GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad
Affiliated

Silver Oak college of Engineering and Technology

A report on-
EDUCATIONAL APPLICATION

Under subject of
Design Engineering – 2A
B.E III, Semester –V
Computer Engineering

Submitted by

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Academic year
(2019-2020)

SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

2019- 2020

Certificate

Date:

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CANDIDATE'S DECLARATION

We have finished our project report entitled **"Project Title"** and submitted to our respective guide. We are in 5th semester and we have tried to give our best. We have done our work honestly and in a good way.

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Yours sincerely,
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ABSTRACT

In today's world smartphone is very important and necessary thing. After the invention of mobile the human life became more comfortable.in today's time there is a smartphone which having tremendous feature, but there is a one thing which is used to make a smartphone smarter and this thing is application. basically application is the additional feature of smartphone. the mobile application makes life of human beings more easy and comfortable. today in every sector there is a lot of use of smartphone and mobile application, then how we forget the educational sector for all the information about education system in institute. we design one mobile application for educational institute as collage. Before some year there is no application but in present there are many applications available in market, so we try to do something different from their applications.

We add more functions and features for make it easy. our application contains many new updates and many features like if any student is absent in lecture then he/she will able gain the assignments or class work during the lecture time. The second feature is the students obtain any information   or help related to his project and so many new ideas. The main advantages of this application is the information is pass in right direction that means there is different access for different user. for example, if any information which is only for students required then parents are not informed about this.so, by this application we bring the solution of many problems and which are available in market and try to make human life batter.

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Chapter 1. Introduction

1.1 Design thinking and its importance

Design thinking has come to be defined as combining empathy for the context of a problem, creativity in the generation of insights and solutions, and rationality in analysing and fitting various solutions to the problem context.

Design thinking is a formal method for practical, creative resolution of problems and creation of solutions, with the intent of an improved future result. In this regard it is a form of solution-based or solution-focused thinking; starting with a goal (a better future situation) instead of solving a specific problem. By considering both present and future conditions and parameters of the problem, alternative solutions may be explored simultaneously. Cross asserted that this type of thinking most often happens in the built, or artificial, environment.

Importance: Design thinking gives you an opportunity to take a look at problems from a completely different perspective. The process of design thinking allows you to look at an existing issue in a company using creativity. The entire process will involve some serious brainstorming and the formulation of fresh ideas, which can expand the learner's knowledge. By putting design thinking approach to use, professionals are able to collaborate with one another to get feedback, which thereby helps in creating an invaluable experience to end clients.

1.2 Project Summary

In today's world, smartphones are very important and necessary thing. After the invention of mobile human life became more comfortable.in today's time there is a smartphone which having tremendous feature, but there is one thing which is used to make a smartphone smarter and this thing is application. the mobile application makes life of human beings more easy and comfortable. we design one mobile application for educational institute as collage. Before some year there is no application but in present there are many applications available in market, so we try to do something different from their applications. our application contains many new updates and many features like if any student is absent in lecture then he/she will able gain the assignments or class work during the lecture time. The second feature is the students obtain any information or help related to his project and so many new ideas. The main advantages of this application is the information is pass in right direction that means there is different access for different user. for example, if any information which is only for students required then parents are not informed about this.so, by this application we bring the solution of many problems and which are available in the market and try to make human life battery.

1.3 Scope

Teaching: The most important thing is teaching because the knowledge or notes students gets from a teacher no one no book can give that much of knowledge.so if the student is absent our application will be helpful for them because in this we provide important subject wise notes.

Studying: with the help of our application students are able to pass the exam easily because of the notes and other material.

Exam: from our application students are easily get to know about their exam seating arrangement.

Events: If any event is organized in college some of students are not aware about that so, with the help of our application students are getting the notification of each and every events which will held in collage like sports, cultural function, expert session, hands on workshop.

Chapter 2. Literature Review / Secondary Research

2.1 Literature Review

Designing mobile environments appropriate for education based on rapid development of technology facilitated the development and diversification of teaching contents developed in these fields. Mobile devices such as mobile phones, laptops and personal digital assistants have become learning tools with excellent potential both outdoors and in classrooms. In this study, Android-based learning environment was developed and students were asked to evaluate this mobile learning environment. Unlike other studies, the application was not only developed and used but also practically used for 8 weeks. The findings of this study are based on a practical experience of the developed application rather than a theoretical basis. The focus of research on mobile learning is based on the fact that the learning content on mobile devices, meaning learning mobility, can be reached "anywhere" as students move between space, time and social interaction. Among students in the classroom, mobile technologies can support a new method of cooperation. In a broader sense, students with intelligent devices can initiate self-learning experiences at home or abroad with structured education. Individuals have the opportunity of making research, sharing knowledge and accessing information at any time. Approximately 8 out of 10 people check out their social media or messages (instant messaging, email, and SMS) before the news. For this reason, as the use of mobile devices becomes more widespread, it is thought that these devices will provide countless opportunities that can be useful in the teaching and learning process, support learning outside the classroom.The use of mobile technology in education will alter the teaching and learning of educators. According to a five-year (2016-2020) forecast released by International Data Corporation (IDC) an analyst firm for the smartphone market, the smartphone market, which was 1.44 billion in 2015, was 1.48 billion at the end of 2016; in 2020, smartphone market share is forecasted to reach 1.84 billion (IDC, 2016a). Deloitte Global Mobile User Survey 2015 (GMCS) was conducted in 6 continents, 30 countries and with 49,000 participants. When the dependence of countries on smartphones is compared to each other, the country with the highest average and over dependency level was determined to be Turkey. It is predicted that dependency will increase with the increase of smartphone ownership in the future. This corresponds to approximately 1 every 15 minutes during the awake time (Deloitte, 2016). Hall (2013) also believes that young people are obsessed with smartphones. Adoption of technology will often affect users. Therefore, appropriate applications are developed in order to use these mobile devices for the aims as mentioned.

In this study, Android operating system was preferred since it enables free software and it is frequently used. According to IDC (2015), Android and IOS mobile operating systems account for 96.3% of all smartphone shipments. IDC data also clearly shows that the Android mobile operating system is the most common operating system in the world (Android 32%, IOS 27%). Android has an 86.8% share of the smartphone market and IOS has a market share of 12.5% with 45.5 million shipments (IDC, 2016b). One of the most important reasons of this is that Android devices have a wide range of prices that everyone can buy (IDC, 2015). According to the report published by We Are Social in 2015, it was

revealed that 37.7% of the total number of 76.7 million people in our country are internet users. Nevertheless, there are 69.6 million active mobile user subscriptions (Kemp, 2015). We Are Social and Hootsuite's 2017 Global Overview report reveals that more than half of the new Digital world population is using the Internet. The general effect of many people around the world on the use of these tools and on the social life has been documented empirically at many levels (Greenwood, Perrin & Duggan, 2016; We Are Social & Hootsuite, 2017). Mobile technologies, which inevitably become a part of everyday social and academic life, have dramatically changed the ways in which students communicate, access information, become active and organize their own learning. Educational policy makers are aware of this change and should look for ways to make the most of pedagogically effective new mobile technologies.

PROBLEM IN EXISTING SYSTEM: -

Distributed learning cannot give you access to your instructor Distributed learning is isolated

Distributed learning does not offer immediate feedback

Distributed learning does not always offer all the necessary courses online Distributed learning may not be acknowledged by a specific employer

Distributed learning does not give opportunity to work on oral communication skill.

ADD ON FEATURE AND FUNCTIONALITY :-

Free Courses

Online

Certification

Varity Courses

Feedback

Personal communication between student and

experts Live video tutorials

2.2 Technology And Tools

(a) User Module: In this module we are authenticating the users by providing user name and password. If user name and password is valid then they will be taken to their static screens. When they get matched with each other, system checks their status and transfer the control to respective user- interface.

(b) Database Module : The system uses MySQL as its database and Apache Tomcat Server because of their simplicity and flexibility. This module store every single information about students, faculty and model their data on specified operations. These operation can be storing student attendance, result data or can be authentication credentials.

(c) Staff Module : This module is designed for staff , which use

mobile phone to take attendance, upload result and upload college notifications as well as discussion forum. The entered

admin details are encrypted and sent to server for verification. Only after successful authentication the operations are performed. If username and password cannot match, he/she can

enter in to next static screen.

(d) Notification Module: This module allows the department HOD to update students about any college related information through notifications. The students can view notifications provided by the interface provided by application. HOD can send message to only available options like all student, all faculty, specific faculty and to all.

(e) Discussion Forum Module: This module is a feature where students and teachers can discuss the queries from the students. This discussion is done with the mobile device via this feature

and upon any interaction in a particular discussion thread; all the users involved in that discussion gets a notification on their device .In this discussion forum, the respective subject teachers

can upload notes, respond to student queries. The student can put forth their queries and at the same time upload any notes.

(f) News and Event Service: The news service is for all students and staff. As soon as news about the university/college is released on the university/college website, a notification is sent to all the students and staff.

(g) Assignment and Notes Module : This service is for both the staff and students,however both have different usage of

the feature. Students - will be able to view the following information which is critical about the Assignment and Notes;

the number of assignments given ,Upon the analysis using this data, the system will inform the students if they have got the new assignments and notes uploaded by the faculties.

Staff - will be able to upload the notes helpful for students and the new assignments using the mobile device.

(h) Exam Remainder Module : This feature is available for the students. They can set remainders for their exams

accordingly.

Chapter 3. Design Consideration

3.1 Design for Performance, Safety and Reliability: -

Performance points:- The performance of the System is very efficient. It consumes very less internet data for reading document and videos are available in different quality.Network traffic is reduced by web caching so it contains less time to response the request.

Safety :- By Creating restricted areas within the Learning course itself, so that only those with permission to be allowed to access more sensitive or important information. Important data is encrypted on all levels. A major concern for any Learning professional is the illegal download or usage of their content so security is needed for downloading the files.

Reliability:- Learners will not trust any learning system if it does not have a clear quality control policy . Moreover, poor quality research is subject to bias and, in some cases, this has led to ineffective or harmful interventions. Web sites don't just have to ensure that they are reliable,they have to show how they produce their content so that users can develop a sense of trust in them.

3.2 Design for Ergonomics

Ergonomics: The distributed learning system make sure that it is at most distance from anyone's reach and intact. It is user friendly in following aspects
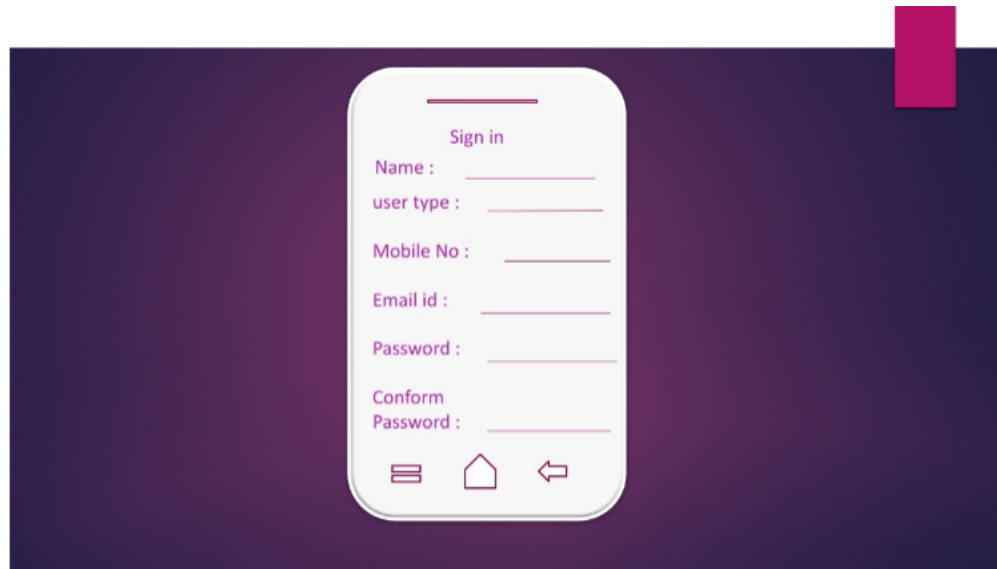
1. **Providing detailed instructions:** - it's essential to provide detailed instructions on what user are expected to do, how user should utilize the eLearning course platform, and what steps they need to take in order to complete the eLearning module or activity.

2. **Keeping text short and succinct: -** Text is, of course, a necessary component of your eLearning course. By Keeping text blocks short and succinct, and make sure that only offer the need-to-know information

3. **By Creating an effective Learning course menu: -** it's always wise to create a detailed course menu or progress bar that highlights every element of the eLearning course.

4. **Using a responsive design tool: -** A responsive design tool gives you the opportunity to offer your eLearning course on virtually any device. The system automatically adjusts the layout of the page based on the device or browser that is being used.

Aesthetics: The term aesthetics has its root in the Greek term for sensory, 'perceive sensuously' (Bowie, 2003).
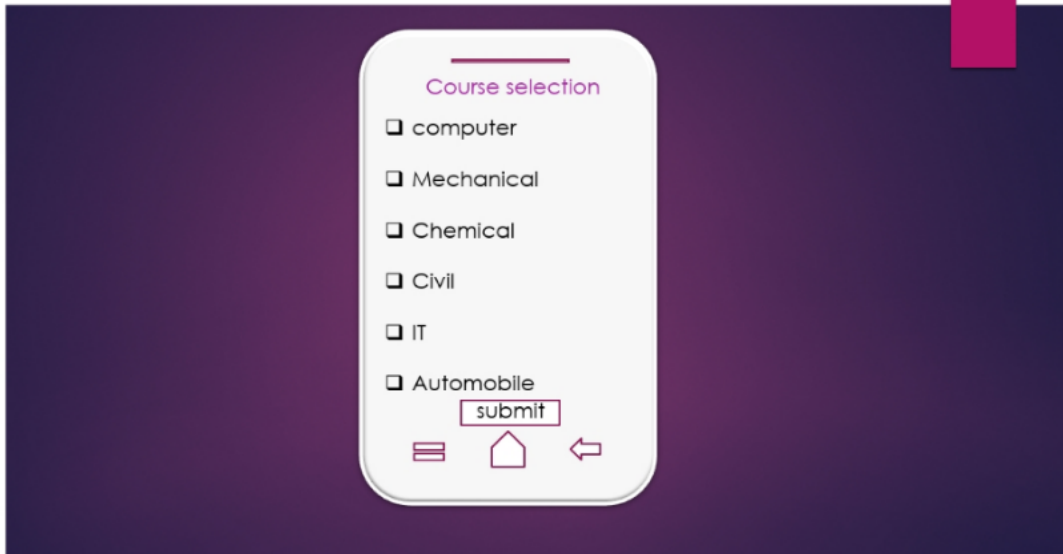
(1) Home Page

(2) SignUP

(3) login

(4) course selection

(5) Subject Profile
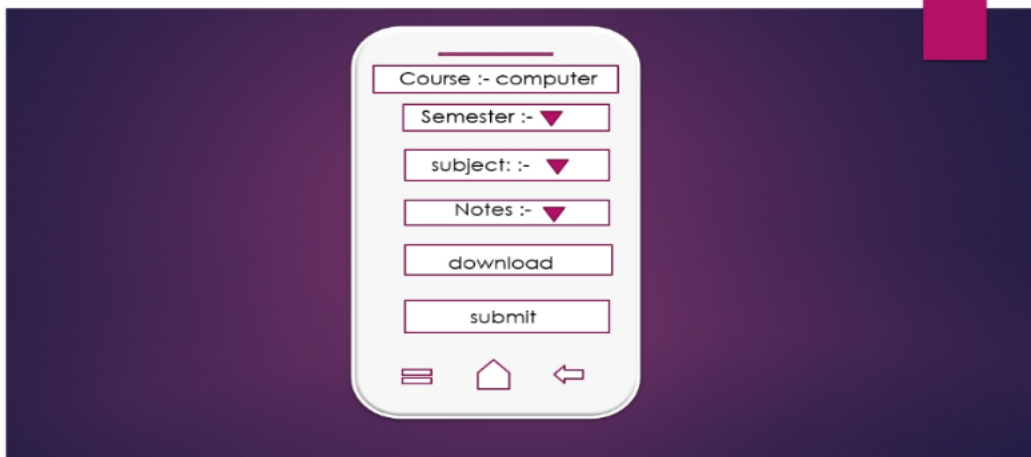
3.3 Design for Cost

Once developed the online educational application can be used many times with minimal delivery costs.

Students can learn at their own pace, repeating parts of the data as necessary to ensure effective learning.

Different pathways to the same content can deliver the flexibility to cover in-depth or refresher data, or provide an overview for managers or supervisors.

Competence record keeping can be automated.

Chapter 4. System Requirement Study

4.1 Functional Requirements

Login database fire watch or similar kind of service is needed for login /
Authentication. Fetch the data from database.
Convert media elements into compatible
format. SMPT Google Client for sending mail.

4.2 Non –Functional Requirements

Performance –Reduce server response time for high
performance. Network traffic –Reduced network traffic with
Web caching.
Reliability – Faster mail service by Google SMTP Client it is pretty reliable
Security – Using parameterised queries to secure database from SQL injection
Data Integrity – Use of derby Database and carefully chosen table attributes data
integrity is always maintained

4.3 Hardware Requirements

Laptop / computer
Fast and Reliable HDD (5400 RPM)
Internet availability

4.4 Software Requirements

windows OS – Operating system software to work
on Visual studio –for .NET development

Chapter 5. Data Modelling

5.1 E- R Diagram

Entity – Relationship Diagram is a first step to identify the entities related to our project and hence, needed to be improved or used optimally. ER diagram helps us to establish relations among entities and how to use them properly
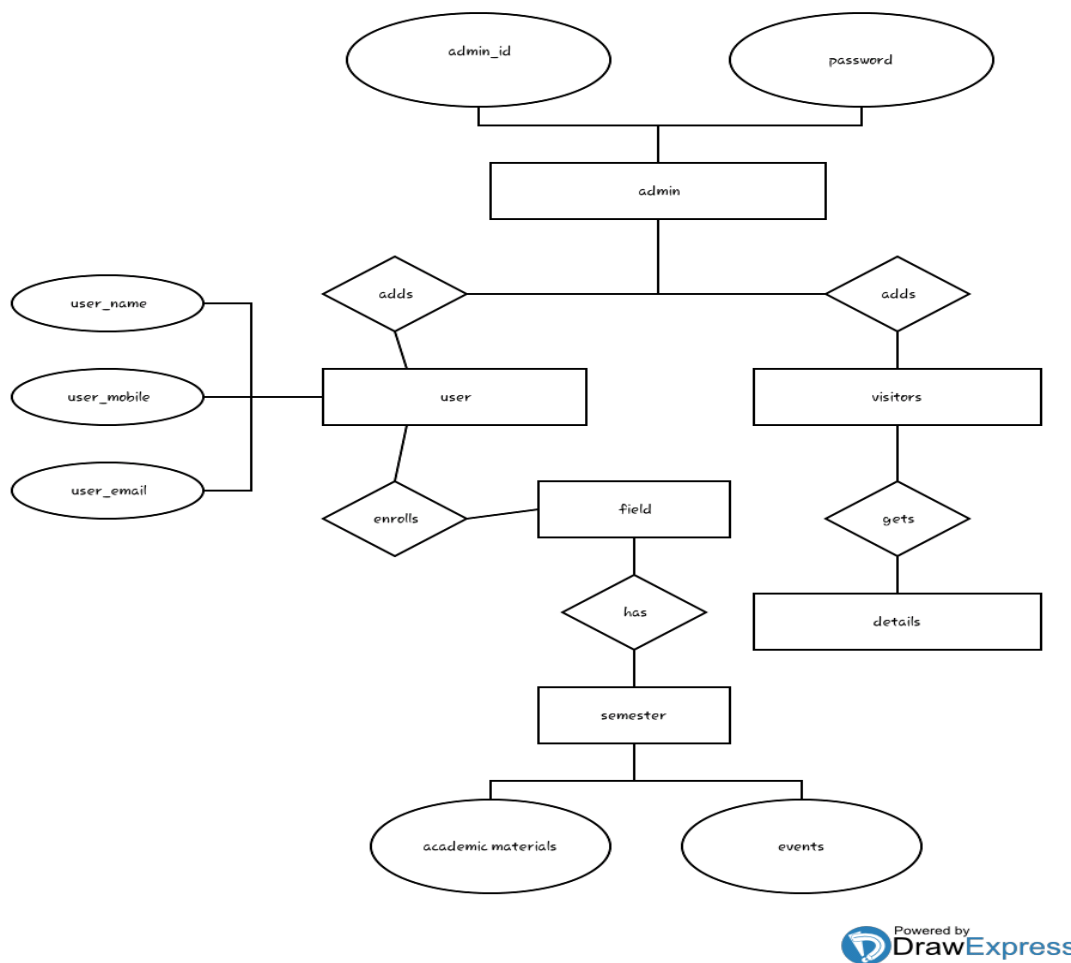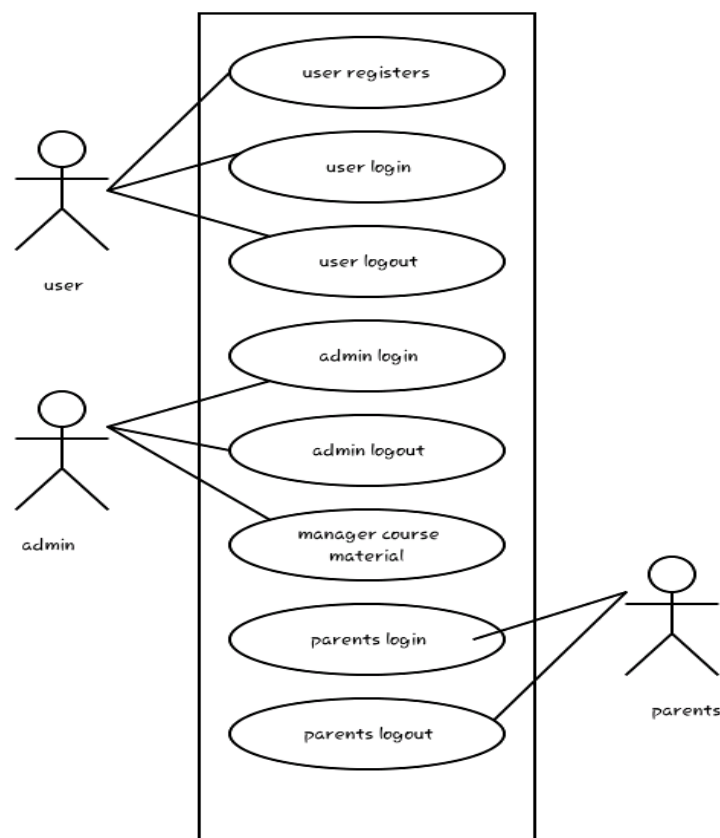

Figure 5- 1- ER Diagram

5.2 Use Case Diagram

Use case diagram is primarily made to identify users and their requirements. These can easily be done by creating Use Case diagram. Use Case diagram also helps to identify factors that might influence or change the system.

Figure 5- 2 Use Case Diagram

5.3 Sequence Diagram

After understanding requirements, entities and relationship between among them, it is very essential to figure out how they interact with each other. These interactions can easily be identified by using sequence diagram. Sequence diagram is used to show interaction between objects.

Constructed Sequence Diagram for our given situation is as below. Primarily our sequence diagram consists of 3 objects Admin, Mail Client and Application itself. Admin is responsible to handle all the data on database that is interfaced by the application. Hence, authentication is very much important and due to that first interaction is authentication. Authentication is followed by many of the tasks that an admin might like to perform including sending a mail again this triggers application to contact student.
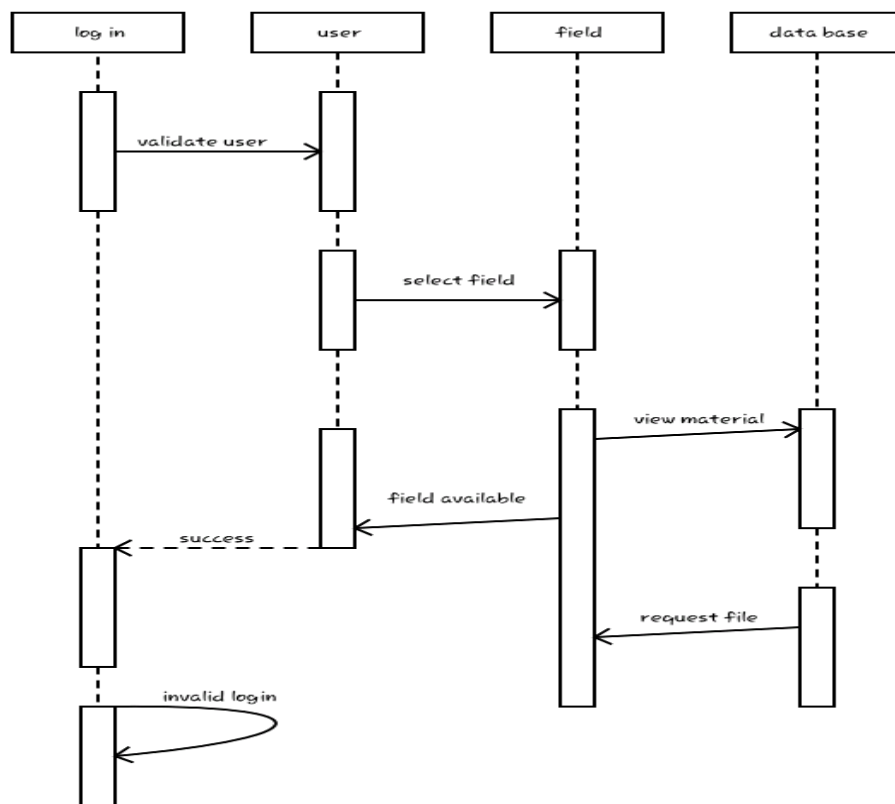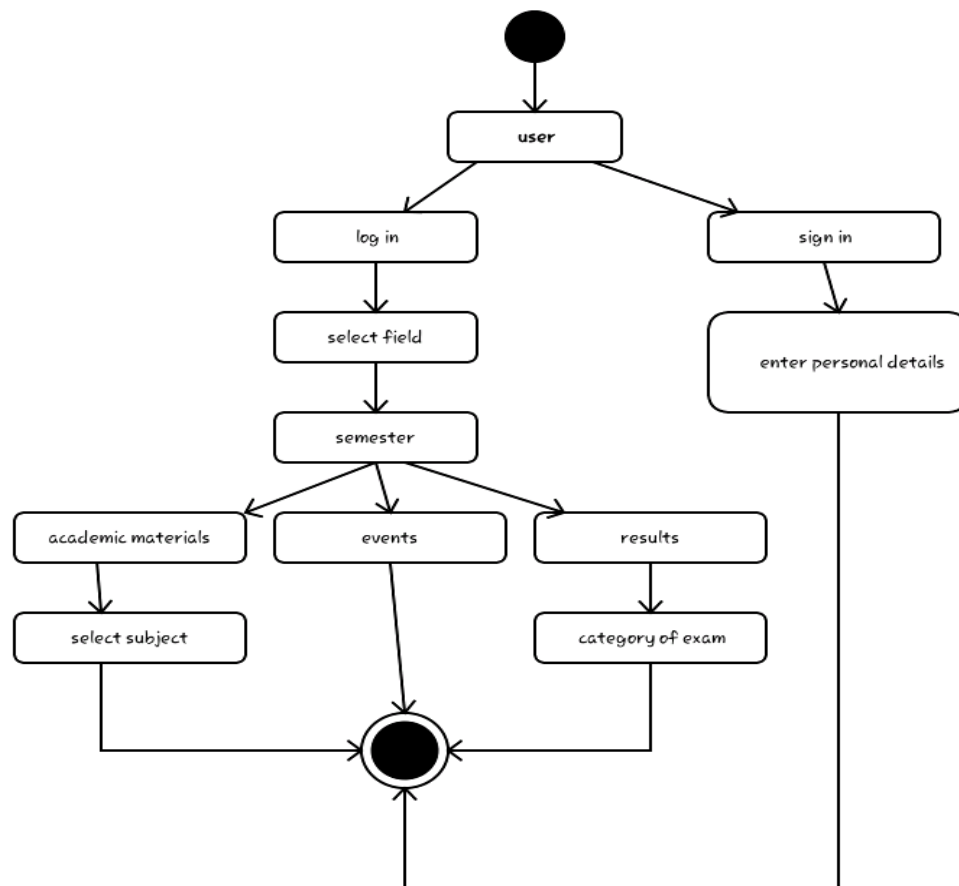

Figure 5-3- Sequence Diagram

5.4 State Diagram

Interaction have been understood but our project is still not ready for every expected and unexpected behavior that might leave our system into non-working state. This can be ensured by building our own State Diagram.

Figure 5-4- State Diagram

Chapter 6. Data Dictionary

Application Database	
1.	User Information
2.	university Information
3.	course Information

Table 1- Database Design

Application Database is quite small and up to the mark database is created to authenticate users and important information. Student information is used to send mails, faculties' information can be used to send or retrieve mails also, to authenticate, University and course information is used to organize files and folders.

User Information is viable for sending mails and receiving requests of lecture notes. Student information includes name, branch, user ID, phone and mail id.

Attributes	Description	Data Type And Size	Required?	Accept Null Values
Name	Identifier of a user	VARCHAR(18)	Yes	No
Branch	Which Branch user Belongs to	VARCHAR(18)	Yes	No
User ID. (primary key)	User ID provided by admin	VARCHAR(18)	Yes	No
Phone	Phone number of user	NUMBER(18)	Yes	No
Mail ID	Email ID of user	VARCHAR(30)	Yes	No

Table 2 - User Table

University information is another thing that is needed to be organized using database as many universities are offering same course and we cannot leave anything behind or unorganized.

Attributes	Description	Data Type And Size	Required?	Accept Null Values
Name	Identifier of a University	VARCHAR(18)	Yes	No
University ID (primary key)	Unique ID provided by Admin	NUMBER(18)	Yes	No
Course ID	Course offered by University	VARCHAR(18)	Yes	No
Mail –ID	Mail ID of university	VARCHAR(30)	Yes	No

Table 3 - university Information Table

Event information is another thing that is needed to be organized using database as there are many different event in different field and many universities are offering same event and we can take part into that.

Attributes	Description	Data Type And Size	Required?	Accept Null Values
Name	Identifier of a Student	VARCHAR(18)	Yes	No
Branch	Which Branch Belongs to	VARCHAR(18)	Yes	No
Event	In which activity to take part	VARCHAR(18)	Yes	No
University ID (foreign key)	ID given to university by Admin	VARCHAR(18)	Yes	No

Table 4 - course Information Table

Chapter 7. Prototype
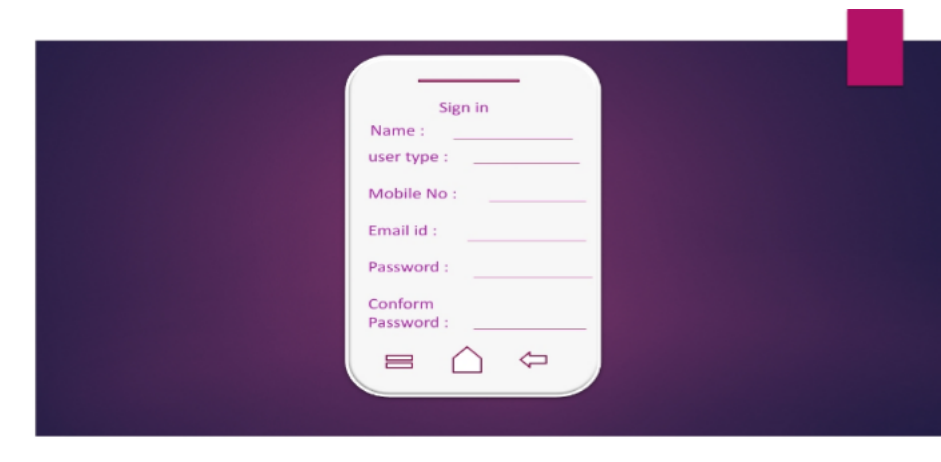
7.1 UI Design

(1) Home- Page

The home page contains information about our project.
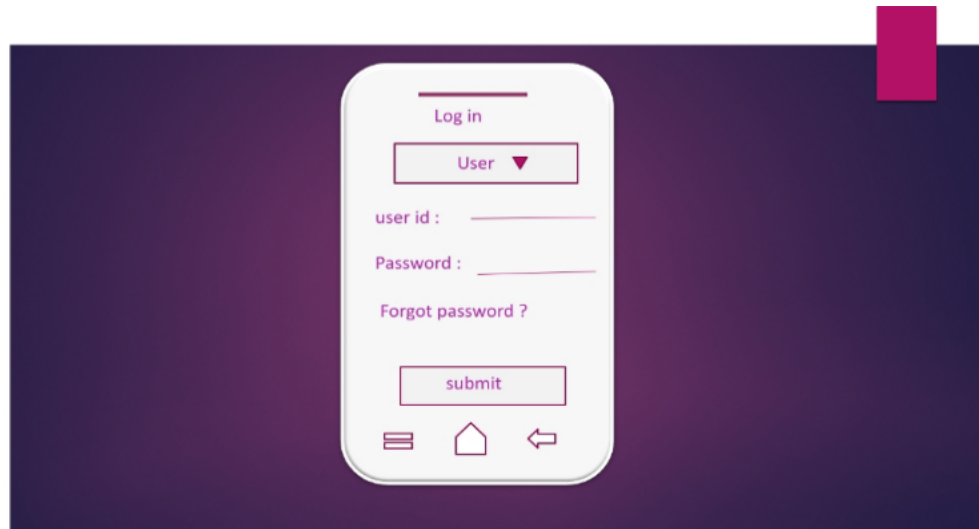

Figure 7- 1 UI desig

(2) Signup Page

The signup page will fetch the information about user's email id and password after signing up user will be able to login to our website.
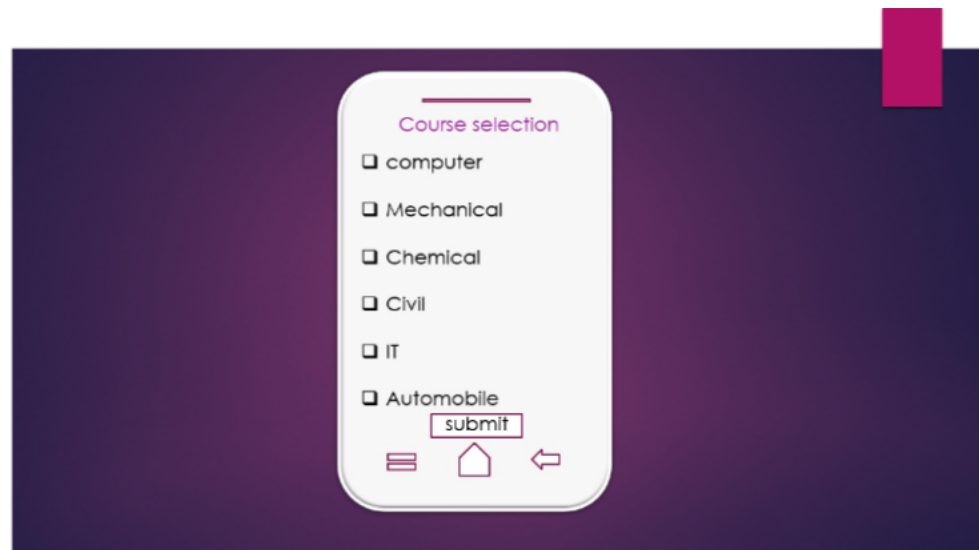
(3) Login Page

The login page will require user's email-id and password for authentication and to login to our website.


(4) Course Selection Page

Here, Student will select the course he/she wants to study to enhance their skills, and a particular time will be given as course duration to complete the course and get certificate of completion.

(5) Subject Profile

The subject profile will help students to keep track of their activities, courses, their semester and realted notes to help they needed.
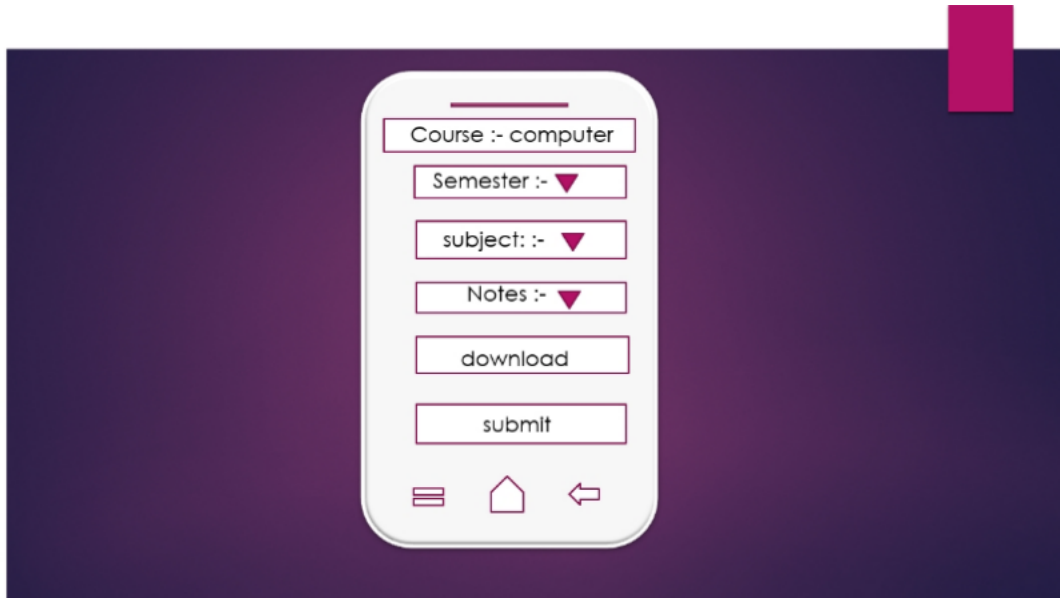
Chapter 8. Conclusion and Future work

8.1 Conclusion

In this report we have explain whole process with our new ideas so, by which in this technical world to compete with others get out in a better way our website will be helpful to students.

• Appropriate definitions of intellectual property rules with faculty and other developers.

• Teaching modalities that recognize new styles of learning.

• Suitable online student services and support structures.

• Adequate faculty support structures.

• Meaningful assessment metrics.

8.2 Future Work

 Education application can bring many benefits, such as

• Enhanced learning experiences.

• Personalized learning.

• Greater learner flexibility.

• More e-learning platforms.

Education application will be part of higher education's future. With careful planning, resolute execution, that future will be a positive one for our institutions, as well as for those we serve.