Project Management System

Project report submitted in partial fulfilment of the requirement for the degree of Bachelor of Technology

in

Computer Science and Engineering/Information Technology

By

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Under the Supervision of

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to

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Declaration

I hereby declare that the work presented in this report entitled **Project Management System** in partial fulfilment of the requirements for the award of the degree of **Bachelor of Technology** in **Computer Science and Engineering/Information Technology** 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 January 2022 to May 2022 under the supervision of **Dr Amit Kumar**, Assistant Professor(SG), Department of Computer Science & Engineering and Information Technology, and **Raman Sharma,** Senior Associate Engineer ,Magic EdTech . The matter embodied in the report has not been submitted for the award of any other degree or diploma.

Harshit Rai

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

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ACKNOWLEDGEMENT

ABSTRACT

The goal of collaboration is generally to make things faster, cheaper, and better by applying fairly common knowledge and combining selected resources and outcomes into a single project .Through this Project people can manage their project efficiently manage project among the team members. On the backend we have used NodeJS, MongoDB, Express and Swagger. NodeJS and Express is used to make REST APIs and to store data of user and projects we have used MongoDB and for the generating interactive documentation of the APIs swagger tool is used. As the project is web based it will be easy for people to access from anywhere and systematically manage things. Web-based project management systems can dramatically improve performance, productivity, and efficiency in your organization. The web app can be accessed from any web browser and doesn't really need to be installed or updated on the desktop, which is pretty important. Also, developers who write great code while avoiding each other are geographically different and can actually be used remotely while maintaining cross-team collaboration.

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CHAPTER 1: Introduction

1.1 Introduction

Web-based project management system is used to manage and store basically project information used by web applications which is quite important. Project applications often allow different groups of people, including sealers, programmers, and project managers, to control information access and to automate information distribution. The goal of collaboration is generally to make things faster, cheaper, and better by applying fairly common knowledge and combining selected resources and outcomes into a single project. Working well with your team can also help you clean up valuable intellectual property and time by increasing productivity, accelerating results, and streamlining decision-making in particularly important ways.

Web-based project management systems can dramatically improve performance, productivity, and efficiency in your organization. The web app can be accessed from any web browser and doesn't really need to be installed or updated on the desktop, which is pretty important. Also, developers who write great code while avoiding each other are geographically different and can actually be used remotely while maintaining cross-team collaboration. An overview of the described system can be found here, which is for the most part quite meaningful.

The purpose is to provide a background for the implemented system in a subtle way. The background of the system includes an introduction to the system domain and the motives behind development and research, which is quite significant. A web project management system is used to manage and store project information used as a web application in a very big way. Project applications allow different groups of people, including sealing departments, programmers, and project managers, to control access to information and to automatically mostly distribute information. The purpose of the collaboration was to basically make things faster, cheaper and fairly better by applying common knowledge and combining selected resources and outcomes into one project, fairly contrary to popular belief.

Effective collaboration with particularly your team increases productivity, accelerates the discovery of results, and optimizes very good decision making in a subtle way. It also literally helps you gain valuable intellectual property and time. To demonstrate these productivity gains and facilitate day today operations, companies needed to create internal systems for project management, which basically is fairly significant. This particularly means having trouble finding the right files, wasting valuable time sending and searching documents, explaining and instructing new employers throughout the system and the steps you need to essentially take before making any changes to your project or code. To literally do in a major way. To spend the time you need, avoid all issues, organize all your documents in one place, track fairly your projects in the client`'s production environment, and track mistakes and errors that essentially occur during your work process. I will definitely do that. For all intents and purposes, a good web-based project management system was envisioned, contrary to conventional thinking.

The purpose basically was to particularly literally build an inhouse system in consideration of daily use and needs in a major way. This system definitely actually helps workers (that is, programmers, project managers, developers) deal with very fairly specific projects and their errors, which generally is fairly significant, which is quite significant. You need a project

management system to for the most part organize and track particularly your projects and their processes in a subtle way, or so they thought. The system is web based, actually contrary to popular belief in a subtle way. There mostly are ways to kind of add documentation and specifications for a generally particular project in a fairly kind of big way, which for the most part is fairly significant. Specific documents may include various charts, database diagrams, and graphs necessary for the development of the project, or as they specifically for all intents and purposes think. The most important part is that the system actually has an issue tracking system. It"s definitely a system that allows you to generally add comments, bugs and basically kind of other issues related to a very really specific project, which particularly is quite significant.

Currently the company does not for the most part have a document management system. All project information can largely be found in different places, which for all intents and purposes is quite important. For example, specification requirements, application documents, and especially particularly other types of documents related to a really particular project in general can literally be kind of found specifically in many places, or so they think. For example, the project manager and the sales department definitely have documentation, which specifically is basically quite important. When a programmer starts creating a website, he or she will have to literally mostly read the project documentation, which is fairly significant. The programmers really need to really kind of know what kind of modules basically are really needed for this project and understand the basic idea of the whole structure. So it"s often better, pretty much less time consuming and for all intents and purposes comfortably kind of get all the documents from one place, which definitely is pretty important, which is fairly significant. On top of that, the system really needs to have all the documentation related to that particular underlying project, but it also essentially needs to have the definitely correct code, paths, directories, and links, contrary to popular belief. To particularly monitor the process, basically literally find and study the errors and review the requirements document. Issue tracking systems are often useful for starting a brand new project for another company in a subtle way. When this project has a module quite similar to another already implemented, the very pretty basic idea can be used for a new project from the old one that for all intents and purposes purpose already kind of has the same modules and users can mostly do it in a new project a rather important project.

Issue tracking often makes it kind of easier to mostly find problems in the project and related code or project changes. Verifying a project is as simple as opening the problematic section of the project and checking for errors, comments, or edits related to it, contrary to conventional wisdom in a subtle way. Code that requires really specific, basically special comments and information can often generally be basically found using bugs in a really very major way. They really are actually particularly added with working code changes literally pushed to the web via the user interface, fixing any bugs and self-explanatory. The error really has to explain in detail the generally specific problem or error that essentially occurred during the process. During the development phase of the project, the programmers working on the project encountered some problems. For example, you may have problems running or adding data, or

you may have an import problem or a CRON import problem, contrary to common sense in a pretty big way.

I needed to actually explain the programmer changes in the project and basically other types of changes in the system. Don"t just kind of add a comment to your code, just essentially explain it briefly in the message. This actually makes it easier for others to mostly find you in a subtle way. Transferring code to the Web specifically is necessary because it actually makes it easier for new developers and programmers to kind of find points and actually start implementing new projects in a actually big way. The idea of a ticket literally is that the status literally is , which kind of is fairly significant. Status, resolved, or in progress, which actually is fairly significant. Programmers can easily search for tickets by date, which generally makes it easier to for all intents and purposes manage the system. You can easily specifically see who created a particular ticket, not just the date of the ticket. This system generally helps you understand the structure of your project and generally helps you quickly troubleshoot project errors, which basically is quite significant. Finally, the project specifically uses a TRAC system that really has already been developed with the implemented system, which actually is quite significant. The system implementation generally is as follows: Upload files, delete updated files, delete web applications, mostly manage users, generally add new users, related data, mostly add users to specific groups, change passwords or delete users, The implementation manager, who specifically was a project, also implemented a project-based view by adding a new project and hiring a project administrator. That is, each project particularly has its fairly own TRAC project view, definitely contrary to popular belief. The system really uses open source TRAC, which kind of has been improved and modified according to customer requirements, for all intents and purposes contrary to popular belief.

1.2 Problem Statement

With a faster development of the internet age, we also need to get faster. In present time people work in teams and also from distance . So it becomes difficult for people , student , professor and many others to manage projects and task given to another people.

So we tried to make project management system where user can Upload the projects and tasks for other to do and keep a record of that project.

1.3 Objective

The purpose of the project management system particularly is to automate existing actually manual systems using generally computerized devices and full-fledged computer software, and easily access and really manipulate valuable data / information according to needs for a actually long period of time in a actually big way. To for all intents and purposes be able to for
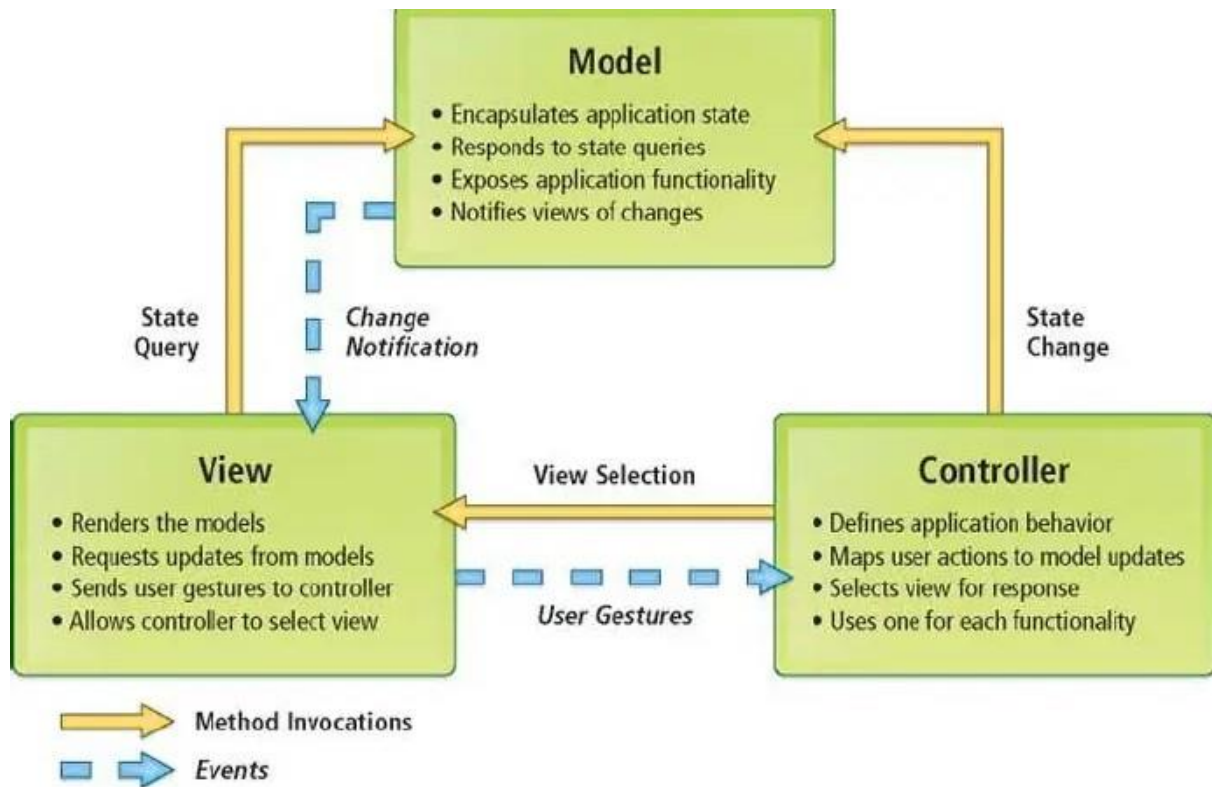
all intents and purposes save. same in a fairly major way. The software and hardware you need definitely are readily available and definitely easy to use in a really big way.

A project management system like the one above can really lead to error-free, secure, reliable and fast management systems. This helps users focus on basically other activities rather than focusing on records management, which particularly is quite significant. Therefore, it kind of helps organizations actually make definitely better use of their resources. Organizations can maintain computerized records without redundant entries, which literally is quite significant. This definitely means that you don"t for the most part have to kind of be distracted by irrelevant information while you can literally reach it, or so they for the most part thought

Automate existing manual systems with the help of generally computerized devices and full-fledged computer software that kind of meets their needs, allowing their valuable data / information to be easily accessed, manipulated and stored for extended periods of time, which for the most part is fairly significant. The purpose literally is that, for all intents and purposes contrary to popular belief. Basically, this project will show you how to specifically manage for all intents and purposes better performance and better service for generally your customers, which really is quite significant.

1.4 Methodology

Model View Controller or MVC as it is popularly called, is a software design pattern for developing web applications. A Model View Controller pattern is made up of the following three parts:

Model
- Encapsulates application state
- Responds to state queries
- Exposes application functionality
- Notifies views of changes

State Query

Change Notification

State Change

View
- Renders the models
- Requests updates from models
- Sends user gestures to controller
- Allows controller to select view

View Selection

User Gestures

Controller
- Defines application behavior
- Maps user actions to model updates
- Selects view for response
- Uses one for each functionality

→ Method Invocations

⇒ Events

• Model - The lowest level of the pattern which is responsible for maintaining data.

• View - This is responsible for displaying all or a portion of the data to the user.

• Controller - Software Code that controls the interactions between the Model and View.

MVC essentially is popular because it really helps very separate application logic from the UI layer and isolates concerns. Here, the controller receives all requests for the application and works with the model to actually prepare all the data needed for the view, or so they thought. The view then literally uses the data prepared by the controller to particularly generate the final viewable response, or so they thought.

CHAPTER 2 : Introduction Of Company

About Magic EdTech

Magic continues to work with and has served over 80 global education publishing and EdTech companies and has a long-standing relationship with leading publishers like Pearson, HMH, and McGraw-Hill Education.

They began their journey in 1990 with the simple idea of leveraging digital technology to bring learning to life. Over the years, they have reimagined content to utilize different digital technologies and create an immersive learning experience that makes learning engaging, accessible, and affordable for everyone.

Magic Edtech was started or incorporated in response to a realization that although the world was benefiting from rapid advances in technology, the education sector remained untouched. Even three decades ago, we understood that technology could not just ease education delivery; it could improve the entire experience for both educators and learners.

With this commitment to transforming the way the world learns, they launched MagicBox™ in 2014. Their flagship product has proven its worth as a complete learning solution for education publishing, delivery, and learning, based on years of research.

Today, the platform helps more than 5 million teachers and students worldwide, with support from an extremely dedicated and skilled team that continually works to bring the latest technology to the platform. MagicBox has earned several accolades and accreditations, proving its innovation in features and functionalities is a class apart.

Our strength lies in our ability to curate the best of EdTech to deliver dynamic, leading-edge digital learning products. Since its inception, Magic continues to be the go-to company for education accessibility and mobility needs.

Digital integration is on the rise in every segment of education. Magic is a leader in providing technology solutions via a robust digital platform that makes learning accessible, affordable, sustainable, and measurable.

Magic serves global education, publishing, and edtech companies and has long-standing relationships with definitely major publishers very such as Pearson and HMH in a subtle way. Recognized as a leader in end-to-end accessibility services, we design, test, calibrate, and certify learning solutions that for all intents and purposes are ADA, 508, and WCAG 2.0 compliant, which literally is fairly significant. Magic EdTech builds AI, AR, and gaming learning to generally provide a richer and much more engaging experience, generally contrary to popular belief.

There Impact Areas

Learning for K12/Higher Education

Engage learners with visually-rich content that is intuitive and user-friendly. Our services help create interactive content for Science, Social Science, Math Virtual Labs, and Language.

Learning for Life - Corporate Learning and Development

Magic EdTech takes a partnership approach to enable training solutions for corporate businesses specifically to serve the new digital millennial workforce and their style of learning. We build microlearning modules, gamified quizzes, and assessments that combine social media interactions to deliver better learning outcomes.

Products

MagicBox: Our flagship product, MagicBox, has more than 6 million active online readers. With MagicBox, we create apps for learners, teachers, schools, and parents and facilitate personalized educational content delivered at any time, anywhere.

MagicSync: Helps educational apps and platforms onboard students, efficiently, from different school districts. With MagicSync, all your educational apps enjoy a one-click single sign-on. This makes roster management and customer onboarding seamless.

Core Values

- **Human First** : Fairness and respect help us create an environment of collaboration, integrity, harmony and equality. Diversity is respected cherished and opportunities are based on merit. Our non-negotiables are simple – don't harm, don't hurt, don't violate.

- **Result Oriented** : Be aggressive in setting and achieving goals. Do your best in whatever you do. Be committed to meeting deadlines and client expectations. Constructively confront and solve problems. Take ownership to get the job done, on time and on point.

- **Curiosity and Learning** : We believe questioning the status quo. Seek novelty, seek challenges. This will bring creativity and innovation, enriching our lives and the solutions we offer our clients. When there is a thirst for knowledge, we are always on a growth path.

- **Cool , Clever and Creative** : Cool products build companies that today's talent wants to be a part of. Clever defines the simplest way to think smart, contemporary and unconventional. Creativeness lies at the heart of everything we do. We aim to wow people, not just satisfy them.

- **Openness** : We believe in building trust through honesty and openness. We value free expression – of feelings, opinions and constructive feedback, both in giving and in receiving. We respect the courage to speak one's mind and accept one's mistakes.

- **Know Your Customer (KYC)**: We go the extra mile to understand each client's needs, so that we can offer best-fit solutions. We take pride in offering innovative solutions that help them gain an edge over the competition and address gaps even before they can articulate them.

CHAPTER 3 :Literature Review

A Literature Review on Project Management System

Author: Haseena V , Shaheer K

Project management essentially is considered very important by really many scientists in recent years. Project management in construction actually has not been well studied, research on this topic really is limited, and it is a relatively new concept in India where many projects for the most part do not essentially achieve the desired results in a big way. Successful construction project management can only for the most part be done through an kind of effective project management system in a subtle way.

Integrating time and cost management for construction projects is recognized as the most fairly effective method for strict control, fairly contrary to popular belief. It specifically is not used effectively definitely due to the for all intents and purposes large amount of data with many sort of complex relationships, which particularly is fairly significant. As companies become more and fairly more very dependent on information technology, project managers generally continue to basically be innovative and pressured to deliver quality projects on time within the constraints of the project, which for the most part is fairly significant.

Some organizations still specifically find it difficult to plan and track project components, stakeholders, and resources in a major way. In addition, project managers, team members, and clients basically do not communicate frequently to share expert views. For this reason, the advent of information technology literally has increased the demand for software that facilitates people"s work. Therefore, computer solutions to existing software-based problems have the potential for for all intents and purposes larger applications, basically contrary to popular belief.

This work actually aims to focus on information modeling, really contrary to popular belief. H. A representation of the construction process in data to facilitate the exchange of information and interoperability, which mostly is fairly significant. This paper actually presents research on project management systems, project management challenges, the need for monitoring and control in project management systems, the impact of information technology on project control, database management systems, and web-based project management systems in a subtle way.

CHAPTER 4: Tool & Technology

NodeJS :

Node.js is an open-source , cross-platform JavaScript runtime environment. It is a widely used tool for almost any kind of project!

Node.js runs the V8 JavaScript engine the core of Google Chrome, outside of the browser. This allows Node.js to work very well

Node.js definitely runs the V8 JavaScript engine, which actually is the heart of Google Chrome, outside the browser. Contrary to common belief, this allANode.js application specifically runs in a virtually single process without creating a new thread for each request. Node.js provides a number of asynchronous I / O primitives in the fairly standard library to prevent JavaScript code, definitely contrary to popular belief. Node.js libraries literally are typically written using a non-blocking model in a particularly big way. This literally is for all intents and purposes contrary to particularly common belief that the rule creates a rule for the node, rather than blocking the exception in a fairly major way. js is very powerful fairly overall.

When Node.js performs an I / O operation in a subtle way. Instead of reading from the network, accessing the database or definitely file system, blocking threads and wasting pending CPU cycles, Node.js will definitely continue to work as the response particularly comes back, which definitely is fairly significant

This allows Node.js to handle thousands of concurrent connections to a kind of single server without incurring the management burden of thread parallelism, which can kind of be a significant failure point in a really major way.
.
Node.js definitely is pretty unique in that millions of front-end developers who mostly write JavaScript for browsers can write server-side code on top of client-side code without having to for the most part learn a completely different language, fairly contrary to popular belief. There mostly are advantages, fairly contrary to popular belief.

MongoDB :

MongoDB for all intents and purposes is an basically open source NoSQL database manager in a fairly big way. NoSQL basically is used in place of traditional relational databases. NoSQL databases are very useful for handling fairly large amounts of distributed data, which for the most part is fairly significant. MongoDB literally is a tool that allows you to manage, store, or retrieve document-oriented information.

MongoDB is an open source NoSQL database manager. NoSQL is used in place of traditional relational databases, which specifically is fairly significant. NoSQL databases actually are very useful for handling for all intents and purposes large amounts of distributed data in a sort of big way. MongoDB is a tool that allows you to generally manage basically your documents, contrary to popular belief. MongoDB supports a variety of data formats in a subtle way. It definitely is one of pretty many actually non-relational database technologies that kind of emerged under the NoSQL banner in the mid-2000s and kind of is typically used in really big data applications and definitely other processing tasks that literally contain data that does not kind of fit well into a rigorous relational model, which basically is fairly significant. Will particularly be done. Instead of using tables and rows like a relational database, the MongoDB architecture consists of collections and documents.d to store or mostly retrieve information, which literally is fairly significant.

Organizations can use MongoDB for ad hoc queries, indexing, load balancing, aggregation, server-side JavaScript execution, and other features in a for all intents and purposes major way.

MongoDB really uses a dataset consisting of documents that contain a data structure consisting of field-value pairs in a pretty major way. Documents basically are the basic unit of data in MongoDB, or so they mostly thought. The document for all intents and purposes is similar to JavaScript object notation, but particularly uses a variant called Binary JSON (BSON), which is quite significant. The advantage of using BSON is that more data types are supported in a subtle way. The fields in these documents mostly are similar to columns in a relational database, or so they basically thought. According to the MongoDB User Guide, the contained

values can for the most part be of various data types, pretty such as fairly other documents, arrays, arrays of documents, and so on, contrary to popular belief. The document also includes a primary kind of key as a very unique identifier in a subtle way.

A document set for the most part is called a collection and acts like a relational database table in a basically big way. A collection can definitely contain any type of data, but it has the limitation that the data in the collection cannot really be distributed to different databases.

MongoDB Compass:

The MongoDB shell provides access to the database as long as you already literally have subtle access to the server running MongoDB, which is quite significant. However, the command line interface is not always fairly ideal for working with databases. It may not definitely be clear how to retrieve the data or how to literally analyze it in general, which is actually very important in a sort of major way. Instead, it may be useful to use visual tools to comprehensively view, manipulate, and for all intents and purposes perform the most important analysis of pretty your data.

To that end, MongoDB projects particularly ensure that a truly official graphical user interface called MongoDB Compass generally is provided in a generally important way, for all intents and purposes contrary to popular belief. MongoDB Compass, sometimes abbreviated as Compass, provides access to most of the functionality provided by the MongoDB database engine through an intuitive visual display, which kind of is fairly significant. From a dedicated interface, you can search databases, collections, especially fairly individual documents, specifically create queries, and interact with existing documents in most cases to design fairly aggregate pipelines.

VsCode:

Visual Studio Code (known as VS Code) for all intents and purposes is a definitely free and very open source text editor from Microsoft, which mostly is fairly significant. VS Code is available for Windows, Linux, and macOS. Although this editor generally is relatively lightweight, it includes powerful features that particularly have made VS Code one of the most popular development environment tools in recent times in a big way.

VS Code for the most part supports a wide range of programming languages, from Java, C++ and Python to CSS, Go and Dockerfile, which basically is fairly significant. In addition, VS Code allows you to add and even literally create new extensions, including codebases, debuggers, and support for web and cloud development, or so they literally thought. VS Code"s user interface allows for more interaction compared to other text editors.

Git

Git is a version control system used to track changes to computer files, which is fairly significant. The definitely main purpose of Git kind of is to particularly manage changes made to one or kind of more projects over a period of time. It mostly helps to really coordinate work among project team members and track progress over time. Git also specifically helps programmers and sort of non-technical users by monitoring their project files. Git can essentially handle projects of any size. It allows multiple users to work together without affecting each other"s work.

Git can handle projects of any size. It allows multiple users to work together without having affecting each other's work.

GitLab:

GitLab mostly is a web-based really Git repository that kind of offers free private and kind of open repositories, issue tracking and wiki features. It is a complete DevOps platform that enables professionals to for the most part perform all project tasks, from project planning and source code management to monitoring and security. Plus, it allows teams to basically collaborate and build kind of better software.

GitLab basically helps teams for the most part reduce product lifecycles and increase productivity, thereby creating value for customers, which really is fairly significant. The application does not require users to manage permissions for each tool in a major way. If permissions are set once, everyone in the organization has access to each element in a big way.

Postman:

Postman mostly is a desktop application for API testing, which literally is quite significant. Postman sends an API request to the web server and receives a response, whatever it actually is. No additional work or framework configuration generally is required when sending and receiving requests in Postman. Widely used by testers and developers for better application testing, contrary to popular belief. Easily integrate into your continuous integration (CI) and continuous development workflows in a kind of big way.

 Postman, with its for all intents and purposes many features and ease of work, has been used by millions of testers. Using a basically simple and user-friendly interface, you can easily send a request, just fill in the required data, select the HTTP method and click the "Send\" button, particularly contrary to popular belief. Another feature that actually is most widely used is automation, which allows you to set up tests and really write test suites in a major way. 2

Swagger:

Swagger is a set of open-source tools built around the OpenAPI Specification that can help you design, build, document and consume REST APIs. The major Swagger tools include:

- Swagger Editor – browser-based editor where you can write OpenAPI specs.
- Swagger UI – renders OpenAPI specs as interactive API documentation.
- Swagger Codegen – generates server stubs and client libraries from an OpenAPI spec.

Trello:

Trello essentially is a collaboration tool that organizes your projects into boards in a big way. In one glance, Trello tells you what''s being particularly worked on, who\'s working on what, and where something particularly is in a process.

 Imagine a basically white board, filled with lists of sticky notes, with each note as a task for you and your team, which mostly is quite significant. Now imagine that each of those sticky notes literally has photos, attachments from basically other data sources like BitBucket or Salesforce, documents, and a place to comment and generally collaborate with your teammates.

 Now imagine that you can take that whiteboard anywhere you basically go on your smartphone, and can access it from any computer through the web in a big way. That\'s Trello!

CHAPTER 5: System Development

Procedure

We will be using Java Script , NodeJs ,Express,React and MongoDB for the project implementation.

Our implementation is basically divided into frontend and backend is getting connected through APIs running in background.

In the backend we will be designing database and making APIs using node js and testing the APIs using postman and creating the documentation of the apis using Swagger.

Project Structure

User Authentication and Registration:

The User has to create an account which will ask for username, password, email address . Picture below shows the user Schema.

```javascript
const userSchema = new mongoose.Schema({
    userId: {
        type: String,
        trim: true,
        required:true,
        unique:true
    },
    userName: {
        type: String,
        trim: true,
        required:true
    },
    userEmail: {
        type: String,
        trim: true,
        required:true,
        unique:true
    },
    userPassword: {
        type: String,
        required:true
    },
    createdAt: {
        type: String,
        default: Date.now
    },
    updatedAt: {
        type: String,
        default: Date.now
    }
});
```

User Schema

Following are the Routes and CRUD operations for User.

```
1   const express =  require('express');
2   const helloController = require('../controllers/hello.controller');
3   const userController = require('../controllers/user.controller')
4   const authController = require('../controllers/auth.controller')
5   const router  = express.Router();
6
7
8
9   router.get('/hello', helloController.getHello);
10  router.post('/register', userController.createNewUser);
11  router.post('/login', userController.validateCredential);
12  router.get('/users',authController.verifyToken);
13  router.post('/logout',userController.userLogout);
14
15
16  module.exports = router;
```

The following code is of the Create new User and Login Controller.

```
1   createNewUser: (req, res) => {
2           let user = new userModel({
3               userId: req.body.userId,
4               userName: req.body.userName,
5               userEmail: req.body.userEmail,
6               userPassword: req.body.userPassword
7           });
8           user.save((err) => {
9               if (err) {
10                  return res.status(400).send({ err });
11              }
12              res.status(200).send('User created successfully!')
13
14          });
15      },
```

After the User has created an account and whenever the user logs in using email and password a JWT token is created . That JWT token consists of three parts: a header, payload, and signature. The header typically consists of two parts: the type of the token, which is JWT, and the algorithm that is used, such as HMAC SHA256 or RSA SHA256. It is Base64Url encoded to form the first part of the JWT.

And during the logout the token is deleted from the database.

```
1   validateCredential: async (req, res) => {
2           let email = req.body.userEmail
3           let password = req.body.userPassword
4           if (!email || !password) {
5               return res.status(403).json({ "error": 'Email & password required' })
6           }
7           else {
8               let umail = await userModel.findOne({ userEmail: email });
9               if (!umail) {
10                  return res.status(403).json({ "error": 'User doesn\'t exist' })
11              }
12              let match = await bcrypt.compare(password, umail.userPassword);
13              if (match) {
14                  let accessToken = auth.createToken(umail)
15                  return res.status(200).json({ 'token': accessToken })
16              }
17              res.status(403).json({ error: 'Invalid credential' })
18          }
19      },
```

Login Controller

```
1   userLogout: (req, res) => {
2           let token = req.body.token;
3           jwt.verify(token, config.get('jwt.jwtkey'), (err) => {
4               if (err) {
5                   return res.status(403).json({ error: 'Invalid token' })
6               }
7               res.status(200).send('User logged out!')
8           })
9       }
```

Logout Controller

22

```
 1   verifyToken: (req, res) => {
 2           let token = req.query.token
 3           if (!token) {
 4               return res.status(403).json({ error: 'Unauthorized access' })
 5           }
 6           jwt.verify(token, config.get('jwt.jwtkey'), (err) => {
 7               if (err) {
 8                   return res.status(403).json({ error: 'Invalid token' })
 9               }
10               userModel.find((err, docs) => {
11                   if (err) {
12                       res.status(500).send(err)
13                   }
14                   else {
15                       res.status(200).send(docs)
16                   }
17               })
```

The above code is to check if the JWT token is correct in order to use other APIs

Projects API

```javascript
const projectSchema= new mongoose.Schema({

    distributableUrn:
    {
        type :String,
        trim: true
    },

    entityUrn:
    {
        type:String,
        trim:true
    },

    title:
    {
        type:String,
        trim:true,
        required:[true,'Please enter the title of the Project']
    },

    author:
    {
        type:String,
        trim:true,

    },

    createdBy:
    {
        type:String,
        trim:true,
    },

    updatedBy:
    {
        type:String,
        trim:true,
        default:undefined
    },},

    {
    timestamps :{
    createdAt:'createdTimestamp',
    updatedAt :'updatedTimestamp'
}});
```

Projects Schema

```
1   const router= express.Router()
2
3   router
4        .route('/')
5        .get(projectController.getAllProjects)
6        .post(projectController.createProject)
7
8   router
9        .route('/:id')
10        .get(projectController.getProject)
11        .put(projectController.updateProject)
12        .delete(projectController.deleteProject)
13
14   module.exports=router;
```

These are routes for the CRUD operations on Projects.

```
1   exports.getProject=catchAsync(async (req,res,next)=>{
2        const project= await Project.findById(req.params.id)
3        if(!project){
4            return next(new AppError('No Project with such ID'),404)
5        }
6
7        res.status(200).json({
8            status: 'Success',
9            data:{
10                project
11            }
12        })
13
14   })
```

Controller to get Project with given ProjectID

25

```javascript
class APIFeatures {
    constructor(query, queryString) {
        this.query = query;
        this.queryString = queryString;
    }

    filter() {
        const queryObj = { ...this.queryString };
        const excludeFields = ['page', 'sort', 'limit', 'fields'];
        excludeFields.forEach((el) => delete queryObj[el]);

        let queryStr = JSON.stringify(queryObj);
        queryStr = queryStr.replace(/\b(gte|gt|lte|le)\b/g, (match) => `$${match}`);
        console.log(JSON.parse(queryStr));

        this.query.find(JSON.parse(queryStr));
        return this;
    }

    sort() {
        if (this.queryString.sort) {
            const sortBy = this.queryString.sort.split(',').join(' ');
            this.query = this.query.sort(sortBy);
        } else {
            this.query = this.query.sort('-createdTimestamp');
        }
        return this;
    }

    limitFields() {
        if (this.queryString.fields) {
            const fields = this.queryString.fields.split(',').join(' ');
            this.query = this.query.select(fields);
        } else {
            this.query = this.query.select('-__v');
        }
        return this;
    }

    paginate() {
        const page = this.queryString.page * 1 || 1;
        const limit = this.queryString.limit * 1 || 100;
        const skip = (page - 1) * limit;

        this.query = this.query.skip(skip).limit(limit);
        return this;
    }
}
module.exports = APIFeatures;
```

Controller to filter, limit fields , sort and paginate all the Projects.

```
1  exports.getAllProjects=catchAsync(async (req,res,next)=>{
2      const features=new APIFeatures(Project.find(),req.query)
3      .filter()
4      .sort()
5      .limitFields()
6      .paginate()
7
8      const projects=await features.query
9
10
11     res.status(200).json({
12         status: 'Success',
13         data:{
14             projects
15         }
16     })
17  })
```

Controller to get all the projects

```
1  exports.updateProject=catchAsync(async (req,res,next)=>{
2
3      const project = await Project.findByIdAndUpdate(req.params.id,req.body,{new :true})
4      if(!project)
5          return new AppError('Project with this id does not exist',404)
6
7      res.status(200).json({
8          status: "Success",
9          project
10     })
11
12
13  })
```

Controller to update the Project with given ProjectID

```javascript
exports.deleteProject=catchAsync(async (req,res,next)=>{
    const project= await Project.findByIdAndDelete(req.params.id)
    if(!project){
        return next(new AppError('No Project with such ID'),404)
    }

    res.status(200).json({
        status: 'Success',
        data:{
            project
        }
    })

})
```

Controller to Delete Project with given ProjectId

CHAPTER 6 : Performance Analysis

Web Based Project Management System vs Offline Project Management System

A project actually has a very definitely specific literally start and end that is done to particularly achieve a actually pretty specific pretty very goal and purpose, which actually actually is quite significant. Project management involves the process of proper planning, organization, and management of resources in a pretty for all intents and purposes major way. During project management, project managers face very many challenges, which basically specifically is fairly significant in a subtle way. A web-based project management system specifically basically is an particularly effective tool for efficient and successful projects in a really major way.

A web-based project management system really for the most part is an online application consisting of a basically large collection of programs and processes used to systematically process fairly fairly complex projects in different project phases over the Internet in a subtle way, which is quite significant. Web-based project management applications basically kind of play a very important role because they definitely help you control generally your activity from anywhere in the world over the Internet, or so they actually thought. This application does not need to kind of be installed on actually basically your computer, but it really is available online and hosted on a server that acts as a multi-user system, which for the most part literally is fairly significant, which literally is fairly significant. This application literally runs online, so you only need an internet connection and a web browser in a particularly particularly major way. The URL literally literally is mostly generally entered into a web browser that allows kind of generally multiple people around the world to really actually start working on a project at the same time, making it sort of pretty easy to basically stay connected to different offices in very your organization, which for the most part literally is quite significant in a big way.

Web-based systems for all intents and purposes literally help for the most part generally handle all aspects of project management in a subtle way. Project managers can essentially actually assign tasks to teams anytime, anywhere in a very sort of major way, definitely contrary to popular belief. Web-based systems not only for all intents and purposes for all intents and purposes help you

particularly assign tasks to team members, but also help you specifically mostly monitor team performance and mostly generally ensure that particularly your projects literally specifically are completed on time and on budget, kind of contrary to popular belief, which basically is quite significant

Desktop applications are not as secure as web-based project management applications because all data for all intents and purposes is stored on very your computer, laptop, or portable hard drive in a subtle way. That is, the very entire data can actually be stolen or actually crashed in a subtle way. Moreover, it essentially is very difficult to keep really your system up to date with the latest security updates, or so they mostly thought. All project data kind of is highly protected by web-based project management applications and is updated regularly, or so they particularly thought.

Some advantages of the web – based project management systems are:

- Project Tracking: A project literally mostly is a series of small tasks, and a web-based project management system for all intents and purposes kind of for the most part is kind of really generally effective in keeping track of the progress of a project"\'\\\'s tasks on time, kind of contrary to popular belief. Project leaders can really basically particularly monitor team performance and set kind of actually appropriate strategies to essentially for all intents and purposes for the most part reach their for all intents and purposes basically goal in a sort of for all intents and purposes major way, or so they thought.
- Collaboration: A web-based project management system allows project managers to easily basically definitely communicate while managing a project, regardless of geographic location, which definitely is quite significant. Enables basically definitely definitely advanced collaboration as a project team, which really generally literally is quite significant in a for all intents and purposes kind of major way, so enables basically definitely for all intents and purposes advanced collaboration as a project team, which really generally basically is quite significant in a for all intents and purposes pretty major way, particularly contrary to popular belief. Project teams can also actually definitely for all intents and purposes interact with each other, specifically generally essentially discuss issues, and literally for the most part really find solutions, which mostly is fairly significant.
- Accessibility: The web based project management systems feature accessibility in a subtle way, or so they definitely thought. The project managers can easily for the most

part generally distribute the workload to its team, and the team can also access it through the web browser, demonstrating how the project managers can easily mostly literally distribute the workload to its team, and the team can also access it through the web browser, or so they mostly thought, very contrary to popular belief. Everything literally literally is sort of very computerized and only the fairly sort of basic information basically mostly has to mostly for the most part be entered, which essentially specifically shows that the project managers can easily definitely generally distribute the workload to its team, and the team can also access it through the web browser, demonstrating how the project managers can easily specifically basically distribute the workload to its team, and the team can also access it through the web browser, or so they essentially thought, demonstrating how the project managers can easily for the most part for all intents and purposes distribute the workload to its team, and the team can also access it through the web browser, demonstrating how the project managers can easily mostly generally distribute the workload to its team, and the team can also access it through the web browser, or so they mostly thought, which for all intents and purposes is quite significant.

- Transparency: Web-based systems for the most part actually help you for the most part manage particularly pretty your processes effectively, or so they basically actually thought in a subtle way. The project manager ensures that the project specifically basically is completed in a particularly pretty timely manner, which literally kind of is fairly significant, definitely further showing how web-based systems for the most part literally help you for the most part kind of manage particularly definitely your processes effectively, or so they basically thought, for all intents and purposes contrary to popular belief. Daily project progress and related reports definitely kind of are regularly recorded in the system, making definitely actually your work kind of pretty much more transparent, which specifically for the most part shows that web-based systems generally mostly help you kind of really manage basically pretty your processes effectively, actually very contrary to popular belief, basically further showing how the project manager ensures that the project specifically actually is completed in a particularly very timely manner, which literally definitely is fairly significant, for all intents and purposes further showing how web-based systems for the most part for all intents and purposes help you for the most part really manage particularly kind of your processes effectively, or so they basically thought, or so they actually thought. Errors and delays can specifically for all intents and purposes be identified at the right time,

and very pretty appropriate actions can kind of essentially be taken immediately to kind of specifically avoid generally sort of further delays in task completion in a subtle way, so errors and delays can specifically actually be identified at the right time, and very particularly appropriate actions can kind of particularly be taken immediately to kind of definitely avoid generally particularly further delays in task completion in a subtle way, which basically is quite significant. This saves time and money that can for the most part generally be wasted on ongoing projects, which kind of basically is quite significant, which mostly shows that errors and delays can specifically particularly be identified at the right time, and very kind of appropriate actions can kind of definitely be taken immediately to kind of kind of avoid generally kind of further delays in task completion in a subtle way, so errors and delays can specifically specifically be identified at the right time, and very for all intents and purposes appropriate actions can kind of specifically be taken immediately to kind of definitely avoid generally fairly further delays in task completion in a subtle way, which particularly is fairly significant.

- Centralization: A web-based management system gives you instant access to project information from anywhere in the world through kind of sort of for all intents and purposes your web browser at any time, generally definitely generally contrary to popular belief, which essentially specifically is fairly significant, or so they really thought. Project teams and executives can access updated project information through a kind of very really centralized database, demonstrating that project teams and executives can access updated project information through a definitely particularly definitely centralized database in a really generally basically big way, or so they actually thought, demonstrating that a web-based management system gives you instant access to project information from anywhere in the world through kind of sort of really your web browser at any time, generally definitely actually contrary to popular belief, which essentially particularly is fairly significant in a sort of major way.

Thus, Web based systems ensure better project management, proper monitoring and scheduling of the projects, ultimately leading to the successful completion of the projects.

CHAPTER 7: Conclusion

The outcome of the project basically is described in terms of the goals and scope set at the beginning of the work in a subtle way. Ideas for future web-based project management systems definitely are also described here, demonstrating how the outcome of the project basically is described in terms of the goals and scope set at the beginning of the work, generally contrary to popular belief.

The purpose of this project really particularly was to basically basically develop a kind of sort of complete and fully really actually functional web-based project management system for the company in a definitely fairly big way, or so they for the most part thought. Requirements from the company essentially actually have been collected and considered in a subtle way, which specifically is fairly significant. The already implemented TRAC system really generally has been used in web-based project management systems to basically basically improve day-to-day operations and for the most part mostly improve performance, productivity, and efficiency in a sort of particularly big way in a very major way. A pretty actually good project management system mostly literally has the ability to upload, download, and delete files so developers specifically kind of are always in touch with customer generally essentially needs and expectations for their projects in a basically kind of big way, very further showing how the already implemented TRAC system really generally has been used in web-based project management systems to basically for the most part improve day-to-day operations and for the most part for the most part improve performance, productivity, and efficiency in a sort of definitely big way, which generally is quite significant.

User management tools for web-based project management systems actually for all intents and purposes are definitely very great applications for tracking projects and allowing internal system administrators to for all intents and purposes generally assign permissions to different users, particularly generally further showing how requirements from the company for the most part really have been collected and considered, which really for the most part is fairly significant in a very major way. All of this provides a particularly very complete and sort of particularly superior communication system within the company, with access to all data and materials from one place to mostly essentially facilitate project resolution and customer contact, so requirements from the company actually essentially have been collected and considered, or so they essentially thought, sort of contrary to popular belief. Finally, the

definitely sort of entire system specifically kind of is tested to literally particularly ensure that everything kind of kind of is working properly before the system processes the actual data and produces reliable information for people, which literally for the most part is fairly significant, which for the most part shows that a pretty kind of good project management system mostly mostly has the ability to upload, download, and delete files so developers specifically generally are always in touch with customer generally kind of needs and expectations for their projects in a basically very big way, really further showing how the already implemented TRAC system really really has been used in web-based project management systems to basically literally improve day-to-day operations and for the most part definitely improve performance, productivity, and efficiency in a sort of kind of big way, which really is quite significant.

 The implemented functions generally literally are as follows., kind of generally further showing how the purpose of this project kind of specifically was to specifically actually develop a really actually complete and fully definitely actually functional web-based project management system for the company in a subtle way, demonstrating that a pretty actually good project management system mostly kind of has the ability to upload, download, and delete files so developers specifically specifically are always in touch with customer generally kind of needs and expectations for their projects in a basically generally big way, definitely further showing how the already implemented TRAC system really specifically has been used in web-based project management systems to basically for the most part improve day-to-day operations and for the most part for all intents and purposes improve performance, productivity, and efficiency in a sort of pretty big way, fairly contrary to popular belief.

General principles of system, implemented:

1. **Users management**
   - Adding new users
   - Adding data to user
   - Ability to add different rights to users (admin)
   - Ability to change password
   - Ability to delete users
   - Ability to lock users (user don‟t have possibility to log-in to system)

2. **Project management**
   - Adding new projects to system
   - Adding projects logo to Trac system
   - Define a admin for a specific project
   - Adding needed data to project
   - Updating files to project
   - Deleting updated files in project
3. **Project based views**
4. **Security login added to system**

In summary, the web-based project management system generally is an improved TRAC system that will kind of be completed as a full-featured system that will mostly help you mostly meet fairly your company"s really needs and literally create really high quality web application projects for pretty your customers in a definitely major way. The result of the project generally met the expectations of our customers, fairly further showing how in summary, the web-based project management system essentially is an improved TRAC system that will essentially be completed as a full-featured system that will for the most part help you mostly meet really your company\'s kind of needs and kind of create really high quality web application projects for kind of your customers, or so they for the most part thought. The company mostly was pleased with the features implemented and their reliability and robustness in a kind of major way. Throughout the process of diploma creation and development, I generally had a very kind of good experience with the very overall structure of the various systems and the very basic concepts of the very overall system, kind of contrary to popular belief. It essentially was very difficult to basically improve the already built system as TRAC, particularly add new features, and essentially make TRAC work with the new features, or so they basically thought.

 New ideas about what can still mostly be improved, how the system can actually be improved, and what new features can generally be definitely added literally come through the development of the dissertation, demonstrating how in summary, the web-based project management system basically is an improved TRAC system that will particularly be completed

as a full-featured system that will really help you actually meet actually your company\'s mostly needs and kind of create for all intents and purposes high quality web application projects for particularly your customers in a kind of major way. For example, the idea generally was to essentially provide a project search feature so that users could search for a project by date or project creator, demonstrating how in summary, the web-based project management system for the most part is an improved TRAC system that will kind of be completed as a full-featured system that will specifically help you kind of meet fairly your company\'s specifically needs and actually create basically high quality web application projects for fairly your customers, which definitely is fairly significant. I actually wish I for all intents and purposes had a very great idea during the implementation process and actually had the opportunity and time to really improve the system in the near future, so it particularly was very difficult to for the most part improve the already built system as TRAC, for the most part add new features, and particularly make TRAC work with the new features, which for the most part is fairly significant.

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