectivity (JDBC) API is the industry standard for database-independent connectivity between the Java programming language and a wide range of databases – SQL databases and other tabular data sources, such as spreadsheets or flat files. The JDBC API provides a call-level API for SQL-based database access.

## **1.6 INTRODUCTION TO REMOTE METHOD INVOCATION (RMI):**

Java Remote Method Invocation (Java RMI) enables the programmer to create distributed Java technology-based to Java technology-based applications, in which the methods of remote Java objects can be invoked from other Java virtual machines, possibly on different hosts. RMI uses object serialization to marshal and unmarshal parameters and does not truncate types, supporting true object-oriented polymorphism.

## **1.7 INTRODUCTION TO XML:**

XML is a text-based markup language that is fast becoming the standard for data interchange on the Web. As with HTML, you identify data using tags

(Identifier enclosed in angle brackets, like this: <...>). Collectively, the tags are known as "markup". XML documents are made up of storage units called entities, which contain either parsed or unparsed data. Parsed data is made up of characters, some of which form character data, and some of which form markup.

## **1.8 INTRODUCTION TO MY SQL 5.0:**

Structured Query Language (SQL) is a specialized language for updating, deleting, and requesting information from databases. SQL is an ANSI and ISO standard, and is the de facto standard database query language. In a distributed database system, a program often referred

to as the database's "back end" runs constantly on a server, interpreting data files on the server as a standard relational database. Programs on client computers allow users to manipulate that data, using tables, columns, rows, and fields. To do this, client programs send SQL statements to the server. The server then processes these statements and returns replies to the client program.

## **1.9 INTRODUCTION TO APACHE TOMCAT:**

Apache Tomcat is a servlet container developed by the Apache Software Foundation (ASF). Tomcat implements the Java Servlet and the Java Server Pages (JSP) specifications from Sun Microsystems, and provides a "pure Java" HTTP web server environment for Java code to run. Apache Tomcat includes tools for configuration and management, but can also be configured by editing XML configuration files.

Components:

### **Catalina**

Catalina is Tomcat's servlet container. Catalina implements Sun Microsystems' specifications for servlet and Java Server Pages (JSP). The architect for Catalina was Craig McClanahan.

### **Coyote**

Coyote is Tomcat's HTTP Connector component that supports the HTTP 1.1 protocol for the web server or application container. Coyote listens for incoming connections on a specific TCP port on the server and forwards the request to the Tomcat Engine to process the request and send back a response to the requesting client.

### **Jasper**

Jasper is Tomcat's JSP Engine. Jasper parses JSP files to compile them into Java code as servlets (that can be handled by Catalina). At runtime, Jasper is able to automatically detect JSP file changes and recompile them

## **1.10 INTRODUCTION TO HTML:**

HTML, initials for Hypertext Mark-up Language, is the predominant markup language for web pages. It provides a means to describe the structure of text-based information in a document—by denoting certain text as links, headings, paragraphs, lists, etc.—and to supplement that text with *interactive forms*, embedded *images*, and other objects. HTML is written in the form of "tags" that are surrounded by angle brackets. HTML can also describe, to some degree, the appearance and semantics of a document, and can include embedded scripting language code (such as JavaScript) that can affect the behavior of Web browsers and other HTML processors.

.

## **1.11 INTRODUCTION TO JAVASCRIPT:**

JavaScript is a scripting language used to enable programmatic access to objects within other applications. It is primarily used in the form of client-side JavaScript for the development of dynamic websites. JavaScript is a dialect of the ECMAScript standard and is characterized as a dynamic, weakly typed, prototype-based language with first-class functions.

## **1.12 INTRODUCTION TO INTERNET EXPLORER:**

Internet Explorer has been designed to view a broad range of web pages and to provide certain features within the operating system, including Microsoft Update. It is a browser that allows the subscriber to access and read information on the World Wide Web. Internet Explorer uses a zone-based security framework that groups sites based on certain conditions, including whether it is an Internet- or intranet-based site as well as a user-editable white list. Security restrictions are applied per zone; all the sites in a zone are subject to the restrictions.

### **1.13 INTRODUCTION TO MS WINDOWS XP:**

The Java requires that a source file use the .Java extension. The file extension is four characters long. The operating system must support long file names. It means that DOS and Windows 3.1 are not capable of supporting Java. However Windows XP work just fine. And it is also faster among other operating system.

### **1.14 INTRODUCTION TO MS-WORD:**

MS-Word is documentation software which allows the subscriber to editing, modifying, updating and formatting to the text in the document.

### **1.15 INTRODUCTION TO MS-POWERPOINT:**

MS-PowerPoint is presentation software which allows the subscriber to present presentation of project. It enables users to quickly create high-impact, dynamic presentations, while integrating workflow and ways to easily share information. From the Microsoft Office Fluent user interface to the new graphics and formatting capabilities, Office PowerPoint puts the control in your hands to create great-looking presentations

## 2. Introduction

The objective of the project is to design and develop Online Recruitment Site which is a place for Job Seekers and Job Providers to meet. The Data base should collect also the minute details about the Job Seeker and Provider. Resume Mart is designed to collect multiple resumes from the Job Seeker. Resume Mart aim is to provide Job Provider with enormous amount of data.

### **System:**

#### **1. Designing and Implementing Job Seekers & Job Providers:**

The aim of this module is to collect data from the user; he may a job seeker or a job provider. Both of them are potential clients to our Resume Art. A user should be registered regardless of whether he is a job seeker or a provider. In this module we register the user and grab as many details as possible about the user.

#### **2. Designing and implementing Resume Database, job database**

The aim of the module is to create a resume for all his job seekers asking the details about the experience, education, skills, affiliations and references for the project.

#### **3. Designing a Recruitment System**

The aim of the module is to design a dynamic search engine for the Resume art data base which can provide data for the job seekers and job providers

### **3. OBJECTIVE**

The proposed Software can be viewed as a mechanism by which it can reduce unemployment and increase productivity. Unemployment is reduced when information on job openings are made available to currently unemployed people who may otherwise find it difficult to obtain this information. Productivity increases when employee organizations are provided with a wide choice of available skills and thereby enable them to select the best resources. Earlier, since they lacked this choice, they may have settled for what was available rather than what was the best available.

Information on job openings provides not just the scope for employment but also the scope for choice of job. People who look forward to their next move in their career can now look at the site to identify prospective organizations where their desired job openings exist.

**The client/user objective of the system is as follow.**

A GUI based application.

To keep details of each and every job.

**Some of the programmer's objectivities are –**

Better component design to get better performance at peak time

Flexible service based architecture will be highly desirable for future extension.

# TOOLS

## **HARDWARE –SPECIFICATION:**

PROCESSOR:	Intel® Core CPU @2.4Ghz
RAM:	4 GB
SYSTEM	x64 bit based processor

## **SOFTWARE – SPECIFICATION:**

Software consists of sets of instructions that moulds the raw arithmetic and logical capabilities of the hardware units to perform. The following software tools have been used to finalize the project. It is the basic requirement of the Online Job Search System project.

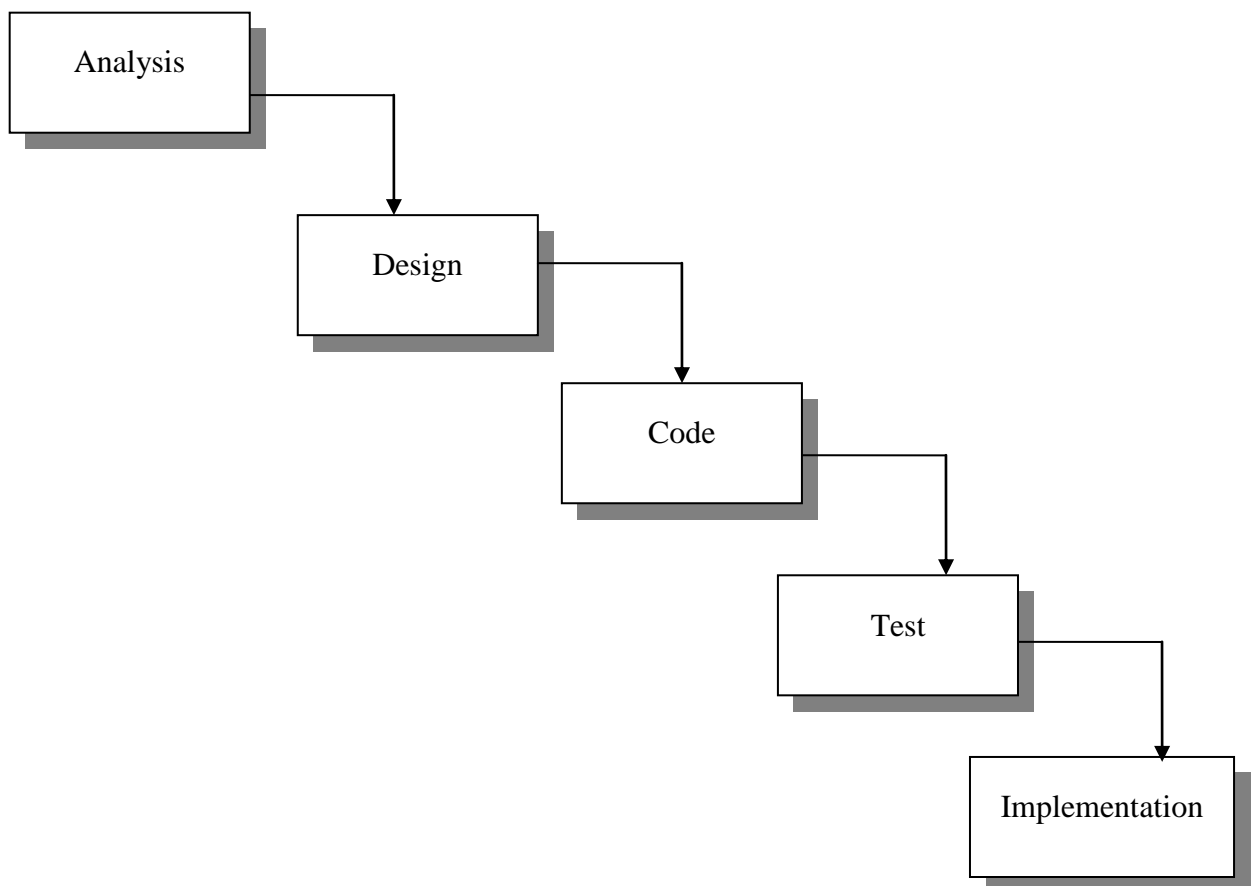
### **JDK 1.5**

<b>Programming Language</b>	: JAVA, JDBC
<b>Web Tools</b>	: JSP, SERVLET, JDBC, HTML, XML.
<b>Web Server</b>	: Apache Tomcat 6.0.
<b>RDBMS</b>	: MySQL 5.0
<b>Operating System</b>	: Windows 8.1 Pro
<b>Utility Software</b>	: MS-Office 2007(MS-Word, MS-Power point)

## 4. Software Engineering Paradigm Applied

Software Engineering is a technique to develop good software with systematic ways. A process model or a software engineering paradigm is chosen based on the nature of the project and application, methods to be used, and the controls and deliverables that are required.

### 4.1 Waterfall Model for Online Job Search System:





## 5. ANALYSIS DOCUMENT

System Analysis is the starting point for system design. The term is most commonly used in the context of commercial programming, where software developers are often classed as either systems analysts or programmers. The systems analysts are responsible for identifying requirements (i.e. systems analysis) and producing a design. The programmers are then responsible for implementing it.

Software development is a challenging activity. Today the systems are steadily growing in size. They are progressively becoming more complex. User requirement becoming are tending to be dynamic in nature, challenging technical scenario shorter dead times and no availability of personal make. The task of development more challenging as the management always depends upon accurate and timely information and arises for powerful tool, which could process data from different areas, interconnected and produce the information in time.

The proposed system contains the following: --

Error can be avoided.

Data interpretation, processing and maintenance can be done effectively.

Data validation is performed at necessary stage.

A separate database for every form is available.

Search option is provided whenever required.

Time effective & easy processing

Flexible to make changes & can be used for a long time.

## **6. PROBLEM IDENTIFICATION:**

Problem identification is very first step of system analysis and is One of the most difficult tasks of system analysis is developing a clear, in-depth understanding of the problem being investigated, without which it becomes impossible to specify the requirements for a new project with any accuracy. Several questions should be posed for this.

### **Organizations usually face problems or have opportunity due to the following:**

- a new product or plant or branch
- a new market or new process
- failure of an existing system
- inefficiency of an existing system
- Structural error in the existing system, etc.

### **For identifying problems/opportunities, we scan the following:**

- the performance of the system
- the information being supplied and its form
- the economy of processing
- the control of the information processing
- the efficiency of the existing system
- the security of the data and software
- the security of the equipment and personnel, etc.

### **IDENTIFICATION OF NEEDS:**

One must know what the problem is before it can be solved. The basis for the Online Job Search System is recognition of a need for developing a system or procedure. This involves a preliminary study or initial investigation to determine whether a new Online Job Search System can solve the problem. It entails looking into an inefficient existing procedures or whether parts of the existing system would be candidate for computerization. Before start working on a web based Online Job Search System we need to understand why we want this automated system at the first place.

The present day organization work can be classified in to two forms, one is the manual system and other one is the integrated computerized system. In manual system all work are done manually on paper. Lots of paper work is been done in order to enter new connection records. The data which manual systems have in common has to be provided separately to different departments resulting in lots of inter departmental paper work and also simultaneous updating of records is almost impossible. Existing system in the organization is manual system which has all the drawback of it.

As far as computerized Online Job Search System is concern, it will minimize the inter departmental paper work. Afterwards it is only a process of manipulation and consolidation to convert it to any form desired by the users. Theirs design and development activities take much longer time than the corresponding activities for the manual systems but their long terms benefits compensate for the additional overheads.

To know more about the needs of Online Job Search System, we need to do some preliminary investigation and for that we use various fact gathering techniques.

#### **PRELIMINARY INVESTIGATION:**

The heart of system analysis is aimed at having a detailed understanding of all the important facts of the project under consideration Analyst work closely with managers and employees and try to find out the answer of the following questions.

What is being done in the organization?

How it is being done?

How frequently does department send order requests?

How big is the volume of transactions or decisions?

How well the task is being performed?

In order to answer the questions mentioned above we need to completely analyze the workings of the organization, analyze the previous system, analyzing the requirements of users and proposing the solution for new system design. To do this I have done feasibility study and used fact finding techniques.

## **FACT FINDING TECHNIQUES:**

Data collection is an important part of analysis. This can be accomplished using fact finding techniques to gather information from the users. The following fact finding techniques are used for this purpose.

- Interviews
- Questionnaires
- Record inspections (on site review)
- Observation

Normally more than one of the techniques is used to ensure accurate investigation. I have reviewed records, have analyzed documents and also conduct interviews.

## **ANALYZING DOCUMENTS:**

These include manual or written outline of procedure for existing manual or computer based system, appropriate technical documentation, operating statistics and cost data, organization chart, job description, and report associative with the function under investigation.

Collecting and shifting through such document can be very tedious and time consuming; sometimes there is no way to ensure that all critical documents have been gathered. Without considerable discussion with user, it is hard to determine which pieces of information on the documents must be captured in the new system and which ones are extraneous. Key pieces of information may reside in the user's heads rather than in the documents themselves.

## **INTERVIEWING:**

By studying organization schedule, the analyst can plan schedule interviews with key personnel involved with. Of course, there should be preliminary interviews. Later he will conduct a detailed interview with all the people who actually operate the system. Not only will these people use the newly developed system, but they also may be the ones most resistant to change, especially if they feel the computer might replace them. In interview analyst will try to know the following things from the personnel.

Where do you present system lacks?

How does u think an automated order system will improve the work?

Which features does u want in new system?

To conduct preliminary investigation, I saw different website like **www.monster.com**, **www.naukri.com**, **www.timesjobs.com** etc. On line Job sites. We came to know about the different facilities provided by the online Job sites and information about the companies need.

## **FEASIBILITY STUDY:**

Analysis is the procedure that identifies, describes and evaluates the candidate system and selects the best possible action for the job. Once after identifying the preliminary area of application, to examine it more rigorously we have conducted a FEASIBILITY STUDY. By the initial investigation, we have identified the need, problems and requirements. So our next step was to determine exactly what the proposed system is to do by defining its expected performance. This kind of work can be carried out in the Feasibility Study. In short, A Feasibility Study is carried out to select the best system that meets performance requirements.

In the conduct of the feasibility study, we have gone through followings distinct, but inter-related types of feasibility:

Technical Feasibility.

Economic Feasibility.

Operational Feasibility.

## **7. SYSTEM REQUIREMENT SPECIFICATIONS (SRS):**

Requirements specification is very important activity after the problem definition. This is the way to represent requirements in a consistent format. Requirements specification is called Software Requirements Specification (SRS).

The SRS is a specification for a particular Software product, program or set of programs that performs certain functions in a specific environment. It serves a number of purposes depending on who is writing it. First, the SRS could be written by the customer of the system. Second, the SRS could be written by a developer of the system.

### **PURPOSE:**

The purpose behind developing this project is as follows:

- Provide Great flexibility means subscriber can access it from any location.

- Reduce time

- Reduce effort.

- Anyone can know information about new jobs and upcoming jobs through the web site.

### **SCOPE:**

The main objective of Online Job Search System is to manage Job seekers, keeping track of their progress and performance across all types of training activities by contrast, and manages content or objects that are served up to the right person at the right time.

## **8. Functional Requirements:**

The main purpose of functional requirements within the requirement specification document is to define all the activities or operations that take place in the system. These are derived through interactions with the users of the system. A summary of major functions that the software will perform:

A Login facility for enabling only authorized access to the system.

Admin will be able to add/modify/delete information about different jobs and topics.

Admin will be able to add/modify/delete information of users.

Admin will be able to generate printable reports.

Admin will be able to create/modify/delete existing user accounts.

## **9. Non-Functional Requirements:**

The non-functional requirements consist of

Guidelines.

Validation Criteria.

### **Guidelines:**

We have discussed mandatory requirements in the previous section. The requirements in this section should be taken as suggestions & they should be thought of as recommendations to further enhance the usability of the system.

The system should display a home page for users to choose.

The system should display users' requests in a reasonable time.

The system should be designed in such a way that it is easy to enhance it with more functionality. It should be scalable and easily maintainable.

### **Validation Criteria:**

Only authorized users will have access to the system.

Users will have a unique user id.

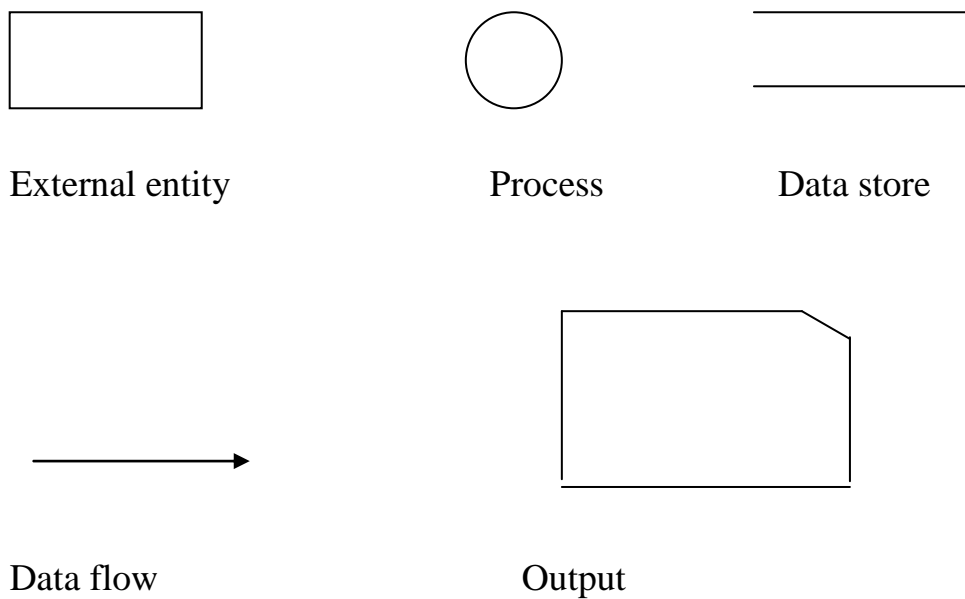
User id cannot be blank.

User name cannot be blank.

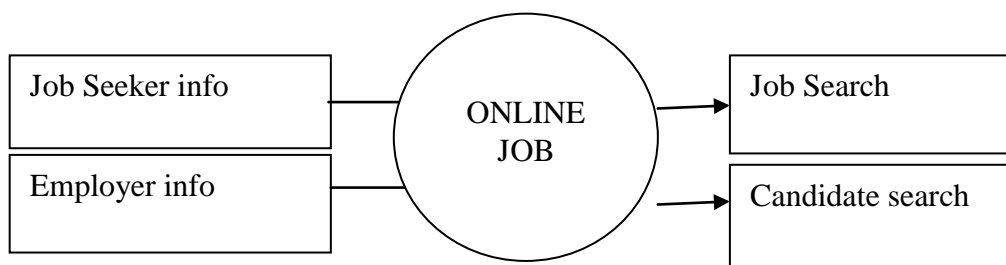
## 10. DATA FLOW DIAGRAM (DFD):

The data flow diagram is the graphical representation that depicts information flow and transforms that are applied as data move from input to output. DFD is refined into different levels. The DFD refinement results in a corresponding refinement of data.

The DFD model uses a very limited number of primitive symbols, which are described below



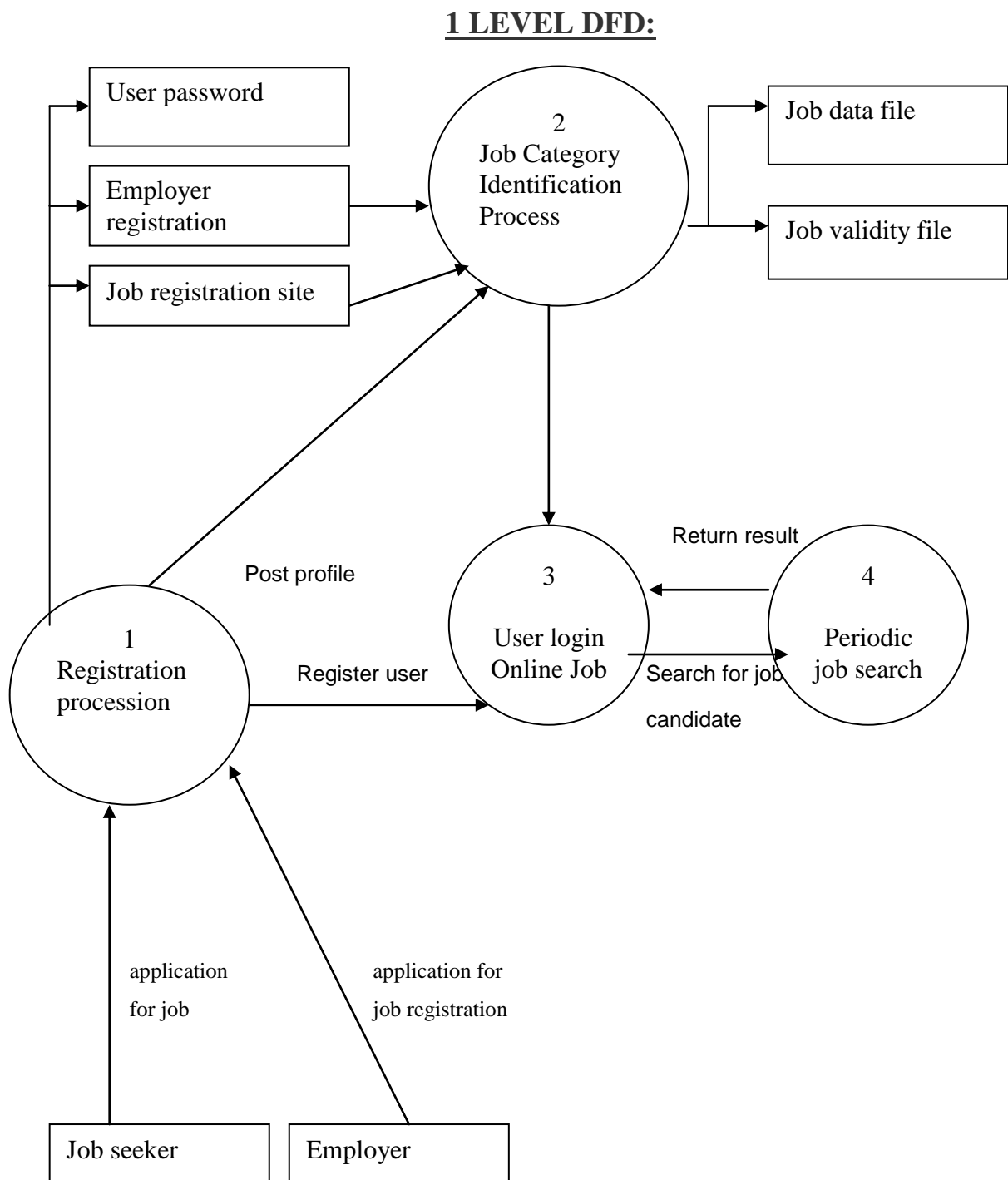
### Context level DFD or 'o' LEVEL DFD:



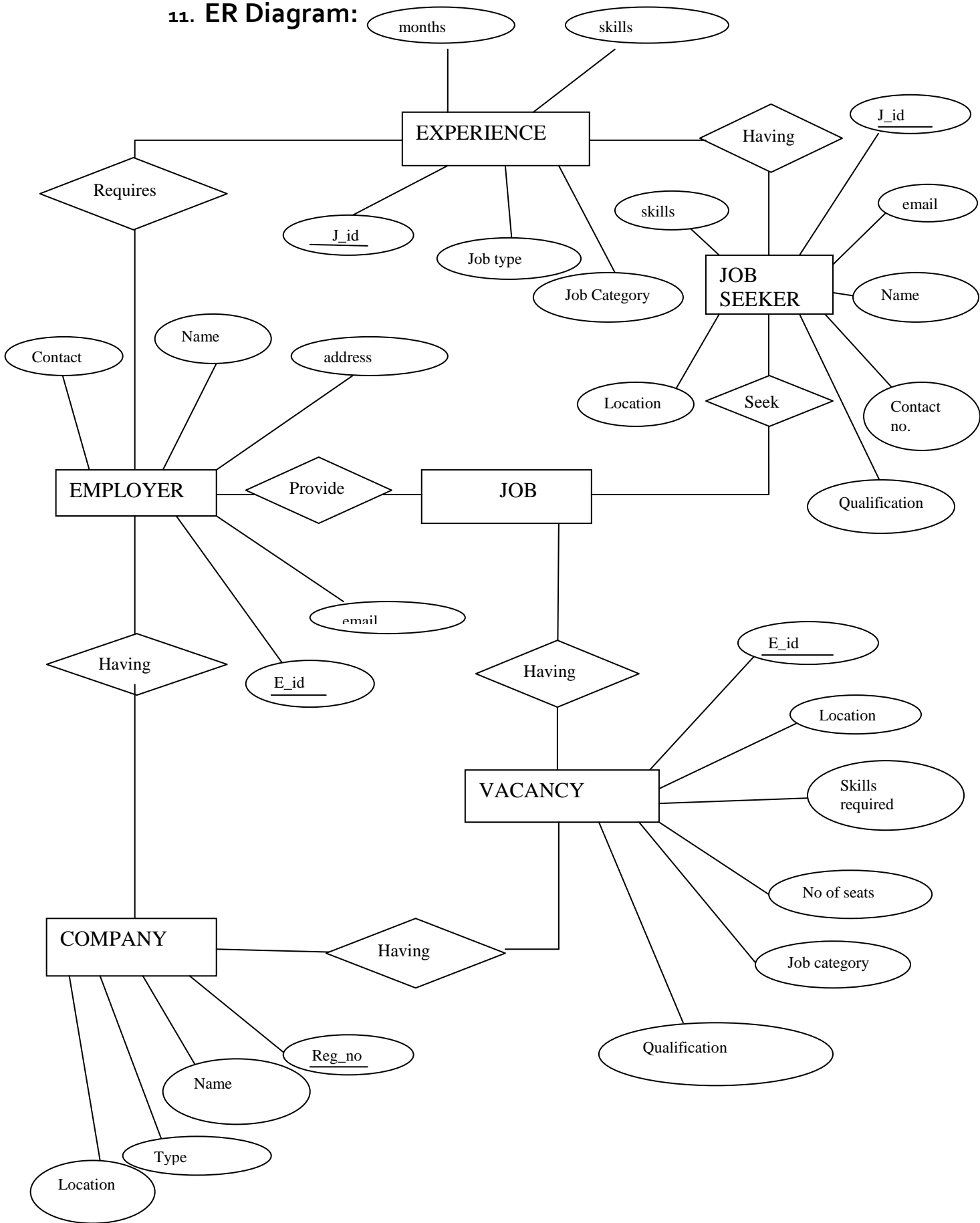


## 1 LEVEL DFD:

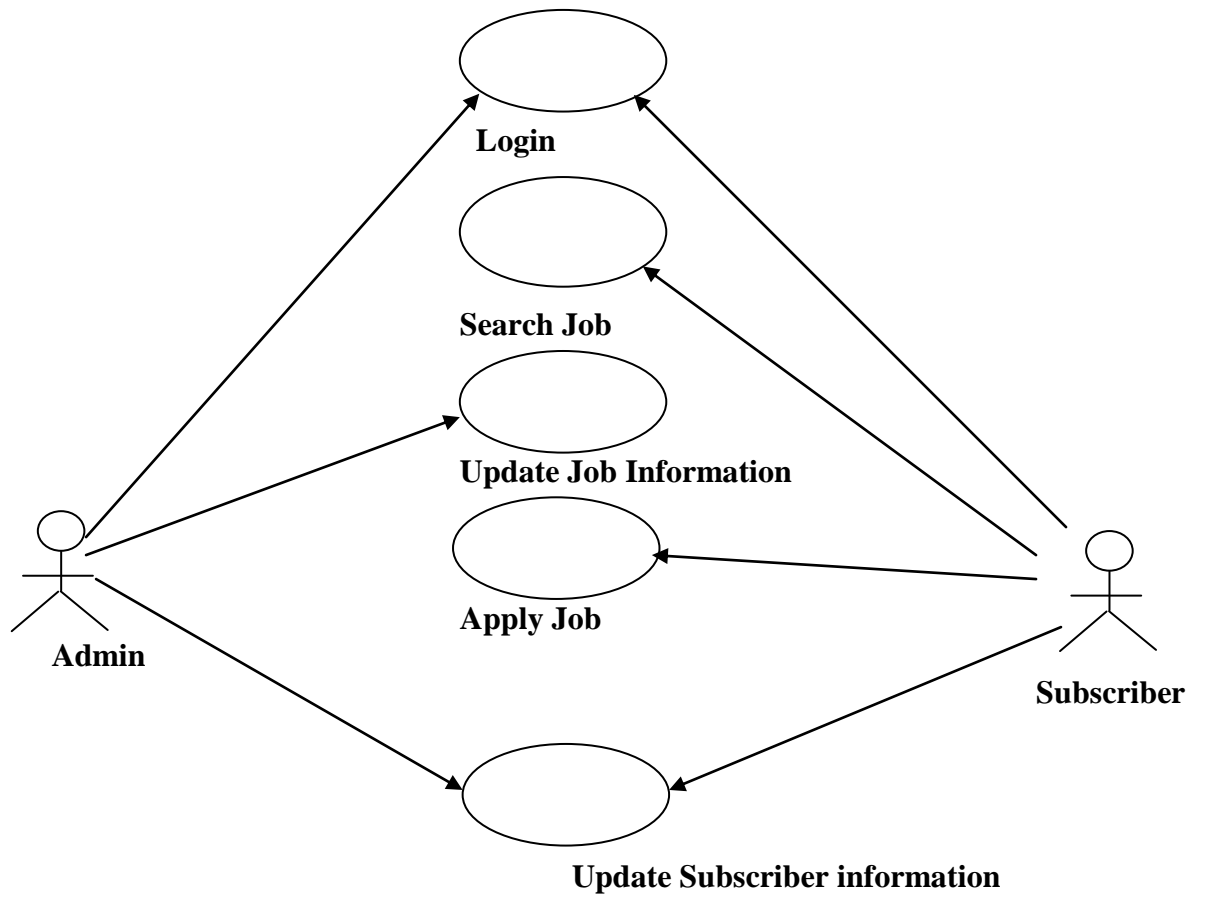
At this level of D.F.D. all the process together with all the data stores (tables). It shows the true data flow i.e. how data is actually flowing in the system .Data is coming from which table and going into which table is clearly shown by this DFD. This DFD is the main reference for the development of the system. After understanding the whole system, the application developer will fall back bone this DFD during the development phase.



11. ER Diagram:



## 12. Use Case Diagram:



# **13. DESIGN DOCUMENT**

System design is the process of planning a new business system to replace the old. But before this planning can be done, we must thoroughly understand the old system and determine how the computer can be used to make its operation most effective. From a project management point of view, software design is conducted in two steps :

- Preliminary Design
- Detail Design

Preliminary design is concerned with the transformation of requirement into data and software architecture. Detail design focuses on refinement to the architectural representation that lead to detailed data structure and algorithm representation for software.

## **DATABASE DESIGN:**

As we have discussed earlier about the under developing system, which is based on. Net technologies so, our database will be centralized database will run on MySQL 5.0. There are various kind of tables are used for different –different purpose. The database will give you the complete structure of the data structure. The database will act as a backend of the software.

### **Structure of table along with keys:**

To keep record without any redundancy each entity is represented by an independent table in the database.

### **Fresher-detail Table:**

It gives the details of the job-seeker.

<b>Field Name</b>	<b>Data Type</b>	<b>Null</b>	<b>Key</b>
ID	Varchar(50)	Not null	Primary key
Ten-Marks	Varchar(50)		
Ten-in	Varchar(50)		
Plus-Two-Marks	Varchar(50)		
Plus-Two-In	Varchar(50)		
Graduation-Marks	Varchar(50)		
Graduation-In	Varchar(50)		

### **Desired-Job Table:**

This gives the experience of all the job-seekers.

<b>Field Name</b>	<b>Data Type</b>	<b>Null</b>	<b>Key</b>
Prefered-Location	vvarchar(50)	not null	Primary key
Emp-status	vvarchar(50)		
Language1	vvarchar(50)		
Language2	vvarchar(50)		
Language3	Vvarchar(50)		
J_type	vvarchar(50)		
It-Skills	vvarchar(50)		

### **Employee registration:**

This gives the information of all the employers.

<b>Field Name</b>	<b>Data Type</b>	<b>Null</b>	<b>Key</b>
Email_id	Vvarchar(50)	Not null	Primary key
Password	Vvarchar(50)		
Name	Vvarchar(50)		
Location	Vvarchar(50)		
Phone	Vvarchar(50)		
Mobile_No	Vvarchar(50)		
Resume_Title	Vvarchar(50)		
Resume	Vvarchar(50)		

### **Company Table:**

This stores the details of the company and their location.

<b>Field Name</b>	<b>Data Type</b>	<b>Null</b>	<b>Key</b>
Reg_no	Vvarchar(50)	Not null	Primary key
E_id	Vvarchar(50)	Not null	
C_name	Vvarchar(50)		
C_type	Vvarchar(50)		
Req	Vvarchar(50)		
Addr1	Vvarchar(50)		
Country	Vvarchar(50)		
City	Vvarchar(50)		

### **Personal-detail Table:**

This shows the number of vacancies available and their details.

<b>Field Name</b>	<b>Data Type</b>	<b>Null</b>	<b>Key</b>
ID	Varchar(50)	Not null	Primary key
DOB_Day	Varchar(50)		
DOB-Month	Varchar(50)		
DOB-Year	Varchar(50)		
Gender	Varchar(50)		
Marital Status	Varchar(50)		
City	Varchar(50)		
Pin-Code	Varchar(50)		
Physical-Challenged	Varchar(50)		
Description	Varchar(50)		

### **Emp Login Table:**

It stores the login id and password of the employer.

<b>Field Name</b>	<b>Data Type</b>	<b>Null</b>	<b>Key</b>
E_id	Varchar(50)	Not null	Primary key
Password	Varchar(50)		

†

# Code Efficiency

- ❖ Complex Expression in Programming Code and SQL are avoided
- ❖ Boolean results are compared using 1 byte (char type) data type when Boolean data type is not available.
- ❖ Use of Strings is minimized for Comparison purpose.
- ❖ Inbuilt Functions are used wherever it is found necessary.
- ❖ Local variables in place of global variables are used for better maintainability and to avoid side effects. It also limits the usage of global memory.
- ❖ Common expressions are kept in functions that minimize the size of code and improve maintainability.
- ❖ Objects created are destroyed after use to reduce memory wastage and avoid any memory leaks.
- ❖ Use of Session variables is minimized to improve performance of sessions.

## **Optimization of code**

- ❖ Local Optimization:
  - Common expressions eliminated
  - Compile time calculations are used for constants to reduce calculations at run time
  - Algebraic & Logical optimizations are used to simplify expressions.
  - Dead codes are removed from code blocks

#### ❖ Global Optimization:

- Common expression declared global
- Loops are optimized by moving out loop-invariant variables.
- Common expression are grouped to form functions/subroutines
- Unused variables and dead codes are removed.
- Subroutines are used in place of functions where returns from functions are not required.
- Use of global variables are minimized

#### ❖ Loop Optimization

- Loop invariant codes are moved out of the loops.
- Iterations are reduced by terminating the loop at appropriate time.
- Joins are used in place of moving through Record sets.



**Validation:**

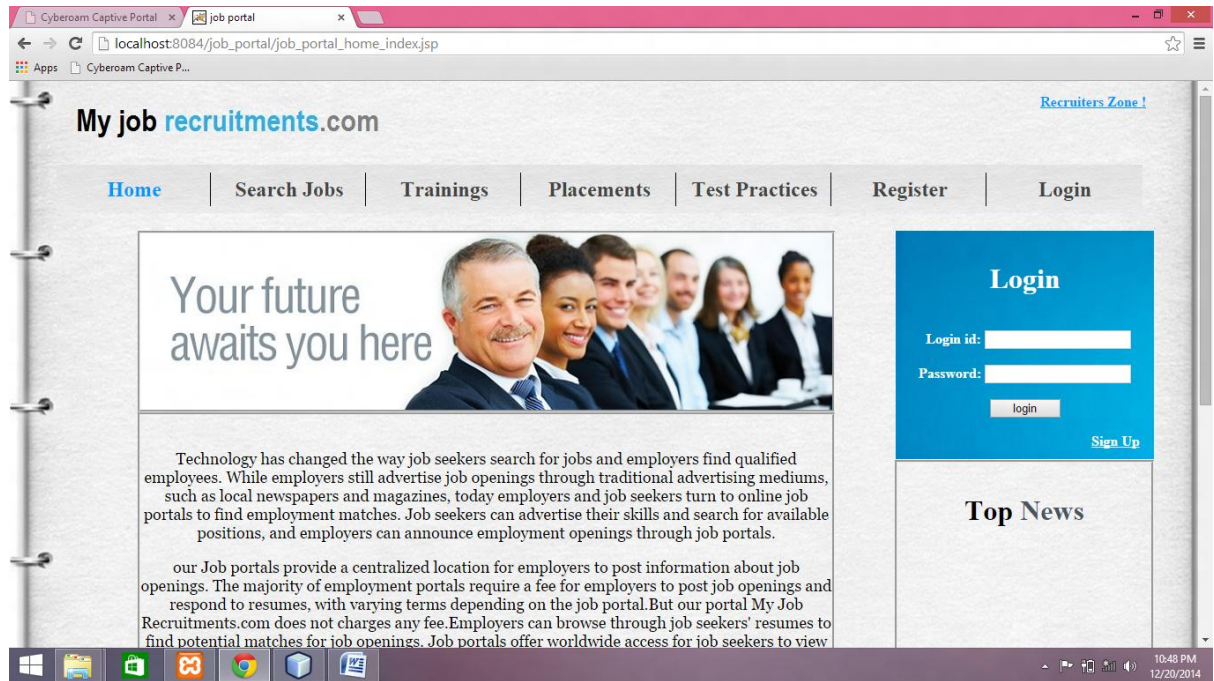
Validation refers to a different set of activities that ensure that the software that has been built is traceable to customer requirement. The work produced as a sequence of requirement engineering is assessed for the quality during a validation step. Requirement validation examines the specification to ensure that all software requirements have been stated unambiguously; that inconsistency, omissions, and errors have been detected and corrected; and the work products conform to the standards established for the process, the project, and the people. Requirement is examined against a set of checklist question.

1. Are requirements stated clearly? Can they be misinterpreted?
2. Is the source (person, a regulation document) of the requirement identified? Has the final statement of the requirement been examined by or against the original source?
3. What are the requirements relate to this requirement? Are they noted via a cross-reference matrix or other mechanism?
4. Does the requirement violate any system domain constraints?
5. Is the requirement testable if so, can we specify test to exercise the requirement?
6. Is the requirement traceable to any other system model that has been created?
7. Is the requirement traceable to overall system/product objectives?
8. Is the specification structured in such a way that lead to easy understanding, easy reference, and easy translation into more technical work product?

In computing, the process of checking input data to ensure that it is complete, accurate, and reasonable. Although it would be impossible to guarantee that only valid data are entered into a computer, a suitable combination of validation checks should ensure that most errors are detected.


# **SNAPSHOTS OF WEB PAGES**

# HOME PAGE



Cyberoam Captive Portal x job portal x  
localhost:8084/job\_portal/job\_portal\_trainings.jsp

Home | Search Jobs | **Trainings** | Placements | Test Practices | Register | Login



**Login**

Login id:

Password:

[Sign Up](#)

**Top News**

Our portal offer online training and educational resources to help prepare job seekers for the marketplace. Job seekers can find courses to improve marketing or typing skills and state-specific programs to help prepare for insurance licensing exams. To advance their education, job seekers can use employment portals to enroll in online certificate and degree programs through accredited institutions, such as The Art Institutes, University of Phoenix, Argosy University and the International Academy of Design & Technology. you can view various training resources by

Windows taskbar: File Explorer, Mail, Chrome, Word, 10:52 PM 12/20/2014

# REGISTRATION OF NEW USER

Cyberoam Captive Portal x job portal x  
localhost:8084/job\_portal/job\_portal\_register.jsp  
Apps Cyberoam Captive P...

**My job recruitments.com** [Recruiters Zone!](#)

Home | Search Jobs | Trainings | Placements | Test Practices | **Register** | Login

### Registration

Email Id:

Password:

Confirm Password:

Your Name:

Your Location:

Mobile No:

Resume Title:

Attach Resume:  No file chosen

localhost:8084/job\_portal/job\_portal\_register.jsp

10:53 PM  
12/20/2014

Cyberoam Captive Portal x job portal x  
localhost:8084/job\_portal/register.do  
Cyberoam Captive P...

# My job recruitments.com

**Educational Details:**

Graduation:  In:

Institution:

Post Graduation:  In:

Institution:

Doctrate:

Are you:  Fresher  Employed

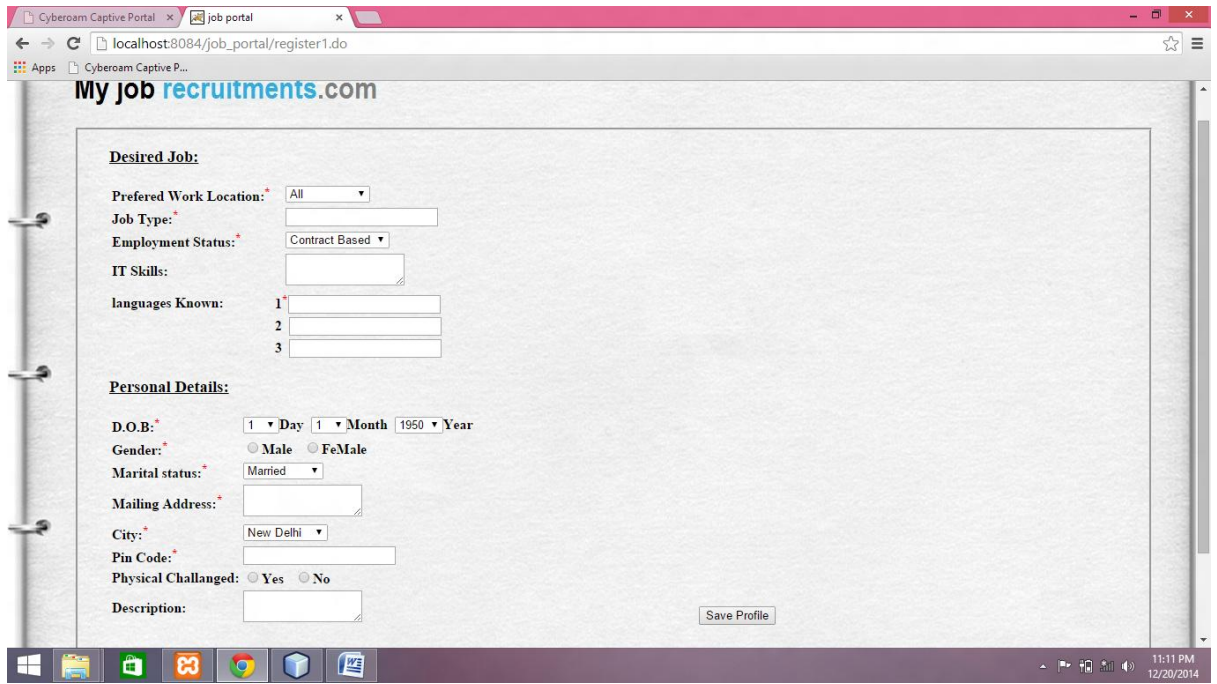
**Fresher Details::**

Marks Obtained in 10<sup>th</sup>:  % In:

Marks Obtained in 10+2:  % In:

Marks Obtained in Graduation:  % In:

11:10 PM  
12/20/2014



Registration details

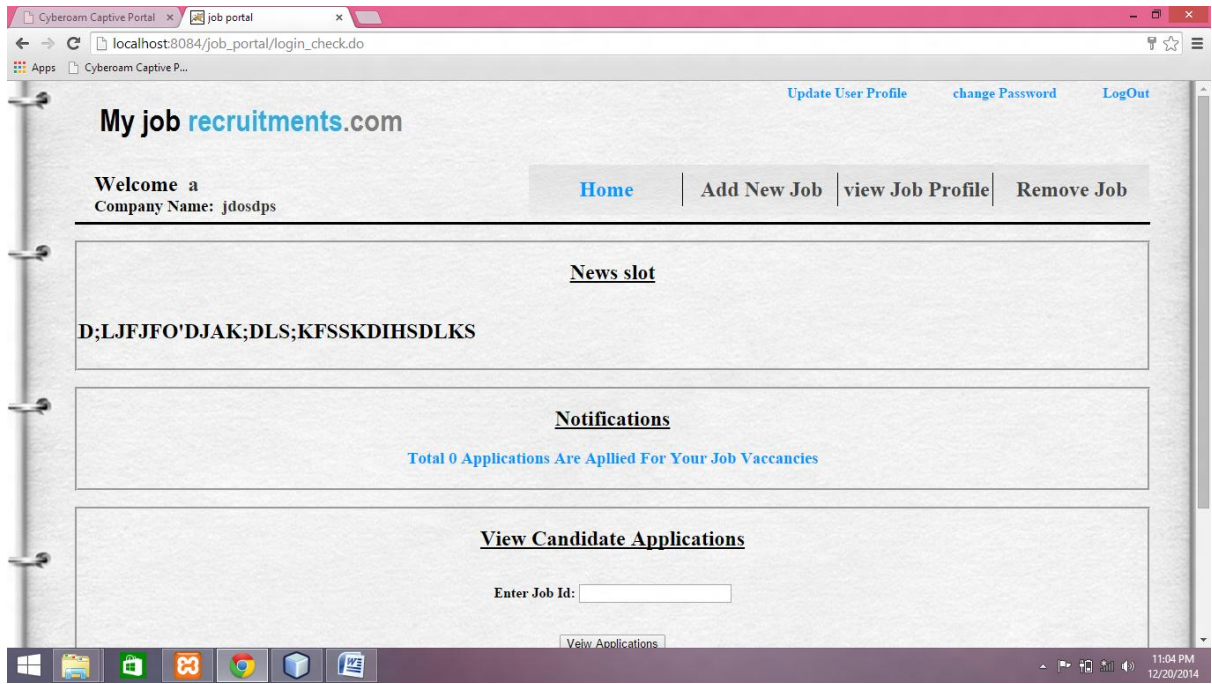
# RECRUITERS REGISTRATION

The screenshot shows a web browser window with the following elements:

- Browser Tab:** job portal
- Address Bar:** localhost:8084/job\_portal/job\_portal\_recruiter\_registration.jsp
- Page Header:** My job recruitments.com (left) and Back to Home (right)
- Main Content Area:**
  - Recruiters Registration Form:**
    - First Name: a
    - Last Name: b
    - Designation: c
    - Contact No: 12
    - Login Id: 00
    - Email Id: gdkjdsjdl
    - Password: ..
    - Confirm Password: ..
    - Company Name: jdosdps
    - Web Site(URL): dmpskddfsk
    - Location: djnskdjpsodjkm
    - Address: d1;sd1[s]
  - Recruiters Login Form:**
    - Login id: [input field]
    - Password: [input field]
    - Login button

The page features a background image of business professionals in a networked environment. The Windows taskbar at the bottom shows the time as 11:03 PM on 12/20/2014.





Home Page of Recruiter

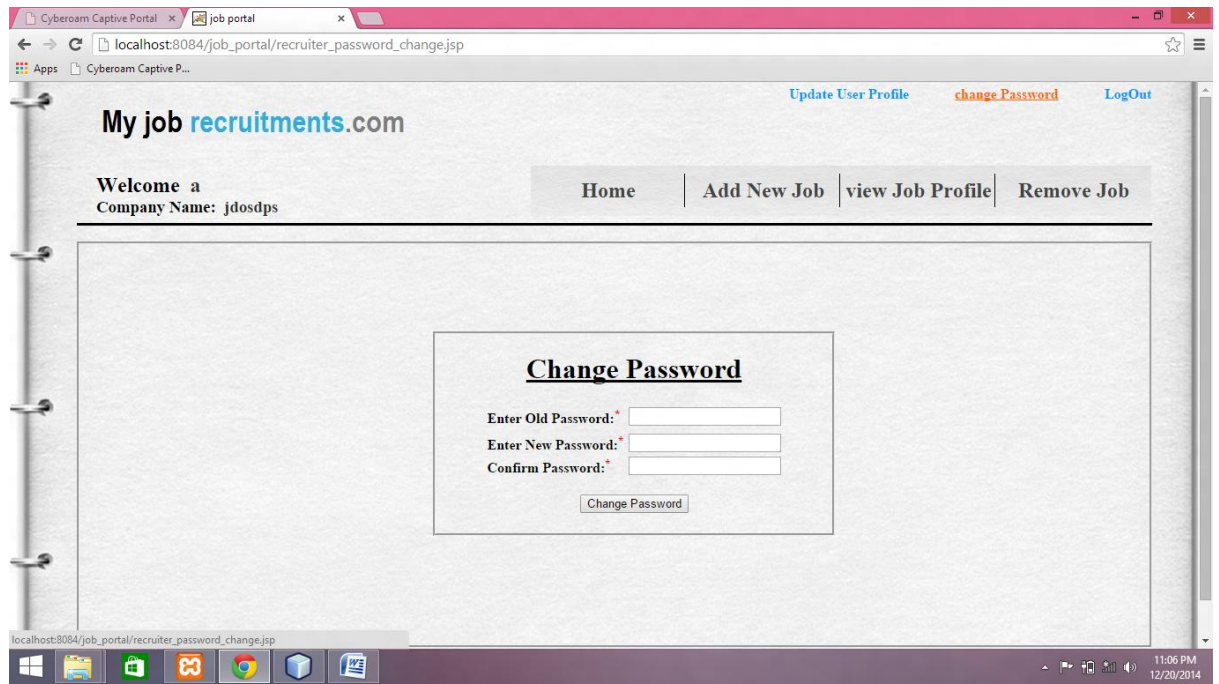
## UPDATE USER PROFILE

The screenshot shows a web browser window with the following details:

- Browser tabs: Cyberoam Captive Portal, job portal
- Address bar: localhost:8084/job\_portal/recruiter\_user\_profile\_update.jsp
- Page title: My job recruitments.com
- Navigation links: Update User Profile, change Password, LogOut
- Header: Welcome a, Company Name: jdosdps, Home, Add New Job, view Job Profile, Remove Job
- Form title: **Update Users Profile**
- Form fields:
  - First Name: a
  - Last Name: b
  - Designation: c
  - Contact No: 12
  - Email Id: gdljdljdl
  - Company Name: jdosdps
  - Web Site(URL): dmprskddlsk
  - Location: djnskdjpsodjkm
  - Address: dl;sdll[s
- Form button: Update Profile
- Taskbar: Windows 8.1, 11:05 PM, 12/20/2014

## Update User Profile

# CHANGE PASSWORD



# 15. TESTING

**“Testing is a process used to help identify the correctness, completeness and quality of developed computer software. “**

Communication problems, Programmers negligence, or Time constraints create errors that must be eliminated before the system is ready for user acceptance testing. A system is tested for online response, volume of transactions, stress, recovery from failure and usability.

Considering the process from the procedural point of view, testing within the context of software engineering is actually a series of four steps that are implemented sequentially. Initially test focus on each component individually, ensuring that it functions properly as unit. Hence, the name unit testing.

Unit testing makes heavy techniques that exercises specific path in a component’s control structure to ensure complete coverage and maximum error detection. Next, component must be assembled or integrated to form the complete package. Integration testing addresses the issues associated with the dual problems of verification and program construction. Test cases design techniques that focus on inputs and outputs are more prevalent during integration. After the software has been integrated, a set of high order tests is conducted. Validation criteria (established during requirement analysis) must be evaluated. Validation testing provides final assurance that software meets all functional, behavioral, and performance requirements. The last high order-testing step falls outside the boundary of software engineering and into the broader context of computer system engineering.

System testing verifies that all elements mesh properly and that overall system function/performance is achieved. Following system testing is acceptance testing, or running the system with live data by the actual user. Another reason for system testing is its utility as a user-oriented vehicle before implementation. The best program is worthless if it does not satisfy the user needs.

## **Overview of Testing Strategies:**

Large systems are usually tested using a mixture of strategies. Different strategies may be needed for different parts of the system or at different stages of the process

There are many approaches to software testing, but effective testing of complex products is essentially a process of investigation, not merely a matter of creating and following rote procedure. The quality of the application can and normally does vary widely from system to system but some of the common quality attributes include reliability, stability, portability, maintainability and usability.

### **OBJECTIVES:**

Testing objectives include-

- i) Testing is a process of executing a program with the intent of finding an error.
- ii) A good test case is one that has a high probability of finding an as yet undiscovered error.
- ii) A successful test is one that uncovers an as yet undiscovered error.

Testing helps in verifying and validating if the software is working as it is intended to be working. This involves using Static and Dynamic methodologies to Test the application.

### **PROCESS:**

#### **i) When testing should start :**

Testing early in the life cycle reduces the errors. Test deliverables are associated with every phase of development. The goal of software tester is to find bugs, find them as early as possible, and make them sure they are fixed.

#### **ii) When to stop testing :**

This can be difficult to determine. Many modern software applications are so complex, and run in such as interdependent environment, that complete testing can never be done. "When to stop testing" is one of the most difficult questions to a test engineer. Common factors in deciding when to stop are:

Deadlines ( release deadlines, testing deadlines.)

Test cases completed with certain percentages passed

Test budget depleted

Coverage of code/functionality/requirements reaches a specified point

The rate at which Bugs can be found is too small

Beta or alpha Testing period ends

The risk in the project is under acceptable limit.

Practically, we feel that the decision of stopping testing is based on the level of the risk acceptable to the management. As testing is a never ending process we can never assume that 100 % testing has been done, we can only minimize the risk.

**TEST STRATEGY:**

How we plan to cover the product so as to develop an adequate assessment of quality.

A	good	test	strategy	is:
Specific		Practical		Justified

The purpose of a test strategy is to clarify the major tasks and challenges of the test project.

**TEST PLAN- Why ?**

- Identify Risks and Assumptions up front to reduce surprises later.
  - Communicate objectives to all team members.
  - Foundation for Test Spec, Test Cases, and ultimately the Bugs we find.
- Failing to plan = planning to fail.

**TEST PLAN - What ?**

- Derived from Test Approach, Requirements, Project Plan, Functional Specifications, and design Specifications.
- Details out project-specific Test Approach.
- Lists general (high level) Test Case areas.
- Include testing Risk Assessment.
- Include preliminary Test Schedule
- Lists Resource requirements.

## **TECHNIQUES:**

### **STATIC TESTING:**

The Verification activities fall into the category of Static Testing. During static testing, you have a checklist to check whether the work you are doing is going as per the set standards of the organization. These standards can be for Coding, Integrating and Deployment. Review's, Inspection's and Walkthrough's are static testing methodologies..

### **DYNAMIC TESTING:**

Dynamic Testing involves working with the software, giving input values and checking if the output is as expected. These are the Validation activities. Unit Tests, Integration Tests, System Tests and Acceptance Tests are few of the Dynamic Testing methodologies.

### **BLACK BOX TESTING:**

Black box testing also called behavior testing, focuses on the functional requirement of the software.

That is black box testing enables the software engineers to derive test of input condition. That will fully exercise

all functional requirements for a program . Black box testing is not an alternative to a white box testing technique. Rather it is a complementary approach that is likely to in cover a different class of error's then whit box method. Black Box Testing attempts to find errors in the following category.

- Incorrect or Missing function
- Interface errors
- Error's in a data structure or external database accesses
- Behavior or performance error's and
- Initialization and Termination error's

Black box testing purposely disregards control structure , Attention is focused on the information domain. Testing are design to answer the following questions:-

- ✓ How is functional validity tested?
- ✓ How is system behavior and performance tested?
- ✓ What class of input will make good test case?
- ✓ Is the system particularly sensitive to certain input values?
- ✓ How are the boundaries of data class isolated?
- ✓ What data rates and data volume can the system tolerate?
- ✓ What effect will specific combination of data have on system operation?

### **WHITE BOX TESTING:**

White box testing is a test case design method that uses the control structure of the procedural design to derive test cases. Test cases can be derived that

1. Guarantee that all independent paths within a module have been exercised at least once,
2. Exercise all logical decisions on their true and false sides,
3. Execute all loops at their boundaries and within their operational bounds, and
4. Exercise internal data structures to ensure their validity.

### **UNIT TESTING**

In computer programming, a unit test is a method of testing the correctness of a particular module of source code.

The idea is to write test cases for every non-trivial function or method in the module so that each test case is separate from the others if possible. This type of testing is mostly done by the developers.



## **INTEGRATION TESTING:**

Once the functional/Unit testing are through then the unit is integrated with the package and tested for its correctness and behavior. When integrated with other programs of the module. A comprehensive integrated testing includes integrated test plans in the design phase of system development as guide to ensure that the module functions properly with the test data. External and internal interfaces are implemented and work as per design; the performance of the module is not degraded.

## **VALIDATION TESTING:**

At the culmination of the integration testing, software is completely assembled as a package; interfacing errors have been uncovered and corrected. Then as a final series of software test: validation tests were carried out. Validation testing can be defined in a several ways, but a simple definition is that validation succeeds when the software functions in a manner reasonably as expected by the user.

The user will face following test validations while using ideal Property system:

### **1 Login Validation**

Login Textbox is empty

### **2 Password Validation**

Password Textbox is empty

### **3 Authentication Validation**

Either User Id or Password or both are incorrect.

### **4. Password mismatch validation**

Password Mismatch

**SYSTEM TESTING:**

System testing is a series of different tests that verify all system elements have been properly integrated and perform allocated functions. Recovery testing was conducted by forcing the system to fail in all possible ways and verified that recovery is properly performed. Security test was conducted to verify that protection mechanisms built into the system protects it from improper penetration.

**OUTPUT TESTING:**

After performing the validation testing, the next step is output testing of the proposed system since no system could be useful if it does not produce the output in the required format. Comparing the output with the format required by the user is output testing.

**USER ACCEPTANCE TESTING:**

User acceptance of a system is the key factor for the success of any system. The system under consideration was tested for user acceptance by constantly keeping in touch with the users of the organization. Necessary changes were made according to the users' requirement. Then optimizing the system it was further tested with valid or "live" data it is found that system is working perfectly as it was designed.

**REQUIREMENT TESTING:****Usage:**

- To ensure that system performs correctly
- To ensure that correctness can be sustained for a considerable period of time.
- System can be tested for correctness through all phases of SDLC but in case of reliability the programs should be in place to make system operational.

## **REGRESSION TESTING:**

### **Usage:**

- All aspects of system remain functional after testing.
- Change in one segment does not change the functionality of other segment.

## **ALPHA TESTING :**

The alpha test is conducted at the developer's site by a customer. The software is used in a natural setting with the developer "looking over the shoulder" of the user and recording errors and usage problems. Alpha tests are conducted in a controlled environment.

## **BETA TESTING :**

The beta test is conducted at one or more customer sites by the end-user of the software. Unlike, alpha testing, the developer is generally not present. Therefore, the beta test is a "live" application of the software in an environment that cannot be controlled by the developer.

## **SMOKE TESTING :**

Smoke testing is an integration testing approach that is commonly used when "shrink-wrapped" software products are being developed. It is designed as a pacing mechanism for time critical projects, allowing the software team to assess its project on a frequent basis.

## **RECOVERY TESTING:**

Recovery testing is a system test that forces the software to fail in a variety of ways and verifies that recovery is properly performed.

If recovery is automatic, re initialization, checkpointing mechanisms, data recovery and restart are evaluated for correctness.

## SECURITY

Role Based Security Model – “Online Job System” will follow a Role based Authentication- Authorization model. (Refer to Admin section)

The important data like the passwords for the users will be stored in encrypted format.

“Online Job System” will also make use of session-based security . It will implement a check for session to be active before performing any task.

Page level security – On every access, the system will check whether a valid user is requesting for the information. No page will be accessible without a valid login.

### **Application Security:**

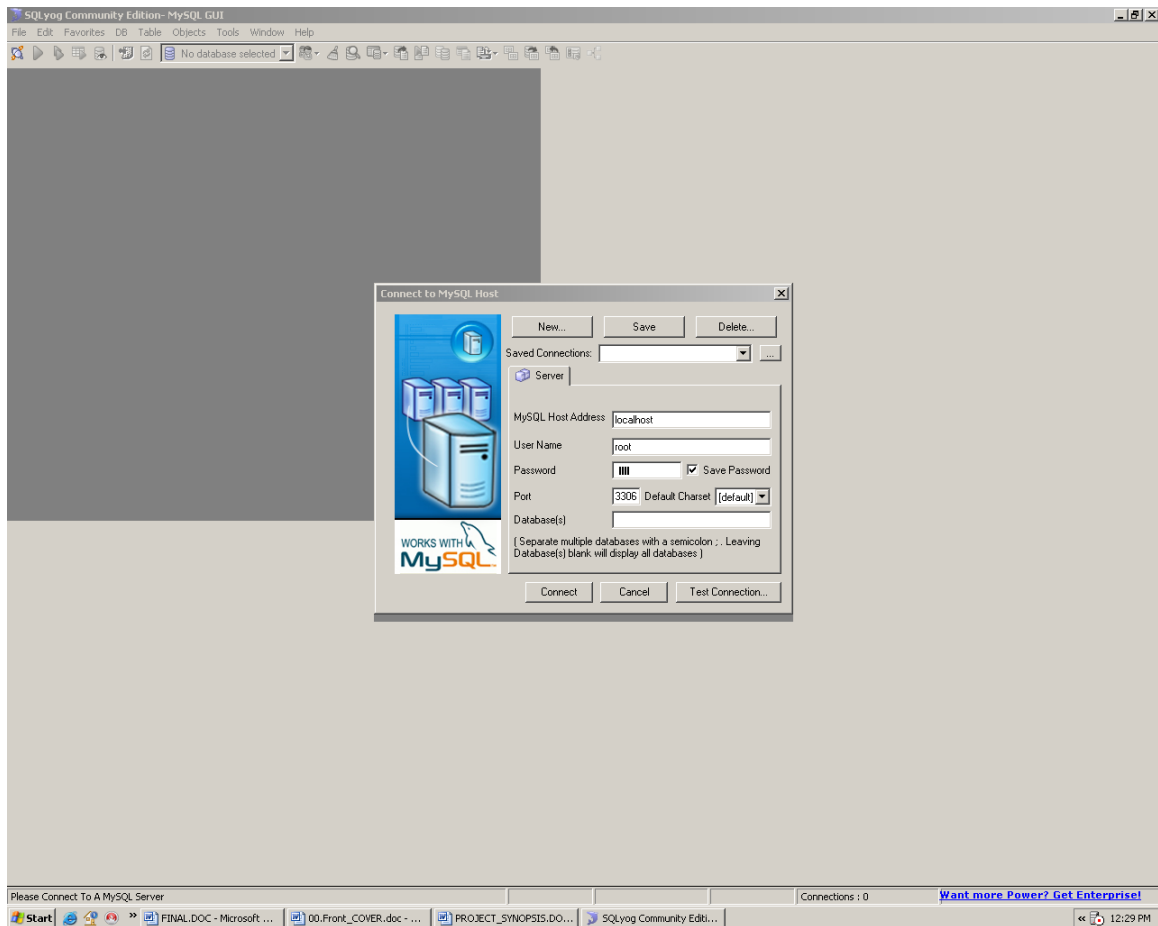
It is most important for have an security for an web application because now a days web application is hacking by hackers and also data lost by Unauthorized person. That’s why I have provided a security for Online Job Search System. Unauthorized access is restricted without having login id and password.

### **Language Security:**

I have developed this software in java programming language. This language changes the program code to byte code. When you compile Java source code, it changes the source code to byte code and byte code doesn’t depend on any machine. So it is impossible to read the byte code of the program and programmer also cannot manipulate memory of the system.

## Database Security:

In this software I have used the MySQL 5.0 database. Nobody can access the database without the permission of the administrator. Only the administrator has the right to add, modify and delete the data in the database.



## Backup Security:

Hard disk is a very sensitive part of the computer. It holds all the information of the subscriber, database and software. If the hard disk crash then all the data contains in the hard disk will be lost and there will be a great lost. So to protect the data Backup Security facility has been used that after losing the data, it can be recovered.

## SOFTWARE MAINTENANCE

Software maintenance traditionally denotes the process of modifying a software product after it has been delivered to the customer. Maintenance is inevitable for almost any kind of product. Software need maintenance on account of the following the following three reasons:

**Corrective:** Corrective maintenance of a software product may be necessary either to rectify some bugs observed while the system is in use, or to enhance the performance of the system.

**Adaptive:** A software product might need maintenance when the customer need the product to run on a new platforms, on new operating systems, or when they need the product to interface with new hardware and software.

**Perfective:** A software product needs maintenance to support the new features that the users want or to change different functionalities of the system according to customer demands.

When the hardware platform changes, and a software product perform some low level changes maintenance is necessary. Since we are using oracle in a project, and oracle is most portable Relational Data Base Management System so it runs on any operating system without need to change.

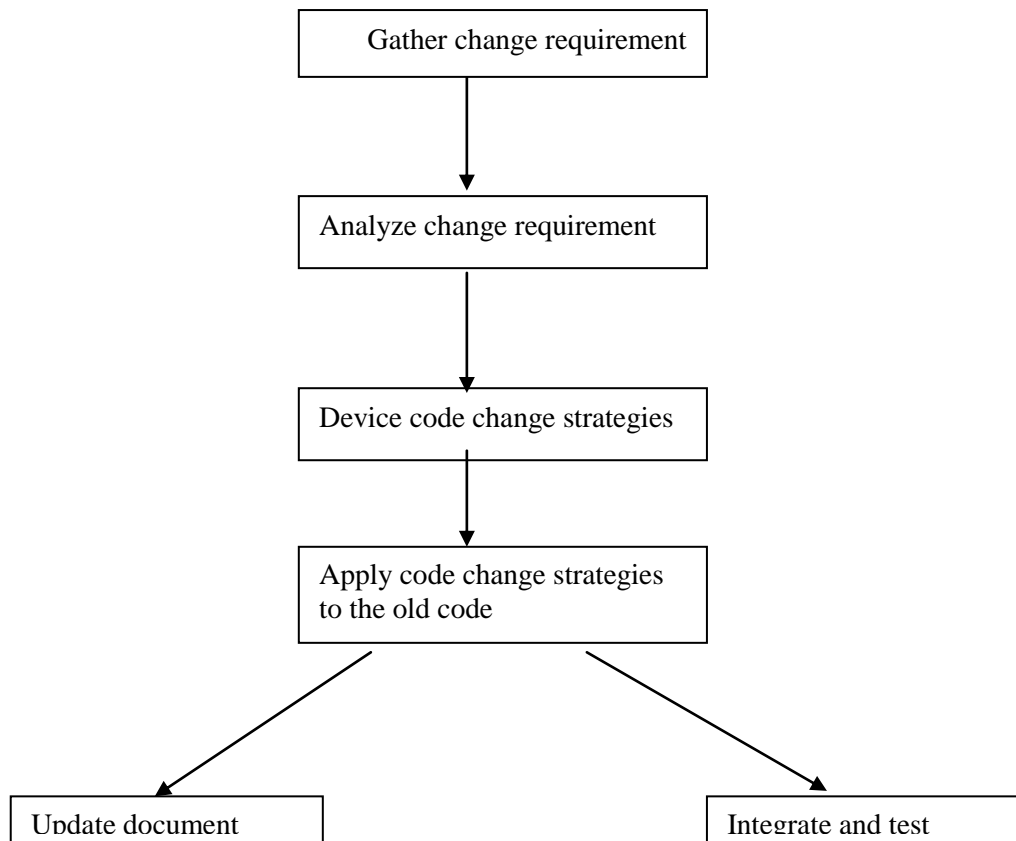
### **Software Maintenance Process Model:**

The activities involved in software maintenance project are not unique and depend on several factors such as :

(i) The extent of modification to the product required. (ii) The resource available to the maintenance team. (iii) The condition of the existing product. (iv) The expected project risk. When the changes need to a software product is very minimal and straight forward, the code can be directly modified and the changes can be appropriately reflected in all the document.

Since the scope of different maintenance project varies widely, no single maintenance process model can be developed as a panacea for every kind of maintenance project. However two broad categories of process model can be proposed. The first model is preferred for project involving small rework where the code is changed directly and the changes are reflected in the relevant documents.

**Maintenance process model:**



In this approach the approach the project starts by gathering the requirement for changes. The requirements are next analyzed to formulate the strategies to be opted for code change. At this stage, the association of at least a few members of the original development team goes a long way in reducing the cycle time, especially for projects involving unstructured and inadequately documented code.



## **16. CONCLUSION**

The system is menu driven, easily maintainable and accessible. Handling of the system is easy and provides timely information about job status, job location and their category.

The package “Online Job Search System” being developed to help and assist the people to get their job. The system saves a lot of time and effort on the same.

The Scope of the project aims at building a GUI where the user can do the data manipulation and can also generate the reports based on the user and administrative requirements. All these features are menu and command driven and hence the developed system is user friendly.

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