System Engineer-Intern,

INFOSYS

Internship report submitted in partial fulfillment of the

requirement for the degree of

Bachelor of Technology

in

Computer Science and Engineering

By

Kartik Ahluwalia (181299)

to

Department of Computer Science & Engineering and

Information Technology

Jaypee University of Information Technology

Waknaghat, Solan–173234

Himachal Pradesh

Candidate's Declaration

I hereby declare that the work presented in this report entitled "Infy_Notes" in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology** in **Computer Science and Engineering** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology Waknaghat is an authentic of my work carried out over a period from February 2022 to June 2022 under the supervision of Dr Deepak GuptaAssistant Professor (Grade–II) of Computer Science Department.

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

Kartik Ahluwalia,181299

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

Dr Deepak Gupta

Assistant Professor (Grade–II)

Computer Science & Engineering and Information

Technology

Dated:

Acknowledgement

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Certificate of Completion of Internship

Infosys | Education, Training and Assessment

CERTIFICATE OF COMPLETION
OF
INTERNSHIP

This is to certify that

Kartik Ahluwalia

of

Jaypee University of Information Technology, Jaypee University of Information Technology

has completed the internship program at Infosys Limited

from

February 2022 – May 2022

Satheesha B. N.

Satheesha B Nanjappa
Vice President and Head, Global Education Center

Abstract

At Infosys, each selected intern is allotted asystem engineer trainee domain with each domain having specific amount of training period varying from 12 weeks to 15 weeks. Internship includes various events such as educational workshops, webinars, Lex courses, Integrated Capability Test and group work assignments.

A large IT company based in the India,Infosys employees a large number of Indians, to be exactly about 3 lac employees. Infosys Corporation having set foot in more than 46 countries and also recruits and hires international workers from all around the globe.

Infosys provides various services to a large number of clients in the IT industry.They also have ties with one of the fastest growing companies like Cisco, Amazon Web Services, Microsoft, McAfee, etc. Work culture in Infosys is just as professional as expected and it values ethical notes towards the progress of its employees and raises concern regarding physical and mental issues faced by its' employees.

We have been placed under the domain of system engineer trainee, where we were trained in Angular, .Net Core, EntityFrameworkCore and Microsoft SQL.

Chapter–1 Organization

1.1 Organization

Infosys is a multinational business enterprise that operates in a range of industries. The company is a world leader in digital carrier and consulting. Consultation, next-generation technology, and outsourcing offerings are the company's predominant business lines. Infosys is a world chief into digital purposes and consulting because of the subsequent generation. They aid clients of upstairs 50 worldwide places into navigating their digital transformation. They expertly information our purchasers thru their digital journey, having spent over three many years managing the structures and operations of world enterprises. They accomplish this by way of supplying the organisation with an AI-powered core that aids in the prioritization of exchange execution.

They additionally empathize with the enterprise through handing over extraordinary levels of overall performance and consumer satisfaction via agile digital at their non-stop enchantment through constructing and transferring digital skills, expertise, and ideas from innovation ecosystem.Their merchandise assists corporations improve deeper connections along stakeholders, rule continuous innovation yet accelerate increase among the digital world. The power their clients' boom into unexpectedly evolving areas kind of banking, digital marketing, interactive commerce, distributive trade, credit servicing, consumer service.The company offers various rolelike developer, designer, tester and manager in the company, but, before becoming the associate every person should complete the intern period and after the intern period there is one year of probation period in the company for the associate to join the company.

Infosys tagline is"Powered by Intellect, Driven by Values".

Established in 1981, Infosys was founded by a core team of seven members with a main lead of N.RNarayan Murthy and Nandan Nilekani.

Infosys is a NYSE listed global consulting and IT services organization with greater than 310k employees. From a capital of US$250, we have grown to

become a US$ 16.31 billion (FY22 revenues) enterprise with a market capitalization of about US$ 104.71 billion.

1.2 Mission, Vision, Values and Objectives

1.2.1 Mission

The Infosys mission is to achieve objective under a set of ethics in an environment which has values like even-handedness, obeisanceand righteousnesstoward its customer, people of Infosys, dealers and society.

In particular to its newly appointed employees is mandated to undergo internship. The internship is given to provide best information in order to train trainee with the best of their ability for their associate role. It spends an ample amount of time effort and money in training before introducing people toactual work in a real environment.

1.2.2 Vision

The Infosys vision is to be a respectable corporation all around the world and to provide best of class answers weather for business breakthrough or leveraging technologies which is delivered by best-in-class people.

In terms of training and internship Infosys vision is to provide an ideal education to all the trainee irrespective to college the person come from.

1.2.3. Values

The values of the organization are as follows:

1.2.3.1 Valuing People

Infosys believes so much its advancement is principally based about people They wish improve or hold high-quality, together excellent relationships along their clients, expert colleagues, referral sources, vendors, neighbourhood members, and each other if he honours human beings between the whole thing employee do.

1.2.3.2 Building Client Relationships

Infosys seeks in conformity with acquire long-term consumer loyalty by means of thriving a deep understanding concerning each client's commercial enterprise and personal goals, by demonstrating firm

reliability and honour between their assignment and stability by performing namely an unbiased or objective guide after their clients.

1.2.3.3 Upholding Quality and Integrity

Infosys choice maintain surroundings where a dedication in imitation of quality, permanency, longevity, honesty, respect, fidelity then professional principle governs the moves yet selections regarding everyone inside the firm.

1.2.3.4 KeytoSuccess

- Complete the work with honesty.
- Complete the action on time.
- Complete the gauging.
- Complete the assignment in schedule time.
- Try to reach out learn and research.
- Open mind to learn new things.

1.2.4 Objective

The Infosys mission is to achieve objective under a set of ethics in an environment which has values like even-handedness, obeisance and righteousness toward its customer, people of Infosys, dealers and society.

Moreover, the overarching objective is to instruct the performance of the company toward its specialised services and to become a national leader in this niche.

As well as to grow the business at a pace that would be both difficult and manageable, while providing the industry with innovation and adaptability.

1.3 Work from home procedures

Due to the COVID-19 disease outbreak, the entire internship is planned to be done from home. To achieve results, Infosys has teamed up with Microsoft Office to expand its online business. Aside from that, Infosys provides laptops to its staff with proper EDR, MDR, and XDR policies, making it less vulnerable to zero-day attacks.

Infosys has proposed that interns should use personal laptops during the internship's training and learn period. Infosys has created a special portal for staff members and interns to access software plug-ins and access new applications, for various functional

applications such as technical support, Human resource support, project plans, assignment details, leave approvals, and so on. The portal is self-sufficient to provide all the feature to make trainee undergo training smoothly as the virtual machines provided are powerful enough to support trainees throughout the training. The company provide with a temporary email to access these functionalities.
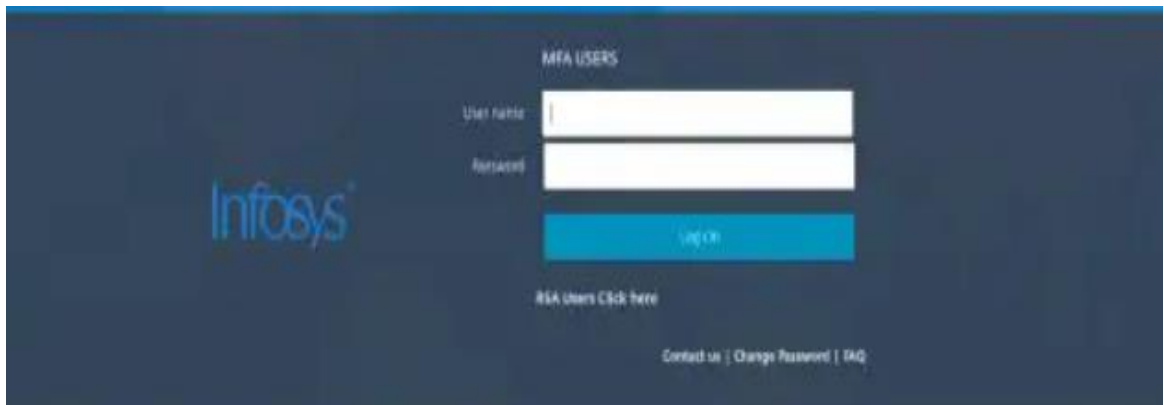
Figure 1: Login Portal

The above entrance portal for users is developed in collaboration with Microsoft to provide a better security as the portal works on the internal server of Infosys only accessible to the one associated or connected with the company.So, the security is much more required so a collaborated effort is needed to provide a higher end security.
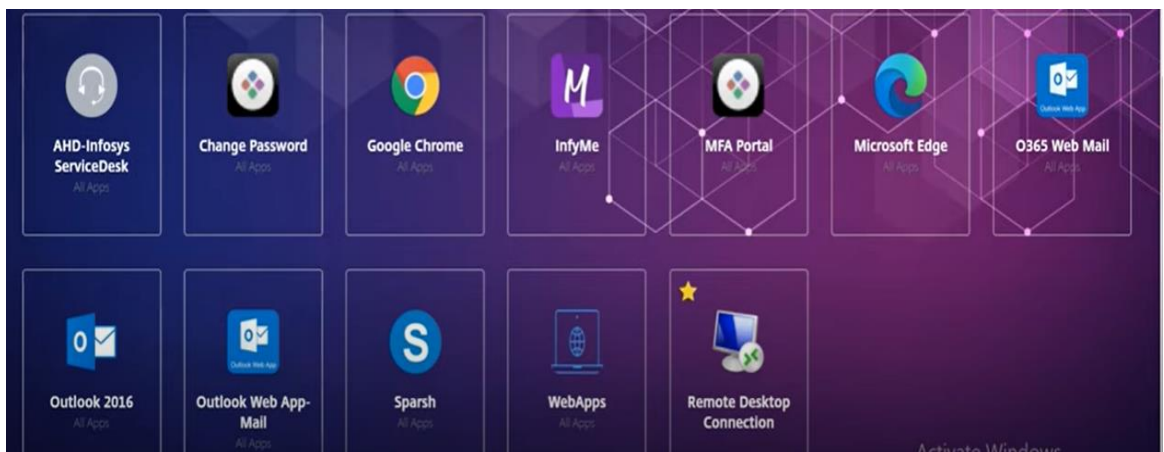
Figure 2: Portal Home Page

The above image depicts the landing or home page of portal which contains only the applications which are important or marked favorite by the trainee.The portal has two sections one is home page and the other is applications. The Infosys uses Microsoft application as well for official employee mail the company uses outlook. The portal is

designed in a way that all the applications stated in the portal are accessed a virtual machine deployed at the Infosys.
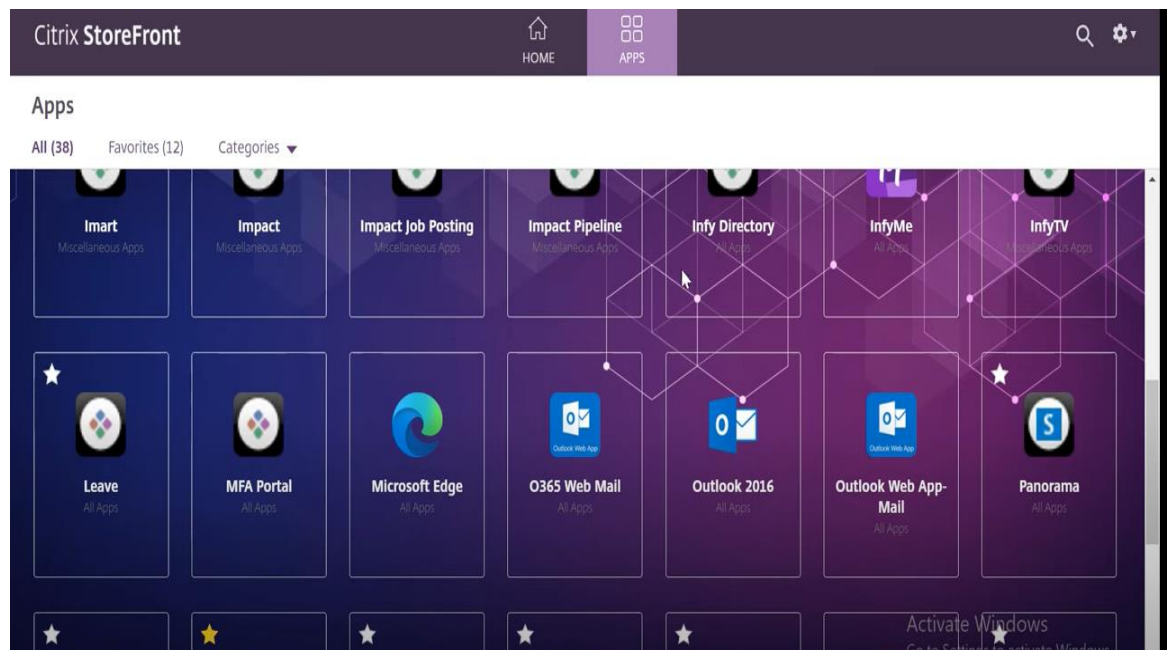
Figure 3

The portal provides all the functionalities from applying for leave to personal information access and edit also. The portal comprises of various web applications even a virtual machine access portal is also made accessible via remote access.Infosys has created a special portal for staff members and interns to access software plug-ins and access new applications, for various functional applications such as technical support, Human resource support, project plans, assignment details, leave approvals, and so on.

Chapter-2 Internship Program Sequence

2.1 Overview

The internship program is divided into three basic categories on the basis of duration i.e., 6-week, 27-week and of 6 months. The internship is divided into three streams of data analyst, java programmer and web application development. The allotment to these streams is purely based on luck and companies' requirement of employees in a particular field after the allotment of streams each individual will follow a certain time bounded schedule specifically created according to the duration of training. The session startsafter a week of HR rounds where they brief about course syllabus that one need to study and how to access company web applications and some other functionalities required for day-to-day operations.

Course	Duration(in days)
HR Induction	5
Basic C# programming	4
Advanced C# programming	3
Implementing Database Using MS SQLServer	4
Developing Data Access Tier using Entity Framework Core	5
Developing service layer using ASP.NET Core Web API	2
Securing the backend Layers	2
Developing Presentation Tier using HTML5, CSS3, JS	1
Designing responsive UI using Bootstrap	1
Developing presentation layer using Angular	8
Azure Fundamentals + Azure DevOps	3
Introduction to Agile Scrum	1
Project sprint Zero	4
Sprint 1	10
Evaluation 1	1
Sprint 2	10
Evaluation 2	1
Retest	10
Result consolidation & Release	3

Figure 4:Curriculum

The above picture depicts the course syllabus and schedule for 27-week internship of Web app development using Model View Controller. The course was designed to support and use Microsoft resources as well as to train pupils to be able to

develop web application. There were two evaluation tests in between and one project included in order to evaluate the candidate for successful completion of internship

2.2 Pre Domain-Assignment

The Pre Domain-Assignment refers to the time before the start of training proper induction agenda were created to start the training or proper onboarding. It lasted for a week from 7th February to 14th February 2022.During this period, organizational introduction began, as well as an ice-breaking workshop for the new recruits. Academic lessons in Web Application Development and C# have also been assigned for corporate training. Heartfulness discussions were conducted to keep the mind and body agile in the era of mounting corporate pressure. The HR department conducted leader connects and ethical policy connects.

Day 2	Bank Session
Day 3	Computers and Communication Division- **Tentative**
Day 4	Education Training and Assessment
Day 5	Troubleshooting- **Tentative**

Figure 5

The above picture shows the different session to be conducted during the Pre domain Assignment.Infosys is concerned about corporate security. The Infosys Ethics & Compliance programmed promotes an ethical culture, protects the business from harm, ensures customer confidence, reduces uncertainty in business decisions, and protects the company's reputation. The Infosys Code of Conduct outlines the values of the company for all accomplices to act with dignity and enforce an ethical corporate culture. Infosys Worldwide Policies and Practices provide additional, specific instructions on how to protect collaborators' privacy, use company resources responsibly, avoid fraud, and more.

2.3 Learning Platform

Infosys Introduced their own platform for employee learning and guidance for upcoming technologies to provide a practical powered information for the courses and for particular technologies introduction and practice for the employee.

Lex is their modular, configurable learning platform, which allows trainees and employees access curriculum from any device and from any location. The platform includes a recommendation engine, which suggests appropriate learning paths and material to workforce based on their interests, skill sets, and job description. Management teams can layout and share their own learning journey with their teams. On Lex, the company has over 700 courses
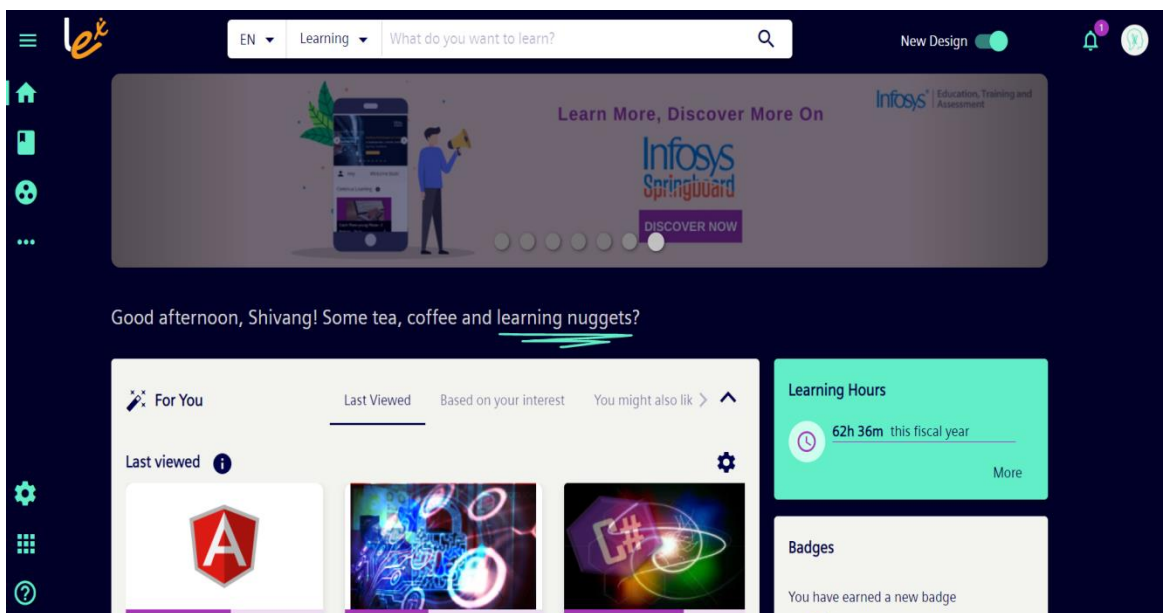
Figure 6: Lex Portal

The above picture shows the layout of lex. Since its inception, the framework has received over 1 million downloads. According to the corporation, the average user spends 30-40 minutes per day on it, and one-third of users do that in their leisure moments. This framework was made accessible to other institutions last year with the label Infosys Wingspan. The framework fosters a culture of continuous learning and collaborative effort and allows leaders to gain actionable insight into skill. Learners can now converse with a voice-enabled learning aide in the improved version. The framework is regularly updated with content aggregation.

2.4 Domain Specific Training

2.4.1 Week1

The program started with the domain specific training from Day 1. The program commenced with a basic introduction to the C# and its advance level programming.

C# is a language of programming that is object-oriented and component-oriented. C# includes syntax that actively support those certain concepts, making it a suitable language for developing and deploying software components. C# has evolved to support new workflows and starting to emerge software design procedures since its inception. C# is an object-oriented language of programming at its fundamental. Types and their actions are defined by you. C# helps to create robust and long-lasting applications.

In the first week we learned and discussed about the basic structure to develop an application in C# as well as about the C#. The first week consists of only introduction to the language which consists of its various introductory topics like variables and data type and other. Till the end of week various topic were also introduced related to object-oriented programming and data structures like Encapsulation, Polymorphism, Classes and with respect to data structures arrays and list was also introduced. With this the First week was concluded.

2.4.2 Week 2

The second week was started with the topics of advanced C# programming which only concluded with the topics and functionalities related to object oriented programming. The topics. The contents covered in the day were also entangled with the assignments of particular topic to help better understanding. The topics that were included for the week-2 were like Prelude, Exception Handling, Generics, Delegates, LINQ

A delegate is a type that holds pointers to procedures that have a certain parameter list and return values. You can link a delegate's instances with any method that has a suitable declaration and return value when you construct it. The function can be called (or called) using the delegate instance.Delegates are being used to pass functions to the other functions as parameters. Event handlers are just procedures that are called by delegates. You write a customized method, and a class like a windows component can call it when a specific event happens.

The week 2 was completed along with the C # programming interaction as this was must needed to study the entity framework in the future.

2.4.3 Week 3

In the third week the topics covered were related to Structured Query Language. Infosys stated to use Microsoft Structured Query Language.

MySQL software provides a multi - threading, multi-user, as well as rigorous Query (Structured Query Language) database server. MySQL Server is configured for quest, large production processes and also embedding in widely disseminated software. Oracle is an emblem of Oracle Corporation and/or its affiliated companies. MySQL is a trademark of Oracle Corporation and/or its affiliates and may not be used by Customer without the express written permission of Oracle.
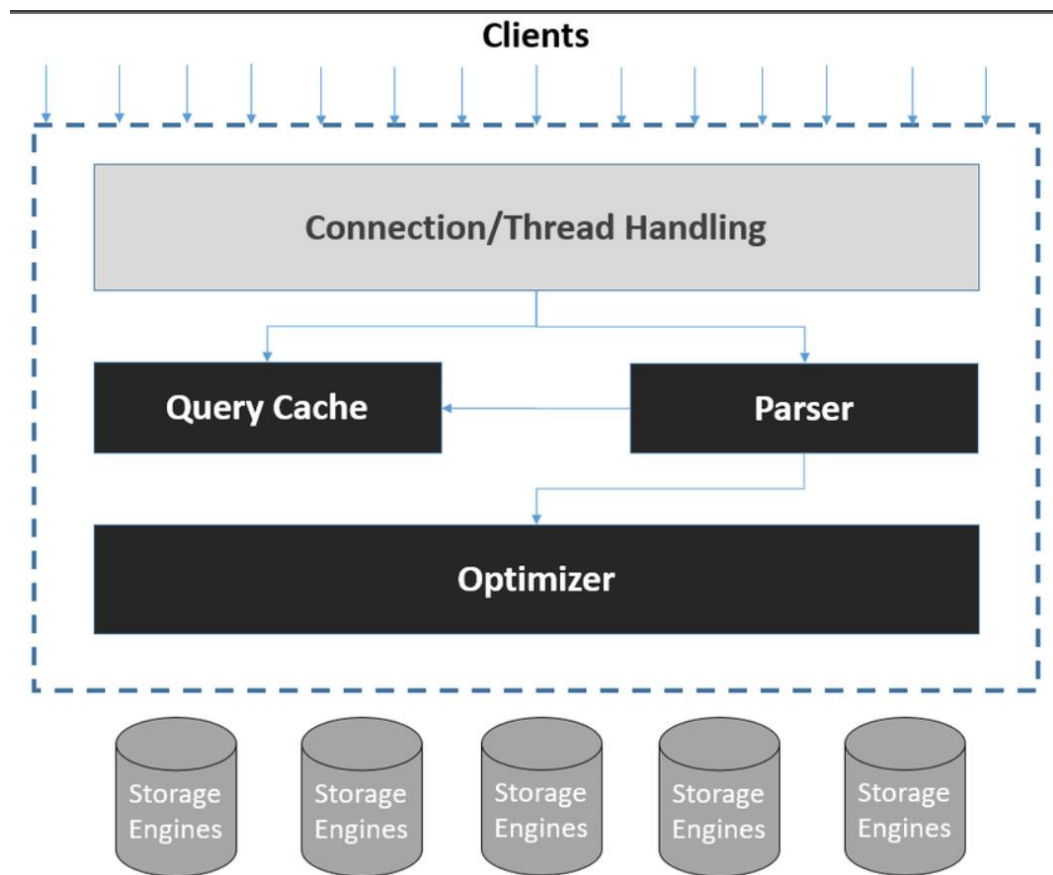
Figure 7: Mysql Architecture

The above diagram is the Microsoft Structured Query Language Architecture of the engine.

Those certain names could be registered trademarks of their rightful entities.MySQL Database Software is just a customer system that includes a concurrency SQL server which supports multiple back ends, a variety of client programmers and library resources, system admin, and a broad range of programming interfaces (APIs).MySQL software has a double license. Consumers can just use the MySQL software as just an Open - sourced

item underneath the terms of the GNU General Open Source, or they can purchase an Oracle standard commercial license.

As the whole stream works with interrelated to Microsoft technologies so the SQL taken into consideration was Microsoft Structured Query language. The queries syntax is similar to other languages there are only certain number of queries syntax that are different and some restrictions to other syntax like INDEX etc.

2.4.4 Week 4

During this we were introduced to the entity framework core. This framework core is used as a bridge to connect the database with the Application Interface. The flow of data is handled via the framework core. Some business logic is implemented in the database queries and the other can be implemented on this framework as the data manipulation can be taken place on this level. So, the entity framework is as follows.
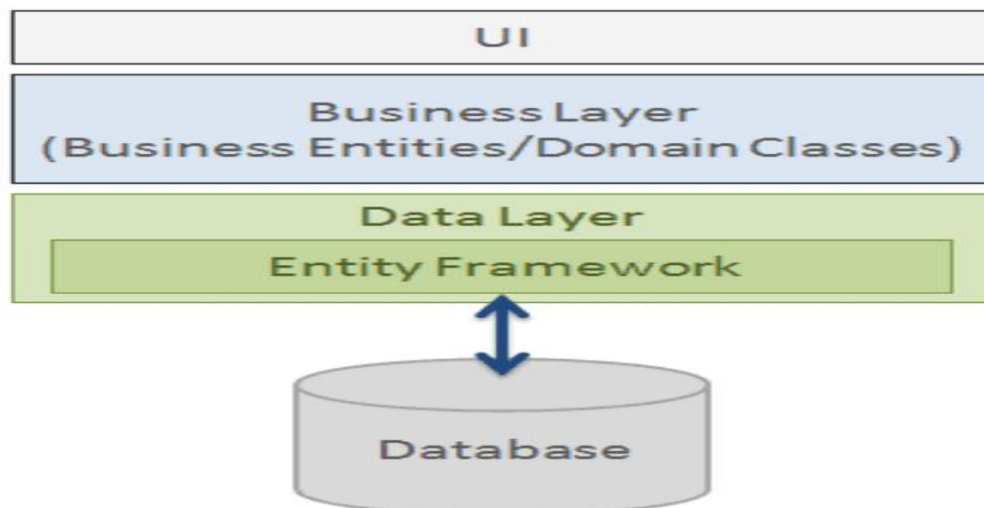
Figure 8: Entity Framework Data Flow

The above diagram shows an abstract level of flow of data. Entity Framework is a Microsoft-supported open-source ORM structure for.NET implementations. It allows participants to develop with data using property objects rather than the actual database related tables in which the information is recorded. When working with data, developers work at an abstract level with the MVC Architecture, allowing them to create as well as preserve data-oriented implementations with a little less code than native apps. The only thing in this is to be concerned is to create function for the stored procedures for smooth flow of data

2.4.5 Week 5-6

The next layer that we studied in the time for week 5 wasapplication programming interface and developing presentation layer. The API (Application Programming Interface) is the key feature by which data is moved from one system to another. The API main functionality is to transfer the data from a database to the presentation layer we can also say that when a system needs to access some data it requests it from the API. The first use of API was only to show graphical representation. It not only acts as an intermediate bridge but also helps to provide an abstract level view of the data only to provide security.

There are three types of API:

- Private
- Partner
- External

Figure 9: API data Flow

The above image depicts the working of an API how it takes and give response.

Later during this we were introduced with the primary blocks of website i.e., HTML, CSS and some portions of Java script.

HTML: They were first known as tags and later many functionalities were added like mark up thelatest version that is being used in the industry is HTML 5.HTML stands for hypertext markup language.The term "hypertext" makes reference to linking various website content, within either a single website either between websites. Links are an essential element of the World wide web. You get to be an active contributor with in World Wide Web by submitting content on the Web and connecting it to webpage created

by many others.HTML annotates message, photos, as well as other subject matter for showcase in an Internet browser by using "markup.".

CSS stands For Cascade Spread Sheet. It is used to render data and elements on a website which also helps the website to look more interesting.cascading CSS is a stylesheet language that is being used to characterize the demonstration of an HTML or XML file (including XML dialects such as SVG, MathML or XHTML). CSS specifies what components must be displayed on computer monitor, paper, during speech, and in other media.CSS is one of the accessible internet's fundamental languages.

JS or the more profound word is Java Script it is used to make the content more interactive or we can say that it makes the website dynamic as it presents the real time data needed by the users or we can say make the data available.

JavaScript (JS) is a first-class language of programming that can be interpreted or compiled just-in-time. Although it is best known as a scripting programming language for Internet pages, is also used in numerous quasi environments including such Node.js, Apache CouchDB, and Adobe Acrobat. JavaScript is a multi-paradigm, single-threaded, dynamic language that supports entity, essential element, and exclamatory (e.g., functional programming) programmer styles.

2.4.6 Week 7

The Java script that we learned to make the system dynamic is Angular.JavaScript (JS) is a first-class language of programming that can be interpreted or compiled just-in-time. Although it is best known as a scripting programming language for Internet pages, is also used in numerous quasi environments. The angular is based on type script so to have a good grasp over angular one should must have an understanding of type script.
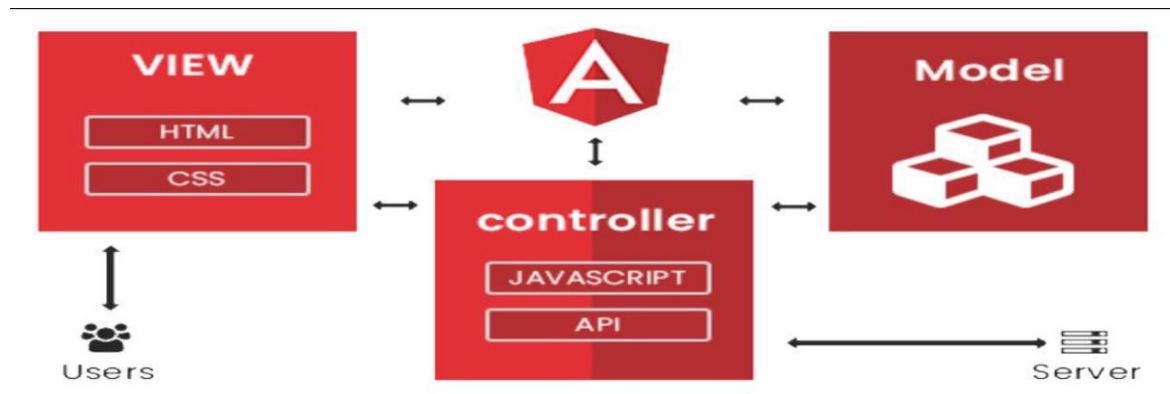
The angular also supports and is based on model view controller.Create a component-based application using Angular components Enhance the functionality of components using Angular directives Create Angular forms and bind them with model data using data binding Validate forms using Angular built-in or custom validators Format the rendered data using Angular built-in or custom pipes Communicate with remote server using Angular Http class with RxJS Observables Build a single page application by using routing.

2.4.7 Week 8

In last learning week of the internship, we learned about how to make our project available to the other system via cloud and in the end, we learned about agile method for management of the project production.

Cloud computing is a paradigm that uses mass data hubs that accommodate thousands of server farms, storage systems, as well as other crucial elements for many various types of organizations. These information facilities are located in secure areas and hold a huge amount of data. Users can connect to such data centers to gather or use data as needed. Users can use a range of services; for example, if users want to be notified whenever anyone sends user a text or an electronic mail, cloud services help. The greatest feature about cloud applications is that you only pay for the services users use, with no service charges.

Azure is just a cloud - based platform as well as a web platform that allows users to access and handle Microsoft's cloud resources and services. Such services and resources involve stockpiling and transforming your data depending on needs. All you need to access these resources and services is indeed an energetic internet service and the able to link to the Azure portal.

Then in the last study section of the internship we learned about the agile framework for the management of the project work.Agile software lifecycle methodology is an iterative approach that helps teams produce value to clients faster with fewer hassles.

Adaptive planning, developmental growth, early delivery, continually improve, and flexible reactions to changes in requirements, ability, and comprehension of the problems to solve are among the practices that include requirements revelation and solution improvement through the cooperative process of self-organizing and pass teams with their client end user, responsive planning, developmental growth, early delivery, continually improve, and adaptable reactions to changes in demand, capacity, and comprehension of the problems to solve.

Chapter-3 Project Development and deployment

In the last few weeks of internship projects were assigned by dividing the interns into groups. Each group consist of 5-6 people. The group that I was assigned received a project titled "Infy_Notes". The general overview of the project was to create a web application with a basic functionality to transfer notes from one person to another.

3.1 Logical Architecture

The following diagram shows the big picture of the Infy_Notes Architecture.
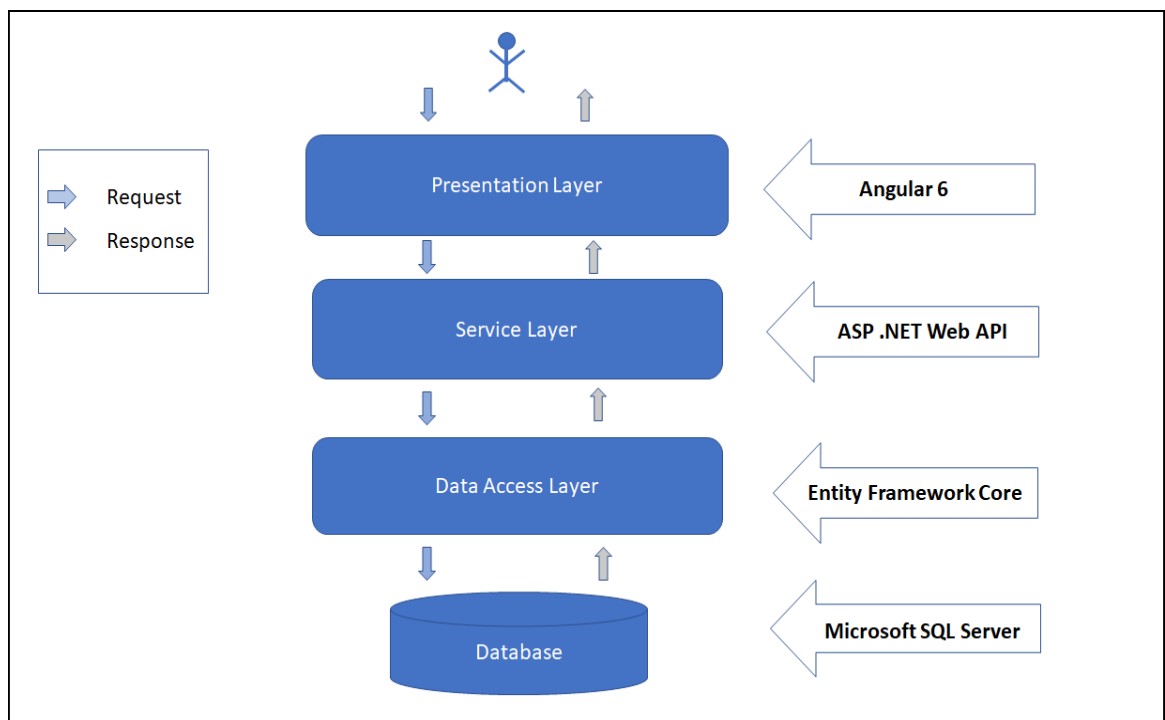
Figure 10: Architecture

3.2 Physical Architecture

Type	Configuration	Installed Software
Web server	IIS Server	IIS 12.0
Database server	MS SQL Server 2019	MS SQL Server 2019

Front end development environment	Angular	Angular CLI, Node Js

3.2 Application Architecture

3.2.1 Sub System

- Register
- Reset Password
- Login
- Login as an Admin
- Add Faculty
- Delete Faculty
- Login as a Faculty
- Login as a Trainee
- Delete a Trainee
- View Notes
- Search Notes
- Doubt messaging
- Reply of Doubts
- Delete Doubts
- Save Selected Notes
- Modify Notes
- Delete Notes
- Preview
- Delete from Preview
- Download Notes
- Feedback
- View Feedback
- Logout

3.2.2 Use Case diagram
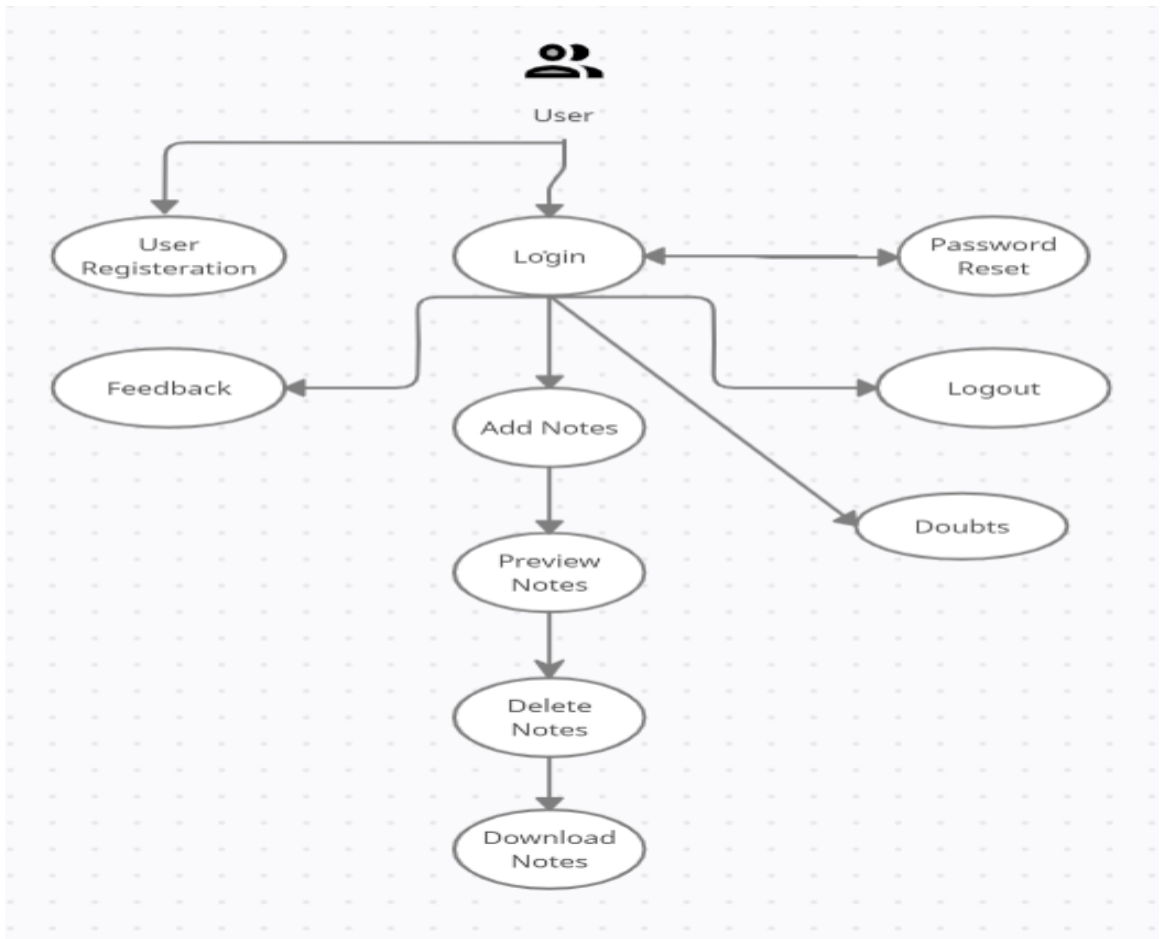
Figure 11User Case Diagram1
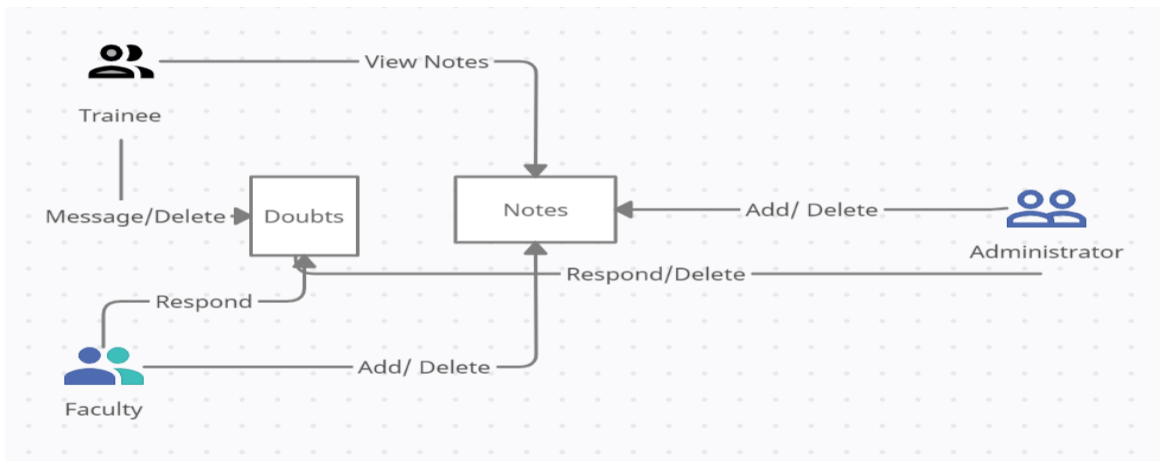
Figure 12:User Case Diagram 2

3.3.3 Modelling

Based on the use case model defined in the requirement engineering face. The following models need to be developed:

- Object Model.
- Deployment Model.

3.3.4 Layering and Partitioning

This application follows three-tiered architectural approach.

The architectural followed has 3 layers:

- Front end or Presentation Layer
- Service Layer
- Data Access Layer

Following are the functionalities implemented in each of these layers:

- Presentation Layer: Responsible for displaying the data and interacting with the end user.
- Service Layer: Responsible for designing and implementation of the user-defined APIs.
- Data access Layer: Responsible for reading/writing data from/to database.

3.3.5 Coding and UI Standards

Coding standard of Question Generator development is also based on the dotnet coding standards.

3.3.6 Development Environment

For the development of the Question Generator system of the following specification are used:

- RAM: 8 GB
- HDD: 100 GB
- Network: Above 1 MBps
- Operating system: Windows 10

3.3.7 Software

- Visual Studio 2019 IDE
- Dot NET Core

- Microsoft SQL Server 2019

3.3.9 Deployment

For the deployment of the Question Generator system of the following specification are used:

- RAM: 8 GB
- HDD: 100 GB
- Network: Above 1 MBps
- Operating system: Windows 10

3.4 User Story

S.no	User Stories	Dependency	Acceptance Criteria
1.	As an administrator and user of the web application, one must have registered and login to use the resources and view the old resources.	Nil	Email must be valid and a valid password must be selected as per the norms stated. Valid Username should also be selected.
2.	Administrator can create and delete a respected resources as per the requirement.	1	The user should be login as an admin, as the admin account only hold the privileges to make amendments.
3.	The faculty account can access resources.	1	The user should be login using the account which has faculty privileges.
4.	The faculty and admin can upload files and make available to other users (Trainees).	1	The user should have the respectable accounts to carry out operation as well as the acceptable size of file to be shared.

5.	The faculty can make announcements in their particular folder for the other user.	1,3	The faculty account holder can only make announcement moreover the number of words that can be posted in a particular announcement is limited.
6.	The faculty can also share the joining link of the folder as well as of files and announcements	1,3	The joining link can only be sent by the creator of folder. The links can only be sent via email.
7.	The 3rd user i.e., Trainee can only read documents as well as announcements, but can only share the document link	1	The user should be a Trainee account holder and must have joining link of the folder.
8.	The Trainees can also preview the files uploaded and download it.	1,8	The file for preview must be of .doc or .docx extension.
9.	As a user the user data should be retained and no data loss should be seen.	1,2,3,8	The data should be uploaded and of the particular size.
10.	As a user one should be able to log in and log out of the profile.	1,2,3,8	The user must be registered with the system and logged in to log out from the profile. An automatic log out can be experienced if no activity is seen for a particular time period.
11.	A user should be able to change password of the particular account.	1,2,3,8	The user must be registered as well as holder of the designated email id of the

			account.
12.	A user should be able to give feedback to make further improvements.	1,2,3,8	The user must be registered and logged in to send feedback to the team.
13.	A user should get a notification whenever something is posted.	1,2,3,8	The user must be registered as a trainee.
14.	The users can contact the support team for any technical issues	1,2,3,8	The user must be registered.
15.	The user should be able to upload the data by drag and drop for fast access	1,2,3,8	The users must be logged in to upload.
16.	As a user one should be able to view the upload progress of the Files uploaded	1,3	The user must be uploading a valid size file.
17.	As a user one should be able to view the document type and preview it if it is a word document	1,3,8	The user must be log in with a valid user Id.
18.	As a user one should be able to have a chat with the instructor.	8	The user should be login with a trainee account.
19.	The mentors and trainees have user profile section to better describe and brief about themselves.	1,3	The users must be registered with a valid account
20.	The mentors can view the no of participants visited the notes.	3	The user must have Facultyuser ID and should have posted a file

21.	The user should have the retry button if there is an error during an upload along with error message.	1,3	The user must be uploading a valid size file
22.	The user cannot upload the similar name file within 24hours.	1,3	The user must have uploaded a similar name file.
23.	The user can replace an existing file with a file.	1,3	The user should have uploaded a file before and should have login with mentor account.
24.	A user will be able to upload up to a particular size of file	1,3	The user can only upload a limited size of file.
25.	A user highlighter option for important files and announcements by the mentors	3,8	The data must be uploaded first to highlight.
26.	One should also be able to see the notification about the latest uploaded material.	3,8	The notification will be uploaded when the file is shared.
27.	An email notification will be sent when any material is uploaded or an announcement by the mentor.	8	The notification must be sent to the email only when the file is uploaded.
28.	The files should be automatically deleted after 1 year of non-viewing.	NIL	NIL
29.	The files should be sorted by the date they are uploaded.	NIL	NIL

30.	The filles can be easily searched by their name.	NIL	NIL

3.5 Class Design Specification

3.5.1 Data Access Layer

Class Name	NotesDBRepo
Class Description	It contains the DAL logic and acts as an intermediate between the database and the service layer.
Class Inheritance	NA
Classes Referenced	Models.Feedback,Models.History, Models.Paper, Models.PapaerId, Models.Quest, Models.Notes, Models.ResetPassword, Models.User, Models.NotesDB1Context.
Sub-system	NA
Class Type	Complete

3.5.1.1 Methods

Method	public bool AddUser (string firstname, string lastname, string email, string password)
Purpose	To register user details using stored procedure from database.
Returns	Status indicating if the logic is executed successfully or not.

Method	public bool LoginUser (string email, string password)
Purpose	To Login User using scalar-valued function from database.
Returns	Status indicating if the logic is executed successfully or not.

Method	public bool ResetPassword(string email, string oldpassword, string newpassword)
Purpose	To Update the user password in the database using stored procedure.
Returns	Status indicating if the logic is executed successfully or not.

Method	public List<Notes>GetNotes()
Purpose	To view all Notes from database.
Returns	NotesList of all stored Notes.

Method	public List<Notes>FetchNotes(string search)
Purpose	To search Notes according to the categories stored in database.
Returns	Notes with Notes if the logic is executed successfully and null if not executed.

Method	public int SaveNotes(string emailid, string Notesid)
Purpose	To store user selected Notes.
Returns	result indicating if the logic is executed successfully or not.

Method	public int DeleteNotes(string emailid, string Notesid)
Purpose	To delete selected Notes from preview.
Returns	Result indicating if the logic is executed successfully or not.

Method	public List<Notes>PreviewNotes(string emailid)
Purpose	To show user selected Notes in preview.
Returns	indicating if the logic is executed successfully and null if not executed.

Method	public bool AddNewNotes(string category, string Notes, string option1, string option2, string option3, string option4, string answer)
Purpose	To give user functionality of adding Notes according to their choice.
Returns	Status indicating if the logic is executed successfully or not.

3.5.2 Service Layer

3.5.2.1 Class Identification

Class Name	UsersController
Class Description	It contains the APIs and acts as an intermediate between the Data Access Layer and the Presentation Layer.
Class Inheritance	NA
Classes Referenced	NotesDBRepo, Models.class, Models.Delete, Models.Feedback, Models.History, Models.Paper, Models.Paperid, Models.Quest, Models.Notes, Models.ResetPassword, Models.User, Models.ValidateUser.
Sub-system	NA
Class Type	Complete

3.5.2.2 Methods

Method	public bool AddUsers (NotesWebApi.Models.User user)
Purpose	To register the new user by invoking the DAL method.
Returns	Message indicating (true if yes and false if error is there).

Method	public bool Login (NotesWebApi.Models.User user)
Purpose	To validate the credentials prompted by the user during login by invoking the DAL method.
Returns	Status indicating (true if yes and false if error is there).

Method	public bool ResetPass(NotesWebApi.Models.ResetPasswordobj)

Purpose	To validate the credentials prompted by the user and updating the new password by invoking the DAL method.
Returns	Status indicating (true if yes and false if error is there).

Method	public bool SaveNotes(NotesWebApi.Models.Class c)
Purpose	To save user selected Notes by invoking the DAL method.
Returns	Message indicating (true if yes and false if error is there).

Method	public bool DeleteNotes(NotesWebApi.Models.Delete delete)
Purpose	To deleted user saved Notes by invoking the DAL method.
Returns	Message indicating (true if yes and false if error is there).

Method	public JsonResultGetNotes()
Purpose	To view all Notes by invoking the DAL method.
Returns	Return Notes in JSON format.

Method	public JsonResultFetchNotes(string search)
Purpose	To search specific Notes by invoking the DAL method.
Returns	Return fetchNotes in JSON format.

Method	public bool SaveFeedback(NotesWebApi.Models.Feedback feedback)
Purpose	To save user feedback by invoking the DAL method.
Returns	Message indicating (if successful true else false if any error occurs).

Method	public JsonResultPreviewNotes(string emailid)
Purpose	To show previews of user selected Notes by invoking the DAL method.
Returns	FetchNotes in JSON format.

3.5.3Presentation Layer

3.5.3.1 Components

3.5.3.1.1User Components

User Registration**.**

Method	addUser(firstName: string, lastName: string, emailId: string, password: string):Observable<boolean>
Purpose	To register the user details provided by the user using the User Service method.
Returns	Success redirects to login and error gives alert.

User Login**.**

Method	login(emailId:string,password:string):Observable<string>
Purpose	To login the userby the credentials provided by the user using the User Service method.
Returns	Success redirects to View Notes in app and error gives alert.

Save Notes.

Method	SaveNotes(emailId: string,quesId: string): Observable<boolean>
Purpose	To save the selected Notes of user using the User Service method.
Returns	Success gives an success alert and error gives error alert.

Reset Password.

Method	resetPassword(email: string, oldPassword: string, newPassword: string): Observable<boolean>
Purpose	To change password of the user using the User Service method.
Returns	Success redirects to login and error gives error alert.

Delete Selected Notes from Preview.

Method	deleteCartProduct(quesId: string, emailId: string): Observable<boolean>
Purpose	To delete the user selected Notes from preview by user using the User Service method.
Returns	Success gives alert and error gives error alert.

Feedback

Method	Feedback (feedback: string): Observable<boolean>
Purpose	To store the feedback provided by the user using the User Service method.
Returns	Success redirects to ViewNotes and error gives error alert.

Error Handler

Method	errorHandler(error: HttpErrorResponse)
Purpose	To handle any error, occur to the user while using application using the User Service method.
Returns	Error gives error alert.

3.5.3.1.2 Preview Components

Get Notes

Method	getNotes(): Observable<any>
Purpose	To get all Notes from the database using the Preview Service method.
Returns	Return tempVar.

Preview Notes

Method	previewNotes(emailId: string): Observable<any>
Purpose	To get all Notes from the database using the Preview Service method.
Returns	Return tempVar.

Set Notes

Method	previewNotes(emailId: string): Observable<any>
Purpose	To get all Notes from the database using the Preview Service method.
Returns	Return tempVar.

Save Preview

Method	view(Notes: any)
Purpose	To get all user saved Notes from the database using the Preview Service method.
Returns	Return preview list of Notes.

Remove Preview Item

Method	removePreviewItem(Notes: any)
Purpose	To delete user saved Notes from the preview using the Preview Service method.
Returns	Return preview list of Notes.

Error Handler

Method	errorHandler(error: HttpErrorResponse)
Purpose	To handle any error, occur to the user while using application using the User Service method.
Returns	Error gives error alert.

3.5.3.1.3API Components

Get Notes

Method	getNotes(): Observable<INotes[]>
Purpose	To view all Notes from the database using the API Service method.
Returns	Return tempVar.

Fetch Notes

Method	getNotes(): Observable<INotes[]>
Purpose	To view specific searched Notes from the database using the API Service method.
Returns	Return INotes array.

Error Handler

Method	errorHandler(error: HttpErrorResponse)
Purpose	To handle any error, occur to the user while using application using the User Service method.
Returns	Error gives error alert.

3.6 Database Design Overview

- Name   : Category
- Synonym name   : none
- Description   : This table is used to keep a record of the no. of courses

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	CID	Course ID	4	int	mandatory	None
2	CName	Course Name	100	nvarchar	mandatory	None
3	Edate	Date and time	8	datetime	mandatory	none

- Name   : Feedback
- Synonym name   : none
- Description   : This table is used to keep a record of the feedback

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	FID	Feedback ID	4	int	mandatory	None
2	Email	Email	100	nvarchar	mandatory	None
3	Mobile	Mobile number	50	nvarchar	mandatory	none
4	Feedback	feedback	1000	nvarchar	mandatory	none
5	Edate	Date and time	8	datetime	mandatory	none

- Name　　　　　　: Message
- Synonym name　　: doubt
- Description　　　　: This table is used to keep a record of the doubts asked

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	MID	ID	4	int	mandatory	None
2	FName	(From) Email address	100	nvarchar	mandatory	None
3	Tname	(To) Email address	100	nvarchar	mandatory	None
4	message	Doubts asked	1000	nvarchar	Mandatory	None
5	Status	Delivery/ Read status	4	int	Mandatory	None
6	Edate	Date and time	8	datetime	mandatory	None

- Name　　　　　　: Registeration
- Synonym name　　: none
- Description　　　　: This table is used to keep a record of the no. of trainee

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	RID	Registration ID	4	int	mandatory	None
2	Name	Name	100	nvarchar	mandatory	None
3	Mobile	Mobile	100	Nvarchar	mandatory	None
4	Address	Address	100	Nvarchar	mandatory	None

5	City	City	100	Nvarchar	mandatory	None
6	Pincode	Pincode	100	Nvarchar	mandatory	None
7	Email	Email	100	Nvarchar	mandatory	None
8	Password	Password	100	nvarchar	mandatory	None
9	Edate	Date and time	8	datetime	mandatory	none

Name   : Staff

Synonym name   : none

Description   : This table is used to keep a record of the no. of Educator

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	SID	Staff ID	4	int	mandatory	None
2	Name	Name	100	nvarchar	mandatory	None
3	Mobile	Mobile	100	Nvarchar	mandatory	None
4	Address	Address	100	Nvarchar	mandatory	None
5	City	City	100	Nvarchar	mandatory	None
6	Pincode	Pincode	100	Nvarchar	mandatory	None
7	Email	Email	100	Nvarchar	mandatory	None
8	Password	Password	100	nvarchar	mandatory	None
9	Edate	Date and time	8	datetime	mandatory	none

Name   : Student

Synonym name   : none

Description   : This table is used to keep a record of the no. of trainee

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	SID	Student ID	4	int	mandatory	None
2	Name	Name	100	nvarchar	mandatory	None
3	Mobile	Mobile	100	Nvarchar	mandatory	None
4	Address	Address	100	Nvarchar	mandatory	None
5	City	City	100	Nvarchar	mandatory	None
6	Pincode	Pincode	100	Nvarchar	mandatory	None
7	Email	Email	100	Nvarchar	mandatory	None
8	Password	Password	100	nvarchar	mandatory	None
9	Edate	Date and time	8	datetime	mandatory	none

Name   : Upload

Synonym name   : none

Description   : This table is used to keep a record of the upload pdf

No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	UID	Upload ID	4	int	mandatory	None
2	Staff	Staff	50	nvarchar	mandatory	None

3	Course	Course name	50	nvarchar	mandatory	none
4	Title	Title	500	nvarchar	mandatory	none
5	Upload	Upload location	1000	nvarchar	mandatory	None
6	Download	download	4	int	mandatory	None
5	Edate	Date and time	8	datetime	mandatory	none

Name   : File

Synonym name   : none

Description   : This table is used to keep a record of the upload file

| No	Field Name	Description	Size	Type	Optional/ Mandatory?	Default values
1	VID	File ID	4	int	mandatory	None
2	Staff	Staff	50	nvarchar	mandatory	None
3	Course	Course name	50	nvarchar	mandatory	none
4	Title	Title	500	nvarchar	mandatory	none
5	Upload	Upload location	1000	nvarchar	mandatory	None
6	Download	download	4	int	mandatory	None
7	Status	Status of file	50	nvarchar	mandatory	None
8	Edate	Date and time	8	datetime	mandatory	none

3.7 Snaps of Project
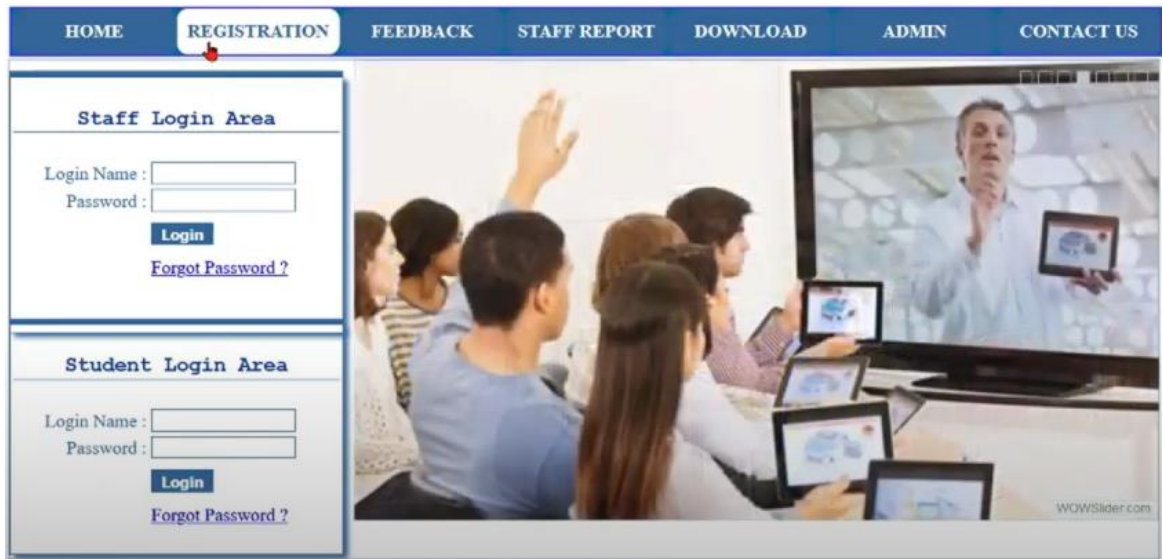
Figure 13Project Snap1

The above screenshot is the photo of home page of the project create during internship in this both the two type of user i.e., Staff and Student have different log in section as well as admin also.
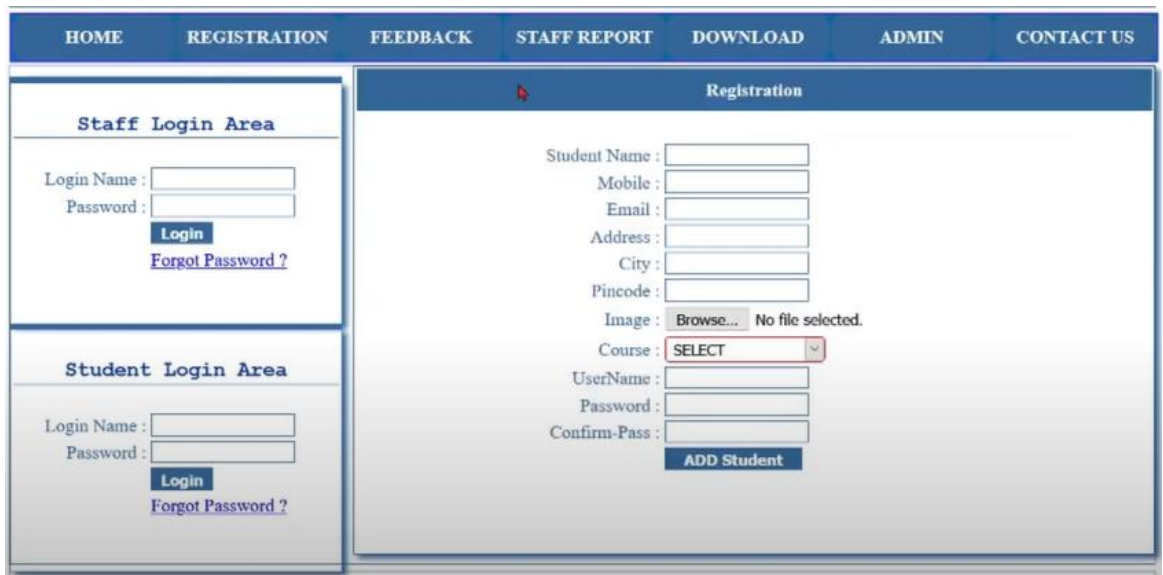

Figure 14 Project Snap2

The above screen shot is of the student registration section. Student can add themselves on their own but the staff members will only be added via the admin.
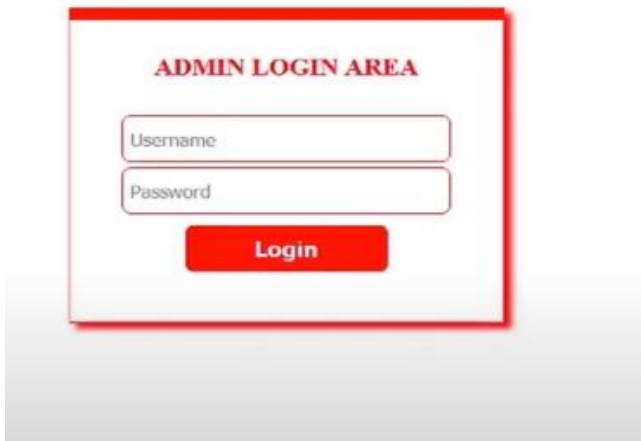
Figure 15 Project Snap3

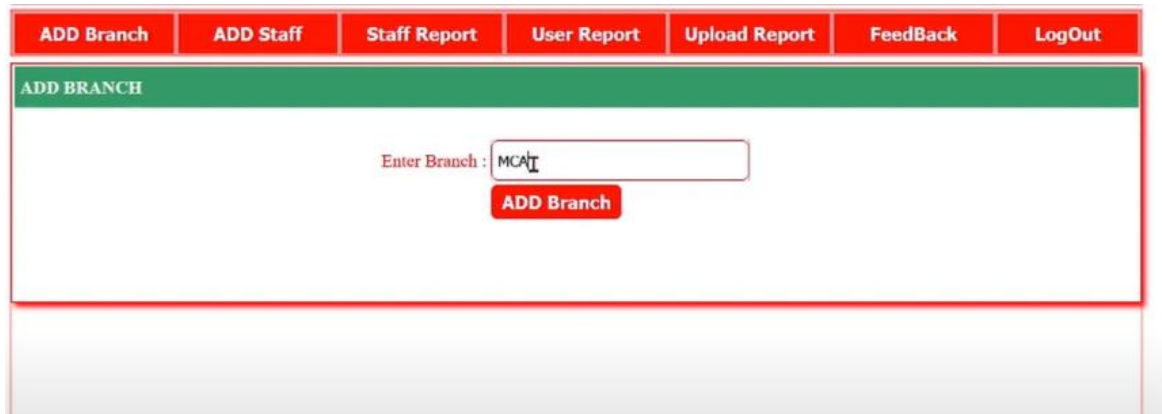The above screenshot is of the admin log in Section.

Figure 16 Project Snap4

The above screen shot is of admin portal in which he/ she can add and delete staff members, user and notes. The admin can also view the uploaded notes.

Figure 17 Project Snap 5

The above picture shows addition of a staff member

Figure 18 Project Snap 6

The user portal section of staff member with the visible functionalities
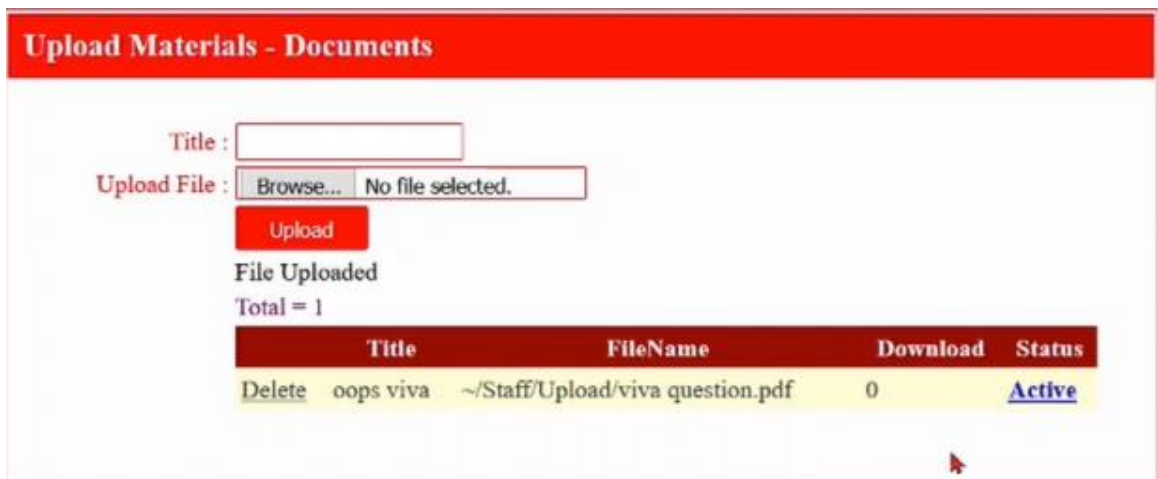

Figure 19 Project Snap 7

The above screen shot depicts the upload of document.

Chapter 4 Conclusion

The internships task and assignments assigned by the company's mentor has been completed in the given time. The assignment and project were asked so that we could get familiarize with the topics that we learned during the internship period.

This internship provided a wealth of knowledge; not just to did I gain knowledge in Full Stack Development, but I also learned about how a project is developed, how a team is working, how another employee's task is tracked, how work is distributed among different members of the team, what are the various developmental stages, what are the technical problems that one may encounter during the development of a project, and what is required before development begins. During the internship, I will have the opportunity to work with some of the industry's best software engineers.