

SAVITRIBAI PHULE PUNE UNIVERSITY

A PROJECT REPORT ON

”Android Based E-Learning Application”

SUBMITTED TOWARDS THE
PARTIAL FULFILLMENT OF THE REQUIREMENTS OF

**BACHELOR OF ENGINEERING
(Computer Engineering)**

BY

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CERTIFICATE

This is to certify that the Dissertation entitled
“Android Based E-Learning Application”

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PROJECT APPROVAL SHEET

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SPONSORSHIP LETTER

Date: 1st June 2017

To,
Ghokhale Education Society's
R.H.Sapat College of Engineering,
Nashik.

This is to confirm that Solace Infotech Pvt. Ltd. is offering internship and sponsorship to the following candidates

1. Joshi Kaustubh A.

2. Kasar Yogita H.

3. Mahajan Mayuri V.

4. Nikam Pooja G.

Beginning from 15th July 2016. This employment will responsible to serve as academic curriculum practical training (CPT) which is associated with academic program (2016-17).

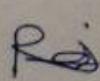
Their project title "Android Based E-learning Application: Class-E" & they will be under the consistent guidance of our development department.

They will be working on following techniques during the internship period,

1. PHP Codeigniter Framework
2. JavaScript
3. Android
4. RESTful APIs
5. Bootstrap

Sincerely,

Pravin Nirmal



Founder, Director

Solace Technologies.



SOLACE TECHNOLOGIES

A Wing, First Floor, Kadam Mansion, Mahatma Nagar, Nashik – 422005 Maharashtra, India.

www.solacetechologies.co.in



Date: 1st June 2017

Internship Certificate

This is to certify that

1. Joshi Kaustubh A.
2. Kasar Yogita H.
3. Mahajan Mayuri V.
4. Nikam Pooja G.

Completed internship at our organization from 9th July 2016 to 5th June 2017. They were assigned Project Titled "**Android Based E-learning Application: Class-E**" as a part of our company project development. I am glad to certify that they have successfully completed the assigned task to our satisfaction and fulfilled the requirement of the project work.

Their attitude and devotion throughout the project was very impressive & professional.

We wish them all the best for their future endeavors.



Sincerely,

Pravin Nirmal

Founder, Director

Solace Technologies.

ABSTRACT

Mobile learning as an intersection of Mobile Computing and E-Learning providing resources that can be accessed anywhere has capability in an excellent searching system, rich interaction and full support towards an effective Learning and performance based assessment. In addition, it has a characteristic of not being dependent on time and space. The application of mobile learning can be used through the android operating system that is chosen in consideration to that Android has been dominating the Smart phone market and is an open-source operating system that is easily developed. To ease the users to access Learning, jQuery mobile framework is applied as its display, in addition to its attractive features, is able to adjust the screen from mobile equipment. This application will be implemented in 2 types of user: admin that will using the web-based application on the desktop and students that will use android mobile based application. In this application, test and tutorials based on various subjects and sub topics are given by the admin to the students and the result of the individual student is display.

KEYWORDS : E Learning , Android Device , PHP Codigniter .

ACKNOWLEDGEMENT

It gives us great pleasure in presenting the preliminary project report on Android Based E-Learning Application.

I would like to take this opportunity to thank my internal guide Prof. N. V. Alone for giving me all the help and guidance I needed. I am really grateful to them for their kind support. Their valuable suggestions were very helpful.

In the end our special thanks to Prof. D. V. Patil, Head of Computer Engineering Department, Gokhale Education Society's R. H. Saput College Of Engineering, Management Studies And Research, Nashik-5 for his indispensable support, suggestions.

Yours Faithfully,
Mr. Joshi Kaustubh A.
Ms. Kasar Yogita H.
Ms. Mahajan Mayuri V.
Ms. Nikam Pooja G.
(B.E. Computer Engg.)

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Chapter 1

SYNOPSIS

Android Based E-Learning Application

1.1 PROJECT TITLE

Android Based E-Learning Application

1.2 PROJECT OPTION

Our project is industry sponsored. We are doing gaming project under the guidance and sponsored of Solace Infotech Pvt.Ltd., Nashik

1.3 INTERNAL GUIDE

Prof. N. V. Alone

1.4 SPONSORSHIP AND EXTERNAL GUIDE

Sponsored by: Solace Infotech Pvt.Ltd.

A-wing First Floor,Kadam Mansion, Mahatma Nagar,Nashik 422005.

External Guide: Mr. Gokul Shinde.

1.5 TECHNICAL KEYWORDS

Android Device,PHP Codeigniter, E Learning.

1.6 PROBLEM STATEMENT

The purpose of our project is to design and implement an E-Learning based Tutorial Application in Android which intended to replace the Traditional E- Learning Method with the digital one.

1.7 ABSTRACT

Mobile learning as an intersection of Mobile Computing and E-Learning providing resources that can be accessed anywhere has capability in an excel-

lent searching system, rich interaction and full support towards an effective Learning and performance based assessment. In addition, it has a characteristic of not being dependent on time and space. The application of mobile learning can be used through the android operating system that is chosen in consideration to that Android has been dominating the Smartphone market and is an open-source operating system that is easily developed. To ease the users to access Learning, jQuery mobile framework is applied as its display, in addition to its attractive features, is able to adjust the screen from mobile equipment. This application will be implemented in 2 types of user: admin that will use the web-based application on the desktop and students that will use android mobile based application. In this application, test and tutorials based on various subjects and sub topics are given by the admin to the students and the result of the individual student is displayed.

1.8 GOALS AND OBJECTIVES

The primary goal is to increase individual knowledge, its ultimate goal is to raise competency level. Objective can be stated as to increase use of ubiquitous computing using Android based application and increase dependency on E-Learning to replace traditional learning methods.

1.9 RELEVANT MATHEMATICS ASSOCIATED WITH THE PROJECT

System Description:

- Input: Online request for tutorial using app.
- Output: Provide Test to User.
- Data Structure: Array
- Functions:
 1. Randomly generation of Test as per user request.
 2. Result generation.
 3. Statistical Analysis.

- Mathematical Formulation:

1. Containing System S described using Set Theory, Input, Output, Success, Failure, initialization of parameters, Venn Diagrams.
2. Dynamic Programming, Greedy Approach, Backtracking, Time Complexity, Space Complexity

A representation in mathematical terms of the behaviour of real devices and objects. A mathematical model is a description of a system using mathematical concepts and language. The process of developing a mathematical model is termed mathematical modelling. Method of simulating real life situations with mathematical equations to forecast their future behaviour. Mathematical modelling uses tools such as decision theory, queuing theory, and linear programming, and requires large amounts of number crunching.

Need of Mathematical Model

Since the modelling of devices and phenomena is essential to both engineering and science, engineers and scientists have very practical reasons for doing mathematical modelling. In addition engineers, scientists, and mathematicians want to experience the sheer joy of formulating and solving mathematical problems.

- Enables a thorough understanding of the system modelled.
- Prepares the way for better design or control of a system.
- Allows the efficient use of modern computing capabilities.

Objective

-Objective can be stated as to increase use of ubiquitous computing using Android based application and increase dependency on E-Learning to replace traditional learning methods.

Set Theory

S= S, E, I, F, O, DD

S = Initial state: User Login.

E = End state: Test Result.

I = Input state of system(X1, X2)

X1: Input subject for generating Test.

X2: Input Difficulty Level.

F=Set Of functions (F1,F2,F3)

F1: Generating Test.

F2: Generating Results.

F3: Analysing Results.

O = output of system (Y1, Y2)

Y1: Tests are generated.

Y2: Result is generated.

DD = Deterministic Data

Where, D = D1, D2

D1 = Student Details.

D2 = Question Bank.

- Success Conditions: Test is provided as per request.
- Failure Conditions: Internet connection is disabled.

1.10 NAMES OF CONFERENCES WHERE PAPER CAN PUBLISH

1. International Research Journal of Engineering and Technology (IR-JET).

1.11 REVIEW OF CONFERENCE/JOURNAL PAPERS SUPPORTING DISSERTATION IDEA

Mobile learning as an intersection of Mobile computing and E - Learning providing resources that can be accessed anywhere has capability in an excellent searching system, rich interaction and full support towards an effective learning and performance - based assessment. In addition, it has a characteristic of not being dependent on time and space. The application of mobile learning can be used through the android operating system that is chosen in consideration to that android has been dominating the Smart phone market and is an open - source operating system that is easily developed . To ease the users to access M - learning, jQuery mobile framework is applied as its display, in addition to its attractive features, is able to adjust the screen from mobile equipment

1.12 PLAN OF PROJECT EXECUTION

Entire work of dissertation is divided among the following tasks:

Task 1: To gather the requirements.

Task 2: To analyse the requirements.

Task 3: To study existing approaches.

Task 4: To configure the system or PC as per the project requirements.

Task 5: Selecting the Platform and study of platform.

Task 6: To study existing approaches online learning.

Task 7: To implement modules for various functions

Task 8: To implement strategy for test generation.

Task 9: To test the system for application.

Task 10: Integrate the software require

Task 11: To analyse the experimental results.

Task 12: Build the executable.

Chapter 2

TECHNICAL KEYWORDS

2.1 AREA OF PROJECT

E-learning Application: E-learning is a computer based educational tool or system that enables you to learn anywhere and at any time. Today e-learning is mostly delivered through the internet, although in the past it was delivered using a blend of computer-based methods like CD-ROM. Technology has advanced so much that the geographical gap is bridged with the use of tools that make you feel as if you are inside the classroom. E-learning offers the ability to share material in all kinds of formats such as videos, slideshows, word documents and PDFs. Conducting webinars (live online classes) and communicating with professors via chat and message forums is also an option available to users. With the right tool various processes can be automated such as the marking of tests or the creation of engaging content. E-learning provides the learners with the ability to fit learning around their lifestyles, effectively allowing even the busiest person to further a career and gain new qualifications. Overall, traditional learning is expensive, takes a long time and the results can vary. E-learning offers an alternative that is faster, cheaper and potentially better.

2.2 TECHNICAL KEYWORDS

- E-learning.
- Rest Api.
 - Codeigniter Rest Api.
 - Postman-rest Client.
- Android operating System
 - Java programming language
 - Android virtual device
- Learning Management System.

Chapter 3

INTRODUCTION

3.1 PROJECT IDEA

In proposed system we present the secure , reliable and stable online E learning based application The subject input and questions , difficulty level will given as input from user Respected data will be stored on backend which is cloud . On backend admin will be manage tests releated database work While user uses android application , admin wil use website Admin will able t classify user based on their performance manage for analysis Mannually written API is used for handling data

3.2 MOTIVATION

E-Learning is great. Its cost-effective, time-efficient and ideal for delivering standardised training to huge groups of learners spanning even greater geographical areas. However, it does not come without its challenges. One of the key issues with E-Learning lies in its struggle to retain, engage and motivate learners. At some point in our education, weve all sat in a classroom or lecture hall, tuned out the voice of our teacher and let our thoughts drift off to other things. Many traditional classroom trainers find it difficult to recognise when students are there in person but not in mind.

With online learning, however, the difference is often much clearer. Learners who are not engaged or enthusiastic can be recognised easily because they simply close their browser and fail to complete their learning. A key worry faced by many E-Learning practitioners is whether or not E-Learners will be motivated enough to complete their programmes and have a greater understanding at the end.

we produce digital learning that is easy on the eye and attention-grabbing.

3.3 LITERATURE SURVEY

Many applications have been developed that provide E-learning Facility.

1. Duolingo- Duolingo provides written lessons and dictation, with speaking practice for more advanced users.Each lesson includes a variety of speaking, listening, translation, and multiple choice challenges.Instantly see which answers user get correct. When user miss a challenge, this will quickly show user how to improve.Duolingo track users by recording how many days in a row user spend learning a language. Duolingo is an app that allows user

Android Based E-Learning Application

to practice pronunciation but not to speak from day 1. There is no human interaction. Limitation-There is no dynamacity provide as per users request.

2. Project Euler- Project Euler is a series of challenging mathematical/computer programming problems that will require more than just mathematical insights to solve. It is to provide a platform for the inquiring mind to delve into unfamiliar areas and learn new concepts in a fun and recreational context. Limitation- It does not track users progress.

3. Cetiq- this app provide the questions on physics, chemistry, biology,maths(PCMB) subject. It is just use for preparing the CET exam. CETIQ also provide leader-board where user can see how many questions you solve skipped and answered. Limitations- it just filter the questions based on subject. their is no daynamicity for solving the test.

Chapter 4

PROBLEM DEFINITION AND SCOPE

4.1 PROBLEM STATEMENT

The purpose of our project is to design and implement an E-Learning based Tutorial Application in Android which intended to replace the Traditional E- Learning Method with the digital one.

4.1.1 GOALS AND OBJECTIVES

The primary goal is to increase individual knowledge, its ultimate goal is to raise competency level. Objective can be states as to increase use of ubiquitous computing using Android based application and increase dependency on E-Learning to replace traditional learning methods.

4.1.2 STATEMENT OF SCOPE

We using fully functional full stack framework t make learning easy and paperless

4.2 MAJOR CONSTRAINTS

The system will not work if internet is disabled.

4.3 METHODOLOGIES OF PROBLEM SOLVING AND EFFICIENCY ISSUES

The system consists of following stages:

1. **Requirement Analysis:** Requirements analysis is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant and detailed . The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system designed .

2. **Designing and development:** At this stage, there are many php platforms available in market like laravel , cake PHP , Qphp,codeigniter from which we selected codeigner for development of site as it is easy to learn and also it have many features . It has MVC Model . The site is designed using bootstrap and W3.css . The tutorial application is developed in android .
3. **Performance Analysis and Evaluation**At this stage, the execution times and optimal response time of application is analyse by solving test using different android device.

4.4 OUTCOMES

Tutorial requested by student.

4.5 Applications

- Learning will move more and more outside of the classroom and into the learners environments, both real and virtual, thus becoming more situated, personal, collaborative and lifelong.

4.6 HARDWARE RESOURCES REQUIRED

1. Android Smart Phone
2. Memory of 1 GB RAM (or more) in android phone

4.7 SOFTWARE RESOURCES REQUIRED

1. **Platform:**
Front end: Front end : Android,HTML 5,Bootstrap
Back end: Mysql,PHP 5.2,Javascript,JQuery

2. Operating System:

Android: Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touch screen mobile devices such as smartphones and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear).

The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Despite being primarily designed for touch screen input, it has also been used in game consoles, digital cameras, regular PCs, and other electronics.

3. Tools:

CodeIgniter Framework: CodeIgniter is an application development framework, which can be used to develop websites, using PHP. It is an Open Source framework. It has a very rich set of functionality, which will increase the speed of website development work. CodeIgniter will make task easier. It has a very rich set of libraries and helpers. By using CodeIgniter, saves a lot of time, Not only that, a website built in CodeIgniter is secure too, as it has the ability to prevent various attacks that take place through websites.

4. Programming Language:

PHP: The PHP Hypertext Preprocessor (PHP) is a programming language that allows web developers to create dynamic content that interacts with databases. PHP is basically used for developing web based software applications.

PHP is a recursive acronym for "PHP: Hypertext Preprocessor". PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites. It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.

Chapter 5

PROJECT PLAN

5.1 PROJECT ESTIMATES

Sr.no	Events	Count
1	No of people involved(p)	4
2	Time duration in days(d)	99
3	Time per day in hours(h)	2
4	Rate per hour in rupees(r)	10
5	Total expenditure(e)	350
6	Total cost in rupees (C)	

Formula for finding total cost

$$C = (p * (d * h * r)) + e$$

$$C = (4 * (99 * 02 * 10)) + 350$$

$$\text{Total Cost} = 8270$$

5.2 RISK MANAGEMENT

5.2.1 RISK IDENTIFICATION

For risks identification, review of the scope document, requirements specifications and schedule is performed. Each risk is categorized as per categories mentioned in Pressmans book. Following is the risk identification questionnaires.

1. Will the proposed system eliminate problems with the current system?
2. Are the results accurate?
3. Are the technologies and programming languages being used for implementation efficient?

5.2.2 RISK ANALYSIS

The risks for the project can be analysed within the constraints of time and quality

Android Based E-Learning Application

ID	Risk Description	Probability	Impact		
			Schedule	Quality	Overall
1	Will the proposed system eliminate problems with the current systems?	High	High	High	High
2	Are the results accurate?	High	High	High	High
3	Are the technologies and programming languages being used for implementation efficient?	Low	Low	High	High

Table 5.1: RISK TABLE

Probability	Value	Description
High	Probability of occurrence is	> 75%
Medium	Probability of occurrence is	26 – 75%
Low	Probability of occurrence is	< 25%

Table 5.2: RISK PROBABILITY DEFINITIONS

Impact	Value	Description
Very high	> 10%	Schedule impact or Unacceptable quality
High	5 – 10%	Schedule impact or Some parts of the project have low quality
Medium	< 5%	Schedule impact or Barely noticeable degradation in quality Low Impact on schedule or Quality can be incorporated

Table 5.3: RISK IMPACT DEFINITIONS

5.3 PROJECT SCHEDULE

5.3.1 PROJECT TASK SET

Major Tasks in the Project stages are:

- Task 1: Understanding E Learning services.
- Task 2: Study of CodeIgniter and Bootstrap.
- Task 3: Discussion about Layout, features, future scope for application.
- Task 4: Implement the modules.
- Task 5: Checking of test cases.
- Task 6: Login activity and Sign up with API.

5.3.2 TASK NETWORK

Sr. No.	Task Name	Date Started	Date Completed
1.	Understanding the location based service	26/06/2016	28/06/2016
2.	Literature survey	30/06/2016	04/07/2016
3.	Project development guidance	04/07/2016	07/07/2016
4.	Project finalization	08/07/2016	10/07/2016
5.	Project sponsorship	01/07/2016	01/08/2016
6.	Study of Google Maps API	14/07/2016	18/07/2016
7.	Discussion about layouts, features, future scope, and logo for application	18/07/2016	29/07/2016
8.	Develop demo application for finalization of sponsorship	01/08/2016	19/08/2016
9.	Scheduling activities as per the functional scope of the system	20/08/2016	07/09/2016

Figure 5.1: Implementation Plan

Android Based E-Learning Application

Table 5.4: Dissertation Plan

Month-wise Plan		
Month	June	Duration[2 Weeks]
Phase	Primary Phase	
Details	Select the Project Topic	
Week	Week 1	Decide the area of interest: E-learning android and web application and search related IEEE paper
	Week 2	Read IEEE Papers and related research Papers
<hr/>		
Month	July	Duration[4 Weeks]
Phase	Requirement Phase	
Details	This phase consist of user requirement, problem definition and descriptions	
Week	Week 1 and Week 2	Collection of related information from
		a. National / International conference / journal paper
		b. Related Books and Magazines
	Week 3	Reading of Material
	Week 4	Decide problem definition and user requirements
<hr/>		
Month	August and September	Duration [8 Weeks]
Phase	Design Phase	
Details	This phase is formalization of analysis and design the system architecture	
Week	Week 1	Design the flow and structure of the system
	Week 2	Design system architecture
	Week 3	Design interface required for modules
	Week 4Onwards	Design mathematical model required for
		a. Various models of system architectures
		b. Integration of modules
<hr/>		

Android Based E-Learning Application

Month-wise Plan		
Month	October and November	Duration [8 Weeks]
Phase	Documentation	
Details	This phase consist of detail plan for a literature survey and implementation	
Week	Week 1	Create UML diagrams
	Week 2 and Week 3	Prepare Report of Literature Survey
	Week 4 Onwards	Presentation on Literature Survey
Month	December	Duration [4 Weeks]
Phase	Implementation [Primary phase]	
Details	This phase consists of plan of implementation	
Week	Week 1	Prepare Stage 1 Report
	Week 2	Presentation on Project Stage 1
	Week 3	Plan for implementation
	Week 4	Define platform, language and data structures to be used.
Month	January and February	Duration[8 Weeks]
Phase	Implementation [Secondary phase]	
Details	This phase consist of designing GUI and Implementation Plan	
Week	January Week 1	Design Game Art and Graphics
	January Week 2	Define modules and interface
	January Week 3 and Week 4	Design Plan for modules development
	February	Integration of graphics
Month	March	Duration [4 Weeks]
Phase	Implementation	
Details	This phase consists of source code development	
Week	Week 1 to Week 3	Source Code development
	Week 4	Integration of Modules
Month	April	Duration [4 Weeks]
Phase	Documentation	
Details	This phase consists of Thesis Writing	
Week	Week 1 to Week 4	Thesis Writing with results

5.4 TEAM ORGANIZATION

5.4.1 TEAM STRUCTURE

Kaustubh Joshi Mayuri Mahajan Pooja Nikam Yogita Kasar	Module Designed and Implemented : Login using PHP(Codeigniter)
Kaustubh Joshi Pooja Nikam	Module Designed and Implemented : Layout and Logo Design
Mayuri Mahajan Yogita Kasar	Module Designed and Implemented : Layout and Logo Design in Android
Kaustubh Joshi Pooja Nikam	Module Designed and Implemented : Student Module using PHP(Codeigniter)
Mayuri Mahajan Yogita Kasar	Module Designed and Implemented : Login Form in Android.
Kaustubh Joshi Pooja Nikam	Module Designed and Implemented : Subject Module using PHP(Codeigniter)
Mayuri Mahajan Yogita Kasar	Module Designed and Implemented : Sign Up Form in Android.
Yogita Kasar Pooja Nikam	Module Designed and Implemented : test history and report module of web application
Kaustubh Joshi Mayuri Mahajan	Module Designed and Implemented : edit app profile and test module
Yogita Kasar Pooja Nikam	Module Designed and Implemented : Api for test history,notification,updates,test report
Kaustubh Joshi Mayuri Mahajan	Module Designed and Implemented : Show test History,report in android app and about activity

Table 5.5: Team Structure

Chapter 6

SOFTWARE REQUIREMENT AND SPECIFICATION

6.1 INTRODUCTION

A software requirements specification (SRS) is a comprehensive description of the intended purpose and environment for the proposed work under development. The SRS fully describes what the proposed work will do and how it will be expected to perform.

6.1.1 Purpose and Scope of Document

The purpose of the Software Requirements Specification is to identify the functional and non-functional requirements for the software system to build. The objective of the software requirement specification is to fully understand the user requirement and determine how well the system is performing and whether it will meet the organization demands.

6.1.2 Overview and Responsibilities of Developer

- Understand exact Problem Definition.
- Gather requirements of the project.
- Analyse requirements and design model.
- Efficient coding with use of appropriate functions in unity.
- Test project for set of function.
- To complete the project successfully and scale it depending on the user's approach.

6.1.3 Software Development Life Cycle (SDLC) Phases

- **Initiation phase:** Here basic planning about Application is done. Study and market survey is done for Tutorials.
- **Team Building:** At this phase team structure is decided. Like how many people will work on the Application and what role will be played by all team members. Work will get divided here.

- **Pre-production:** At this phase Application requirements are noted and basic needs will be noted. All logical and non-logical part will be decided here.
- **Main production:** Here main coding will be started for the Application.
- **Alpha Version:** At this phase Application gets ready and testing is performed on the app at company level only. Employees of company solve test and check whether all needs are completed or not.
- **Beta Version:** Here after alpha version gets release then here Application is released in market and which is at its initial stage. After all improvements done in Alpha version this version will be released.
- **Release Version:** Here final version will be released. If there comes any errors or bugs in Beta version then those will be updated and then will get released and said as release version

6.2 USAGE SCENARIO

6.2.1 User Profiles

System is developed for giving new experience of game playing to the users .user need not to have the implementation details. Of course the end user will be the beneficial entity but he is unaware about how the game is designed, implemented and tested.

6.2.2 Use-Cases

Description of all main Use cases using use case template is to be provided.

Table 6.1: Use Case Description

Sr.No	Use case	Description	Actors	Assumption
1	Use case1	This use case describes the basic modules completed for phase 1	Player System	Player is modules. interacting with the modules.

6.2.3 Use Case Views

Figure 6.1 shows the use case diagram.

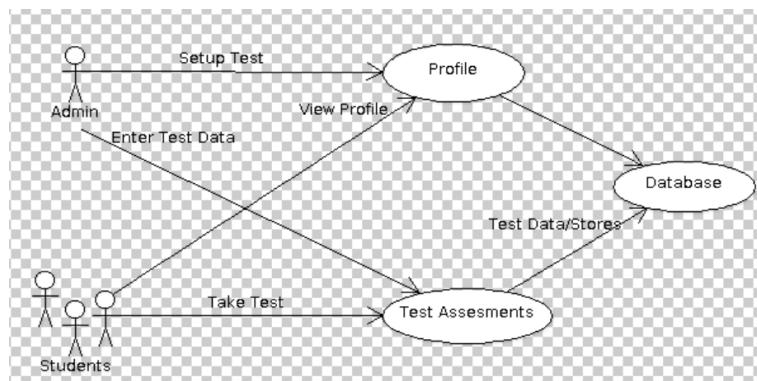


Figure 6.1: Use Case Diagram

6.3 DATA MODEL AND DESCRIPTION

6.3.1 Data Description

This section describes information domain for the game. Figure 6.1 shows class diagram for the game.

Class Diagram is a type of static structure diagram that describes the structure of a system by showing the systems classes, their attributes, and the relationships between the classes. Class diagrams are the backbone of almost every object oriented methods, including UML. They describe the static structure of a system .

Android Based E-Learning Application

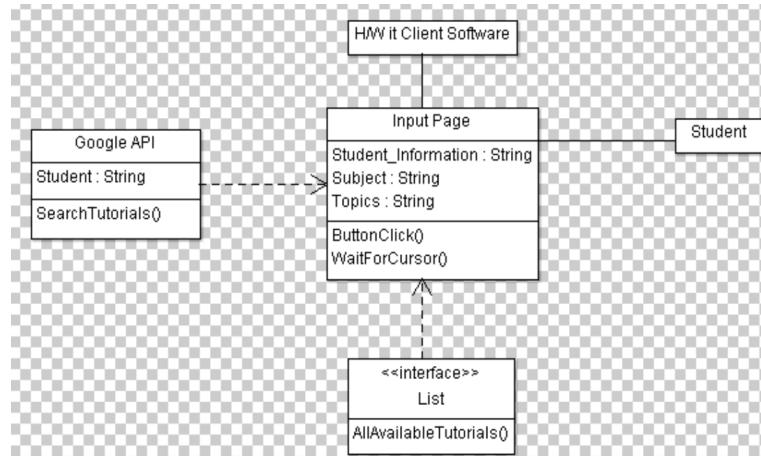


Figure 6.2: Class Diagram

6.3.2 Data Objects and Relationships

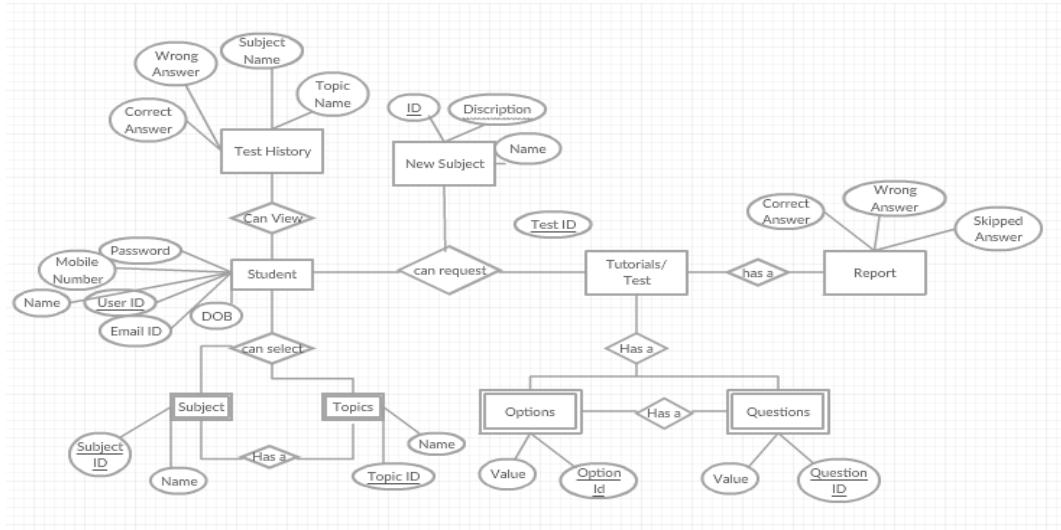


Figure 6.3: E-R Diagram

6.4 FUNCTIONAL MODEL AND DESCRIPTION

6.4.1 Data Flow Diagram

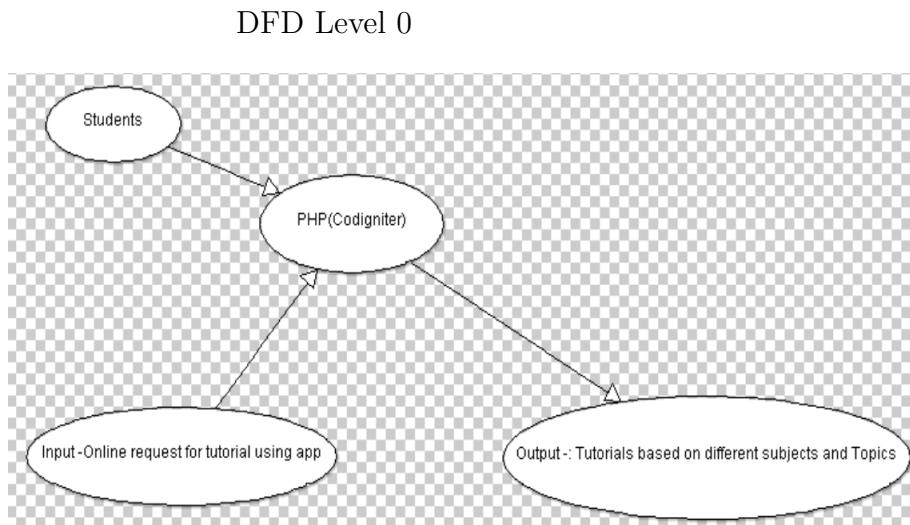


Figure 6.4: Data Flow Diagram Level 0

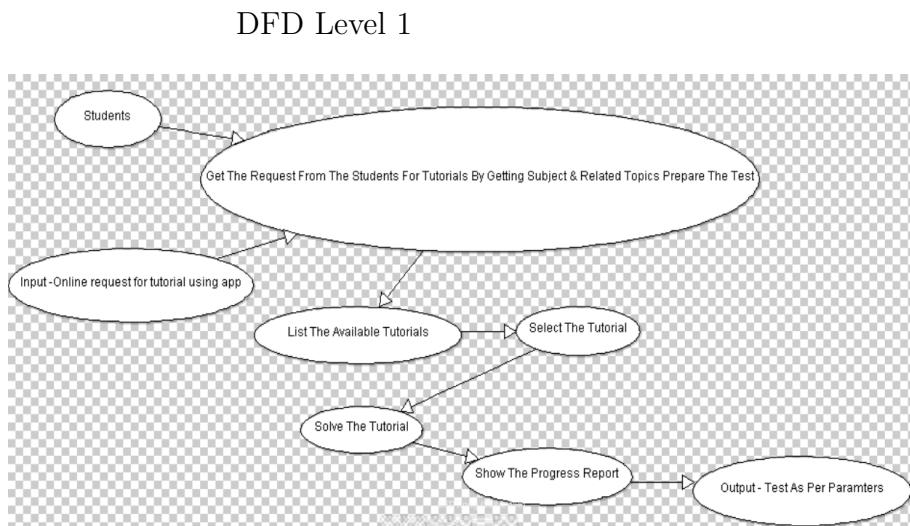


Figure 6.5: Data Flow Diagram Level 1

6.4.1.1 Activity Diagram

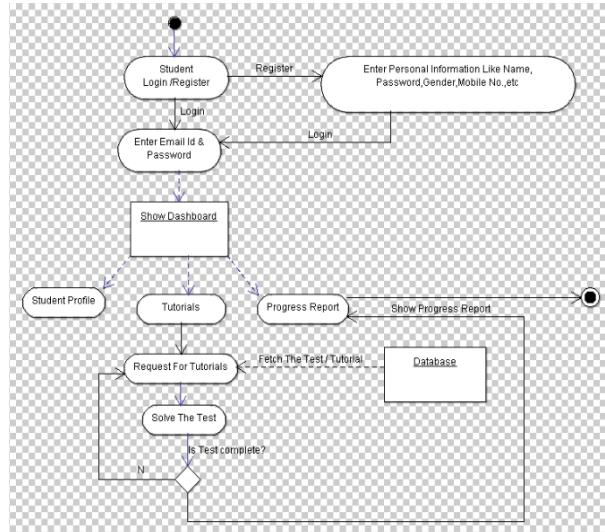


Figure 6.6: Activity diagram for student

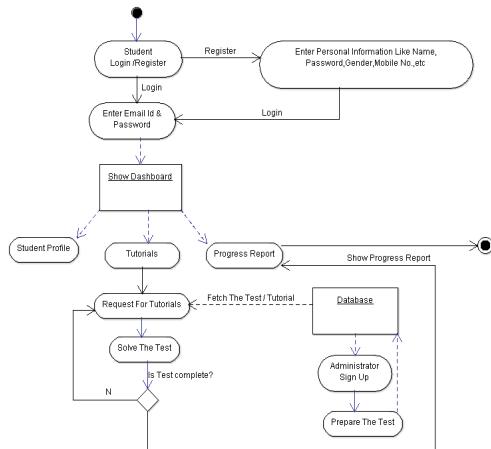


Figure 6.7: Activity diagram for admin

6.4.2 Non Functional Requirements

In each project,in addition to serving end user goals we must serve the needs of the development team.Non functional requirements are the proper-

ties that the product must have. These are the characteristics or qualities that make the product attractive, or usable, or fast, or reliable. Non functional requirements do not alter product's functionality.

Non Functional requirements

- Interface Requirements
- Performance Requirements
- Software quality attributes such as availability [related to Reliability], modifiability [includes portability, reusability, scalability] , performance, security

6.4.3 Sequence Diagram

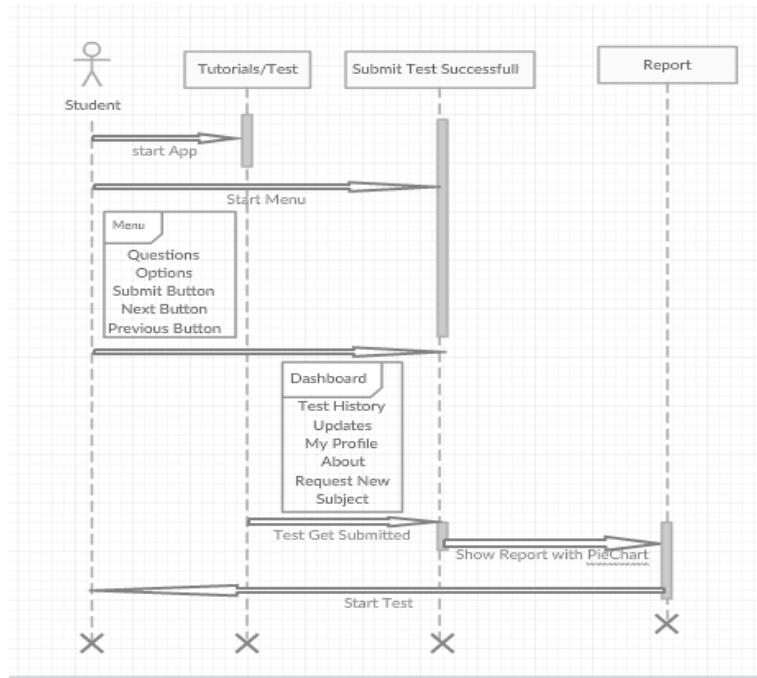


Figure 6.8: Sequence Diagram

Chapter 7

DETAILED DESIGN DOCUMENT USING APPENDIX A AND B

7.1 INTRODUCTION

7.1.1 Purpose

This document describes the high level design for data, architecture, interface and components for the software. It highlights the detailed design of the system including of architectural design, component level design, data design and interface design. Also the issues, constraints and limitations are discussed.

7.1.2 Scope

We using fully functional full stack framework to make learning easy and paperless .

7.2 ARCHITECTURAL DESIGN

7.2.1 System Architecture

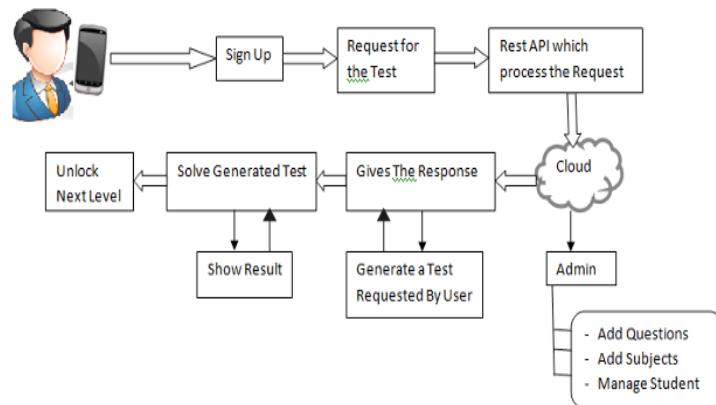


Figure 7.1: System Architecture

7.3 COMPONENT DESIGN

7.3.1 Class Diagrams

7.3.1.1 Package diagram

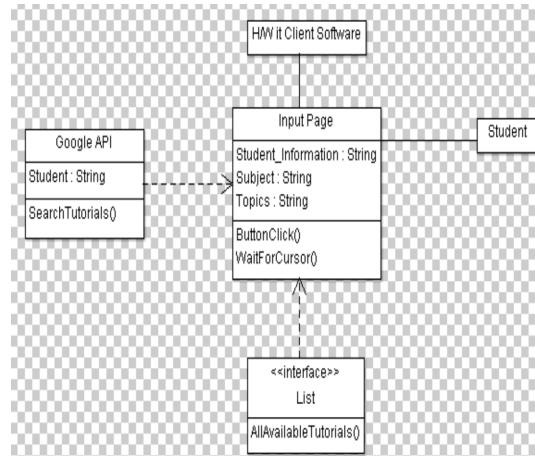


Figure 7.2: Package diagram

7.3.1.2 Deployment Diagram

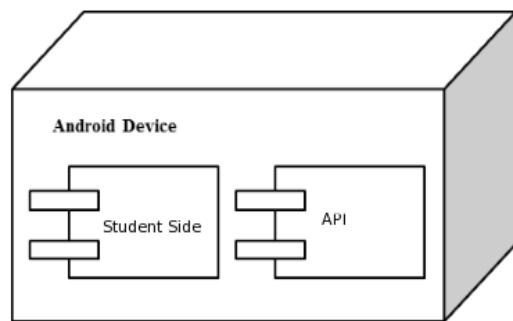


Figure 7.3: Deployment Diagram

Chapter 8

PROJECT IMPLEMENTATION

8.1 INTRODUCTION

This document describes both the test plan and the test procedure along with goals and objectives of test specifications.

8.2 Goals and Objectives

The objective of our test plan is to find and report as many bugs as possible to improve the integrity of the system. Although exhaustive testing is not possible, a broad range of tests is exercised to achieve the goal of bug free and accurate results in software.

8.3 TOOLS AND TECHNOLOGIES USED

- Filezilla

FileZilla is a free software, cross-platform FTP application, consisting of FileZilla Client and FileZilla Server. Client binaries are available for Windows, Linux, and macOS, server binaries are available for Windows only. The client supports FTP, SFTP and FTPS (FTP over SSL/TLS).

FileZilla's source code is hosted on SourceForge and the project was featured as Project of the Month in November 2003.[3] However, there have been criticisms that SourceForge bundles malicious software with the application; and that FileZilla stores users' FTP passwords insecurely.

- Sublime Text

Sublime Text is a sophisticated text editor for code, markup and prose. Sublime Text is a proprietary cross-platform source code editor with a Python application programming interface (API). It natively supports many programming languages and markup languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses.

- Postman A Little About Postman. Postman is a Google Chrome app for interacting with HTTP APIs. It presents you with a friendly GUI for constructing requests and reading responses

Chapter 9

SOFTWARE TESTING

9.1 Statement of Scope

The software testing is to be done for all components in every module of software. The results of the modules must be compared with actual known values to test the correctness of the procedure.

Introduction: Software testing is the process of executing a program or system with the intent of finding errors.

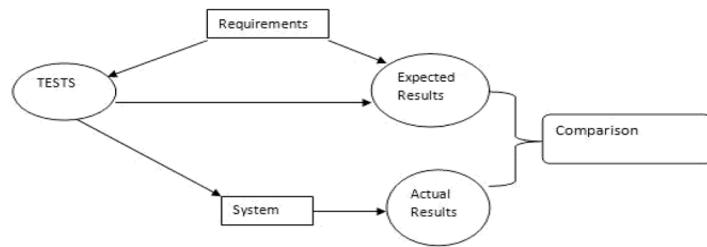


Figure 9.1: Basic Testing Mechanism

9.2 TEST PLAN

This section describes the overall testing strategy and the dissertation management issues that are required to properly execute effective tests.

9.2.1 Testing Strategy

The overall strategy for software testing is described here.

9.2.2 Unit Testing

Each module is tested separately. The criterion selected for unit test modules are identity modules that have core functionality implemented and its execution is independent of other modules.

9.2.3 Integration Testing

In integration testing, the modules which are unit tested are combined and testing is performed to see if the correct information is passed between the modules as per the algorithms..

9.2.4 Static and Dynamic Analysis

Static analysis involves going through the code in order to find out any possible defect in the code. Dynamic analysis involves executing the code and analysing the output.

9.2.5 GUI Testing

The user interface is tested to check the functionality of all the scenes, buttons and navigation components.

9.2.6 White Box Testing

White box testing strategy deals with the internal logic and structure of the code. White box testing is also called as glass, structure, open box or clean box testing.

9.2.7 Black Box Testing

Black Box Testing is testing without knowledge of internal working of the item being tested. For Example when black box testing is applied to software engineering, the tester would only know the legal input and what the expected output should be, but not how the program actually arrive at those output.

9.2.8 Test Schedule

The work products gives correct flow of the system and produced its intended function.

9.2.9 Test Case

A test case in software engineering is a set of conditions or variables under which a tester will determine whether an application or software system is working correctly or not.

Android Based E-Learning Application

Test Case ID	Test Case Name	Test Case Description	Expected Results	Actual Results	Test Status
IC1	Admin Login	To check wheather the application gives access to autho- rised person	Access is given to Authorized user only	Access is given to Authorized user only	Passed
IC2	Student Login	To check wheather the application gives access to student	Access is given to Student	Access is given to Student	Passed
IC3	SignUp	To check wheather new user is added	New user added sucessfully	New user added sucessfully	Passed
IC4	Student Details modifi- cation at admin side	To check wheather stu- dents details is insert , delete , or update	Student details modified	Student details modified	Passed
IC5	Subject Module	To check wheather new subject and subtopics added	Subject added sucessfully	Subject added sucessfully	Passed
IC6	Question Module	To check wheather new question is added as well as edited	Question added sucessfully	Question added sucessfully	Passed
IC7	Test Module	To check wheather requested test is generated	Test gen- erated sucessfully	Test gen- erated success- fully	Passed
IC8	Report Module	To check wheather correct report is genereted	Report generated sucessfully	Report generated success- fully	Passed

Table 9.1: Test Plan

Android Based E-Learning Application

IC9	User Profile	To check wheather user profile is created and edited	User profile created sucessfully	User profile created successfully	Passed
IC10	Notification Module	To check wheather notification is send	Notification send sucessfullyy	Notification send sucessfully	Passed
IC11	In app Updates	To check wheather updates are send	Updates send sucessfully	Updates send sucessfully	Passed
IC12	Subject Request	To check wheather subject is sent	Subject request is sucessfully created	Subject request is sucessfully created	Passed
IC13	Toppers module	To check wheather toppers are listed or not	Toppers are displayed sucessfully	Toppers are displayed sucessfully	Passed
IC14	Test History	To check wheather test history is displayed	Test history displayed sucessfully	Test history displayed sucessfully	Passed
IC15	LeaderBoard Module	To check wheather LeaderBoard is displayed	LeaderBoard displayed sucessfully	LeaderBoard displayed sucessfully	Passed

Table 9.2: Test Plan

Chapter 10

Results

10.1 User Interface

The features of a computer system which allows the user to interact with it. A user interface, also sometimes called a human-computer interface, comprises both hardware and software components. It handles the interaction between the user and the system. ... graphical user interface (GUI).

10.1.1 Web Application

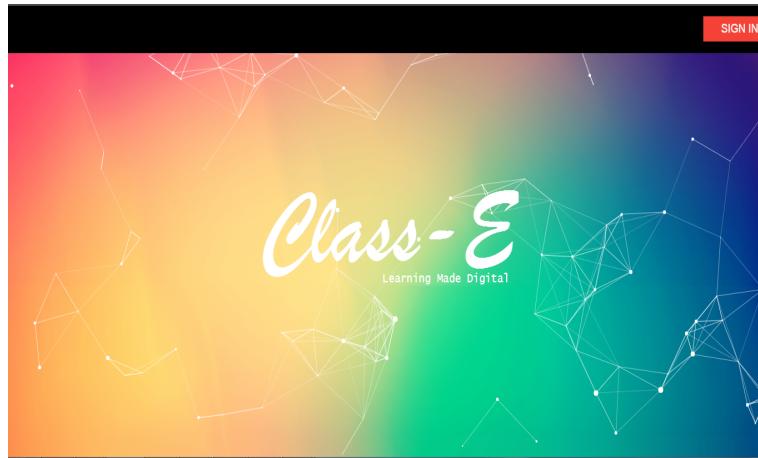


Figure 10.1: Home Screen

The image shows the dashboard of the "Class-E Learning Made Digital" web application. At the top, there is a navigation bar with a "Logout" button on the right. Below the bar, there are four colored boxes: red, blue, green, and orange. Each box contains a icon and a numerical value: "Total Students" (5), "Total Subjects" (4), "Total Questions" (50), and "Total Tests" (40). To the left of these boxes is a sidebar with a "Welcome Admin" message and a list of menu items: Overview, Dashboard, Students, Subjects, Questions, Test, Profile, Notification, Updates, and Settings. On the right side of the dashboard, there are two main sections: "Toppers" (listing three students: Yogita Kesar, Kaustubh Joshi, and Kaustubh Joshi) and "Notification" (listing one notification from "Rita" with a message input field and a "Send" button).

Figure 10.2: Dashboard

Android Based E-Learning Application

ID	Student Name	Email	Phone Number	Signup Date	Status	
1	Kaustubh Joshi	exabytes.js@gmail.com	9762720307	0000-00-00 00 00 00	Not Active	
2	Mayuri mahajan	mahamayu@gmail.com	7553285642	2017-06-05 12:09:28	Active	
5	Mayuri Mahajan	mayurimahajan1496@gmail.com	8668449846	0000-00-00 00 00 00	Not Active	
3	Pooja Nikam	pujanikam2329@gmail.com	8605903136	0000-00-00 00 00 00	Not Active	
6	Yogita Kasar	yog@gmail.com	9960136918	0000-00-00 00 00 00	Not Active	

Figure 10.3: Student Module

Name	Topics	
Chemistry	Chemical Thermodynamics and Energetics(40)	
Biology	Human and Reproduction (20)	
Mathematics	Probability(30)	
Physics	Reflection of Light(20)	

Figure 10.4: Subject Module

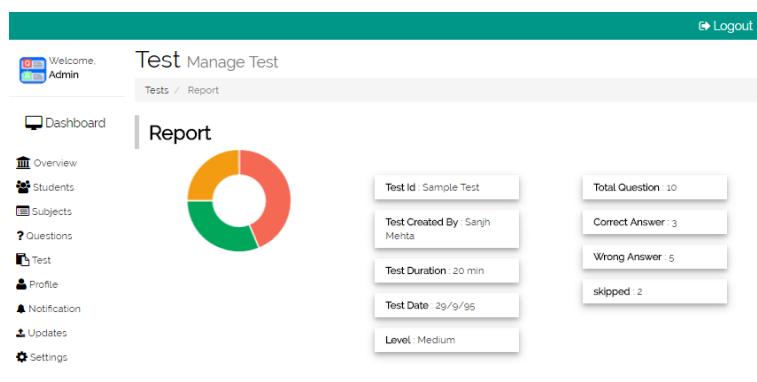


Figure 10.5: Report Module

10.1.2 Android Application

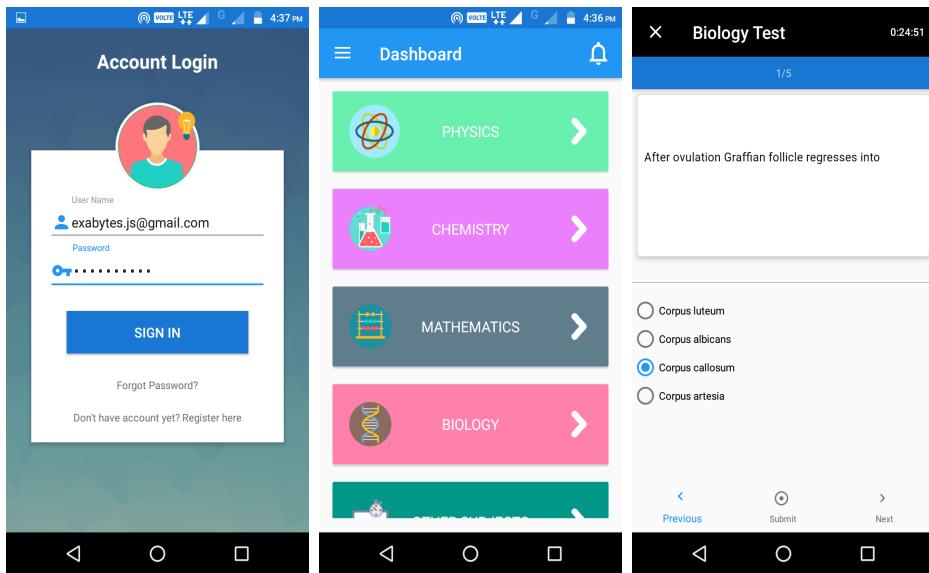


Figure 10.6: login Module , Dashboard Module , Test Module

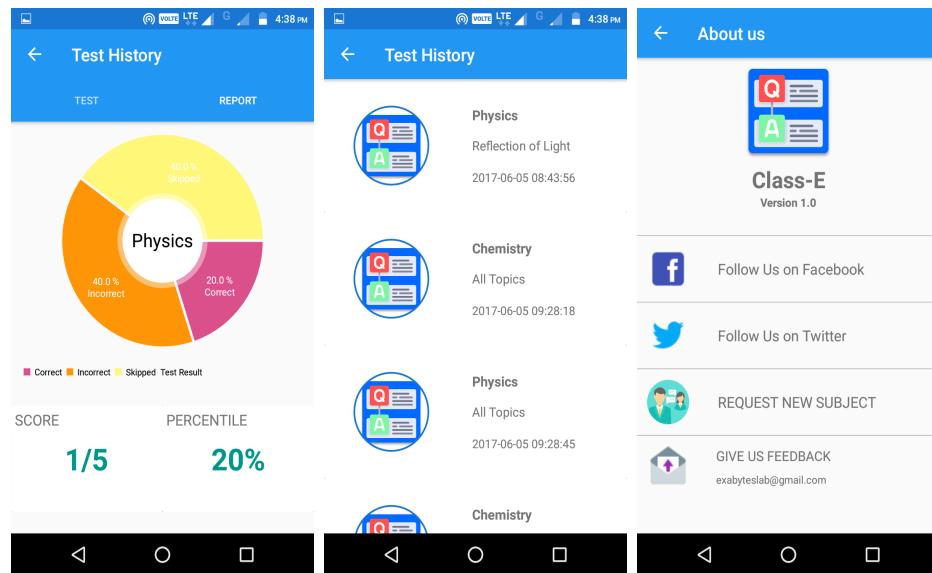


Figure 10.7: Test Report , Test History , About Module

Chapter 11

DEPLOYMENT AND MAINTENANCE

11.1 INSTALLATION AND UN-INSTALLATION

Pre-Installation

1. Make sure that your android device should have required storage space to install app.
2. android device should connected with internet

Installation Instructions

- Open the Google Play Store app . Note: you can also go to play.google.com.
- Search or browse for Class-E Android app.
- Tap Install
- Follow the onscreen instructions to complete process and get the content.

Chapter 12

CONCLUSION AND FUTURE SCOPE

Android Based E-Learning Application

In this project, we have presented a Android Based E-Learning Application .We implement the system through an application on Android platform. And to illustrate the effectiveness of the system, we develop admin site using Codigniter.

We also conduct several experiments to evaluate our application. The experimental results show that our developed system can work effectively on android devices. Friendly user interface is very important for an application. Most of people decide whether to use an application only by its user interface. Thus, we use bootstrap and w3.css to design admin site .

proposed system is developed which is accessible at any time as long as the user brings the mobile devices and internet connection is available. System is developed using bootstrap for the mobile device in which it is supported with javascript and CSS as its basic display that can be used for further needs.

Annexure A

References

- [1] Scripting queries <https://www.google.co.in>
- [2] Stack Overflow <https://stackoverflow.com/>
- [3] Codeigniter : <https://www.codeigniter.com>
- [4] Bootstrap : getbootstrap.com/
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- [13] Design of a Microlecture Mobile Learning System Based on Smartphone and Web Platforms ,IEEE TRANSACTIONS ON EDUCATION, VOL. 58, NO. 3, AUGUST 2015

Annexure B

LABORATORY ASSIGNMENTS ON PROJECT ANALYSIS OF ALGORITHM DESIGN

Problem feasibility using concepts of knowledge canvas and IDEAMatrix

Feasibility:

Knowledge Canvas:

Knowledge canvas is one that depicts the knowledge forces and knowledge flow across the organization. It captures the current knowledge state and knowledge forces in the environment. It tries to build the bigger and broader knowledge scenario for you and your environment. It is simple representation of knowledge opportunities with reference to the environment.

IDEA Matrix:

This framework identifies the key parameters to be enhanced for creating knowledge value for systemic knowledge innovation.

I	D	E	A
Increase: Socializing and human-computer interaction	Drive: Driven knowledge interaction among knowledge user	Educate: Educate through Tutorials	Accelerate: Accelerated knowledge transfer
Improve: Connectivity between Studends	Deliver: Multi-purpose applications in one system	Evaluate: Evaluate connectivity performance	Associate: Tutorials and their results
Ignore: Traditional Learning Method	Decrease: Cost and multi-dependencies	Eliminate: Time consuming learning process	Avoid: Out of range interactions

Figure B.1: Idea Matrix

Annexure C

LABORATORY ASSIGNMENTS ON PROJECT QUALITY AND RELIABILITY TESTING OF PROJECT DESIGN

It should include assignments such as

- Use of divide and conquer strategies to exploit distributed/parallel/concurrent processing of the above to identify object, morphisms, overloading in functions (if any), and functional relations and any other dependencies (as per requirements). It can include Venn diagram, state diagram, function relations, i/o relations; use this to derive objects, morphism, overloading
 - Use of above to draw functional dependency graphs and relevant Software modeling methods, techniques including UML diagrams or other necessities using appropriate tools.
 - Testing of project problem statement using generated test data (using mathematical models, GUI, Function testing principles, if any) selection and appropriate use of testing tools, testing of UML diagrams reliability. Write also test cases [Black box testing] for each identified functions. You can use Mathematica or equivalent open source tool for generating test data.
-

Testing of Project Problem Statement

Introduction: Software testing is the process of executing a program or system with the intent of finding errors. Or it involves any activity aimed at evaluating an attribute or capability of the system and determining that it meets its required results. Software is unlike other physical processes where inputs are received and outputs are produced. Where software differs is in that manner in which it fails. Most physical systems fail in a fixed set of ways. By contrast, software can fail in bizarre ways. Detecting all of the different failure modes for software is generally infeasible.

Testing is performed for following purposes:

1. To improve quality
2. Verification and validation Basic software testing

Annexure D

PROJECT PLANNER

Android Based E-Learning Application

- Slack

Slack brings team communication and collaboration into one place so you can get more work done, whether you belong to a large enterprise or a small business. Check off your to-do list and move your projects forward by bringing the right people, conversations, tools, and information you need together. Slack is available on any device, so you can find and access your team and your work, whether you're at your desk or on the go.



Figure D.1: Slack

- Github

GitHub is a development platform inspired by the way you work. From open source to business, you can host and review code, manage projects, and build software alongside millions of other developers.

- * Code security
- * Access controlled
- * Hosted where you need it



Figure D.2: Git Hub

Annexure E

REVIEWERS COMMENTS OF PAPER SUBMITTED

Android Based E-Learning Application

1. Paper Title: Android Based E-Learning Application Class-E
2. Name of the Conference/Journal where paper submitted : International Research Journal of Engineering and Technology (IRJET)
3. Paper accepted/rejected : Accepted
4. Review comments by reviewer : Paper Accepted Successfully
5. Corrective actions if any : No

Annexure F

PLAGIARISM REPORT

Android Based E-Learning Application

Plagiarism report

Plagiarism Scan Report	
Summary	
Report Generated Date	07 Jun, 2017
Plagiarism Status	92% Unique
Total Words	951
Total Characters	6102
Any Ignore Url Used	

Figure F.1: Plagiarism Report

Annexure G

TERM-II PROJECT LABORATORY ASSIGNMENT

Android Based E-Learning Application

“Class-E”

Joshi Kaustubh A.¹, Kasar Yogita H.², Mahajan Mayuri V.³, Nikam Pooja G.⁴

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Nashik, India^{1, 2, 3, 4}

Abstract – Mobile learning as an intersection of Mobile Computing and E-Learning providing resources that can be accessed anywhere has capability in an excellent searching system, rich interaction and full support towards an effective Learning and performance based assessment. In addition, it has a characteristic of not being dependent on time and space. The application of mobile learning can be used through the android operating system that is chosen in consideration to that Android has been dominating the Smartphone market and is an open-source operating system that is easily developed. Class-E is platform we will be presenting which will help people to choose digital learning over traditional learning methods. This application will have two sides of Interface: admin that will use the web-based application on the desktop and students that will use android application. In this application, test and tutorials based on various subjects and topics are given by the admin to the students and the result of the individual student is displayed.

Key Words: E-learning, Rest Api, Native Android, Learning Management System.

1. INTRODUCTION

An interactive learning, by using Mobile learning concept, is something to make learning more interesting and not monotonous. A new trend in e-learning nowadays is known as Mobile Learning, the use of portable media such as Smartphone either using the Android system, IOS or Windows Phone. The use of Mobile Learning to support the learning process is considered important to add the flexibility in the activity of teaching and learning. Thus, the learning process can be done anywhere and anytime. The aim of this research is to introduce the mobile learning based information by means of Android.

1.1 Problem Statement

The purpose of our system is to design and implement Educational Application which is intended

to support dynamic E-Learning Platform. The application is being designed to provide learning environment to User by giving various tests based on various Topics and assessment of Users progress.

1.2 Literature Survey

Mobile learning as an intersection of Mobile computing and E-Learning providing resources that can be accessed in anywhere has capability in an excellent searching system, rich interaction and full support towards an effective learning and performance-based assessment. In addition, it has a characteristic of not being dependent on time and space. The application of mobile learning can be used through the android operating system that is chosen in consideration to that android has been dominating the Smart phone market and is an open-source operating system that is easily developed. To ease the users to access M-earning, jQuery mobile framework is applied as its display, in addition to its attractive features, is able to adjust the screen from mobile equipment [1].

This application will be implemented for two types of user: admin that will use the web-based application on the desktop and lecturers and college students that will use android mobile tool-based application. In this case, the function that will be given by processing the materials that will be uploaded by lecturers and can be downloaded by the college students, task and quizzes given by the lecturers to the college students and the function to show the score from the college students. Objective can be stated as to increase use of ubiquitous computing using Android based application and increase dependency on E-Learning to replace traditional learning methods [1].

Design of a Micro lecture Mobile Learning System Based on Smartphone and Web Platforms First analyzes the concept and features of micro lecture, mobile learning, and ubiquitous learning, then presents the combination of micro lecture and mobile learning, to propose a novel way of micro-learning through mobile terminals. Details

are presented of a micro lecture mobile learning system (MMLS) that can support multiplatform, including PC terminals and smartphones. The system combines intelligent push, speech recognition, video annotation, Lucene full-text search, clustering analysis, Android development, and other technologies. The platform allows learners to access micro lecture videos and other high-quality micro lecture resources wherever and whenever they like, in whatever time intervals they have available. Teachers can obtain statistical analysis results of the micro lecture in MMLS to provide teaching/learning feedback and an effective communication platform. MMLS promotes the development of micro lecture and mobile learning. A statistical analysis of the implementation of the system shows that students using MMLS to assist their learning had improved results on their final exams and gave a higher evaluation of the curriculum than those who did not. The advantages and disadvantages of MMLS are also analyzed [2].

2. Overall Architecture

In Our proposed system we present the secure, reliable, dynamic and stable online E-learning based application. Input to the system will be subject name, topic name of the respective subject and difficulty level, all this input data will entered by user through mobile app. Respected data will be stored on back end which is admin side on cloud . On back end admin will manage all databases which contain student data, subject data and Test/Score data. Admin side is dynamic enough to run CRUD operations on database. The credentials of students will be stored in database using MD5 encryption so that admin cannot miss use the personal information. On front end, users will have to download app from google play store and then have to register to use its features. User has freedom to choose whichever subject they want if it contain in database. But the dynamicity is provided in app, if user wants to request a subject currently not present in database. The result of test given by user is provided right after test get submitted. User can review their score, percentile, rank per subject and history of test in report generated by admin side. Web API are used to transfer this data from admin backend to user's device.

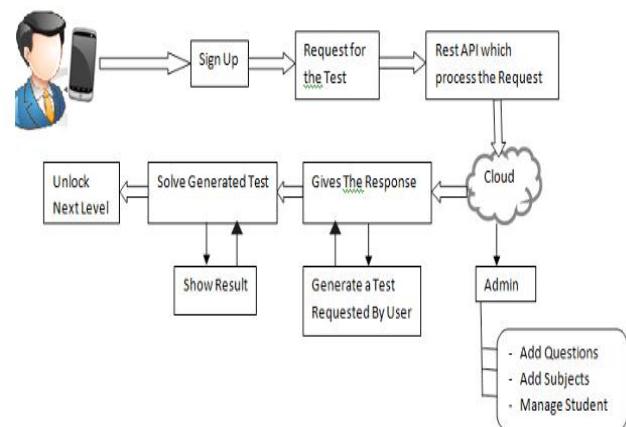


Fig -1: System Architecture

The system aims to generate dynamic tests with respect to user choice. This can be used to make learning ubiquitous and Learning will move more and more outside of the classroom and into the learner's environments, both real and virtual, thus becoming more situated, personal, collaborative and lifelong.

3. IMPLEMENTATION AND RESULTS

Following figures shows some live screenshots:

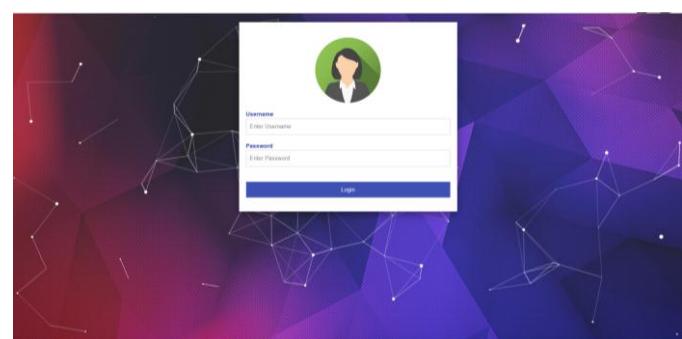


Fig -2: Admin Side Login Page

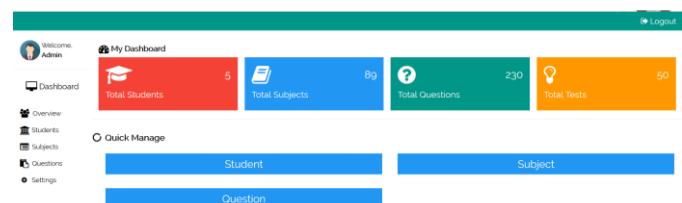


Fig -3: Admin Side Dashboard

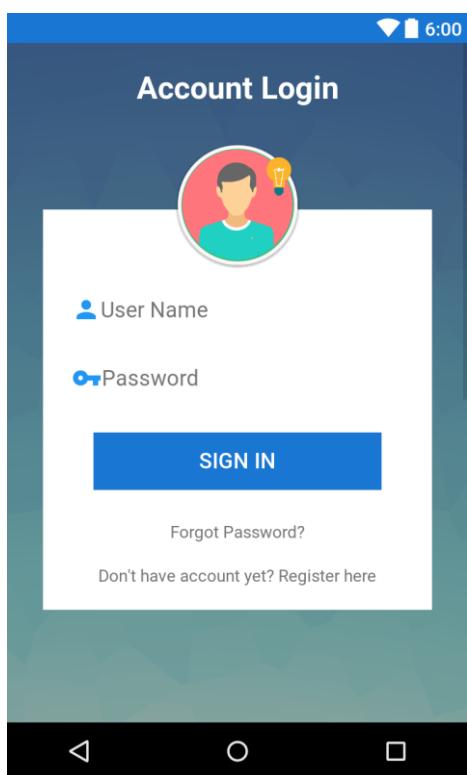


Fig -4: Client side login activity

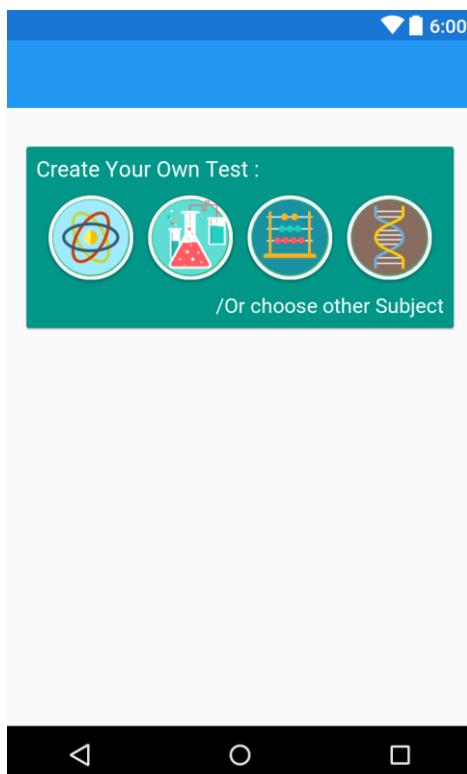


Fig -5: Client Side Dashboard Activity

4. CONCLUSION

System is developed which is accessible at any time as long as internet connection is available. The Admin side is developed using responsive frameworks such as bootstrap thus working on any type of device with internet connection. The client side application is developed using native Android which supports every android device having Android 3.5 Gingerbread or more.

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Every orientation work has an imprint of many people and it becomes the job of author to express deep gratitude for the same. We take this opportunity to express my bottomless sense of gratitude towards my esteemed guide and Head of Computer Department Prof. N. V. Alone for giving us this splendid opportunity to select a present "Android Based E-Learning Application: Class-E" Project and also providing facilities for successful completion. We would also like to thanks our external guide Er. Gokul Shinde Sir, giving us all help and guidance needed. We thanks Project coordinator Prof. C. R. Barde and all the staff members, for their indispensable support, priceless suggestions and for most valuable time lent as and when required. With all respect and gratitude, we would like to thank all the people, who have helped me directly or indirectly. We also thank my friends for their help in collecting information without which this Project not have seen the light of the day.

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Annexure H

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