1. INTRODUCTION

1.1 INTRODUCTION

If your future device were continuous, your control over all your devices, and the continuous digital world they could open for you, could expand exponentially. In this digital world we introduce a new mobile application which includes all the bca academic material of Calicut University in this android application called “BCA HUB”. There are many other apps to bca students like programming apps, notes apps and there are many websites to search bca study materials. Introduce all in one app to bca students to make their studying easy. It is difficult to search different websites to get the study material. All the academic material needed to the bca student are included in this application like notes, textbook, syllabus, question papers, programs, and lecture classes. The whole bca academic material at your home screen is provided. We focus on providing whole bca academic material which you will be studied at one place. All the study material can be download easily. This application has been built for quick revision and reference that will prove helpful during exam time.

1.2 PROJECT OVERVIEW

The application “BCA HUB” is useful to all the bca student to their studies. All the study material needed to the bca of Calicut university student are included in this application. With this app you will be able to learn the academic study more easy. It will help you to get all the material in an app. There are three users in this application admin, faculty and students. The admin add the study material to this application and update all the material at any time. And the faculty can view the study material and download it when they needed. The notes and program can be added by the faculty as they required. All the study material in this application are in pdf file so that can be easily downloaded by them. In this application students can view the study material and download it. There is also included a forum to communicate with the faculty and students. Students can ask their doubts and the faculty can answer and clear their doubts through this forum. Interface is user-friendly, so any users can easily use this application. The user can use

this application to get more idea about their subject and for further reference to their studies.

1.3 OBJECTIVE

The main aim of my project is to get all academic material more easily to the users. Through this application users can save more time than searching different websites. To search different websites to get study materials you can easily get all this in BCA HUB easier to download than others. Changes on the syllabus could be updated in this application by the user. Forum is mainly useful to students to clear their doubts. And get more details about all the subjects through this android application.

2. SYSTEM DESCRIPTION

The description about the system used includes hardware and software requirements. The decision to acquire computer hardware or software must be handled in the same way as any other business decision. The variety of sizes and types of computing resources available puts a burden on the analyst who must select suitable hardware, software or services and advice the top management accordingly.

2.1 HARDWARE SPECIFICATION

The hard ware is the place where all the information and data are stored permanently. So hardware must be reliable and cost effective. The hardware must suit all the application development. It is fast enough to complete and do all the jobs and executions.

Processor: Intel Core i3 processor

Android device: ARMv7 Processor

Phone memory: 15MB

SD card: 500MB

2.2 SOFTWARE SPECIFICATION

The software specification means the operating system and all other application or tools used for the development of the proposed system. It includes the operating system, and the software which we are going to use.

Operating System: Windows 10

Front end: Android

Back end: Java, XML

Framework: Android Studio 1.5.1

Android SDK: API 17 or higher

2.3 DEVELOPING TOOLS

ANDROID STUDIO

Android Studio is the official integrated Development Environment (IDE) for Android app development, based on Intellij IDEA. On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps, such as: A flexible Gradle-based build system

a fast and feature-rich emulator a unified environment where you can develop for all Android devices Instant Run to push changes to your running app without building a new APK code template and GitHub integration to help you build common app features and important sample code Extensive testing tools and frameworks Lint tools to catch performance, usability, version compatibility, and other problems c++ and NDK support Built-in support for Google could perform platform, making it easy to integrate Google cloud messaging and App Engine.

NETBEANS 8.0 IDE

Net Beans is a Java-based integrated development environment (IDE). The term also refers to the IDES underlying application platform framework. The IDE is designed to limit coding errors and facilitate error correction with tools such as NetBeans. Find Bugs to locate and fix common Java coding problems and Debugger to manage complex code with field watches, breakpoints, and execution monitoring. Although the NetBeans IDE is designed specifically for Java developers, it also supports C/C++, PHP, Groovy, and HTML in addition to Java, JavaScript, and Java FX. Tools and capabilities of the NetBeans IDE include a feature-rich text editor with refactoring tools and code templates, high level and granular Views of applications, drag and drop GUI design, and versioning using out-of-the-box integration with tools such as Git.

The NetBeans IDE can run on any operating system that supports a compatible JVM including Linux, Windows and OS X. The underlying NetBeans platform supports creation of new applications and further development of existing applications using modular software components. As an application running on the NetBeans Platform, the NetBeans IDE itself is extensible and can be extended to support new languages. The IDE and Platform were converted to open source by Sun Microsystems in 2000. Oracle continues to sponsor the NetBeans project since acquiring Sun in 2010. The NetBeans Platform is a reusable framework for simplifying the development of Java Swing desktop applications. The NetBeans IDE bundle for Java SE contains what is needed to start developing NetBeans plug-in and NetBeans Platform based applications; no additional SDK is required.

Applications can install modules dynamically. Any application can include the Update Centre module to allow users of the application to download digitally signed upgrades and new features directly into the running application. Reinstalling an upgrade or a new release does not force users to download the entire application again. The platform offers reusable services common to desktop applications, allowing developers to focus on the logic specific to their application .features are User interface management (e.g. menus and toolbars),User settings management, Storage management (saving and loading any kind of data),Window management, Wizard framework (supports step-by-step dialogs),NetBeans Visual Library, Integrated development tools

XAMPP

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, Maria DB database, and interpreters for scripts written in PHP and Perl programming languages. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer, with the advantage of a number of common add-in applications such as Word press and Joomla! can also be installed with similar ease using Bitnami.

3. SOFTWARE DESCRIPTION

3.1 DEVELOPING PLATFORM

WINDOWS

Microsoft windows (or simply Windows) are a metafamily of graphical operating systems developed, marketed, and sold by Microsoft. It consists of several families of operating systems, each of which cater to a certain sector of the computing industry with the OS typically associated with IBM PC compatible architecture. Active Windows families include Windows NT, Windows Embedded compact (Windows CE) or Windows Server. Defunct Windows families include Windows 9x; Windows 10 Mobile is an active product, unrelated to the defunct family Windows Mobile.

Microsoft introduced an operating environment named *Windows* on November 20, 1985, as a graphical operating system shell for MS-DOS in response to the growing interest in graphical user interfaces (GUIs). Microsoft Windows came to dominate the world's personal computer (PC) market with over 90% market share, overtaking Mac OS, which had been introduced in 1984. Apple came to see Windows as an unfair encroachment on their innovation in GUI development as implemented on products such as the Lisa and Macintosh (eventually settled in court in Microsoft's favor in 1993). On PC's Windows is still the most popular operating system. However, in 2014, Microsoft admitted losing the majority of the overall operating system market to Android, because of the massive growth in sales of Android smartphones. In 2014, the number of Windows devices sold were less than 25% of Android devices sold. This comparisons, however, may not be fully relevant as the two operating systems traditionally targeted different platforms

Features

1. Windows Easy Transfer: One of the first things you might do is to transfer your files and settings from your old computer to the brand new computer. You can do this using an easy Transfer Cable, CDs, or DVDs, USB flash drives, a network folder, or an external hard disk.

2. Windows Anytime Upgrade: This feature of Windows Operating system allows you to upgrade to any higher Windows version available for your system, so you can take full advantage of enhanced digital entertainment and other features.

3. Windows Basics: If you are new to Windows or want to refresh your knowledge about areas such as security or working with digital pictures, this features will help you to get started.

4. Searching and Organizing: Most folders in Windows have a search box in the upper right corner. To find a file in a folder, type a part of the file name in the search box.

5. Parental Controls: Parental Controls give you the means to decide when your children use the computer, which website they visit, and which games they are allowed to play. You can also get reports of your children's computer activity as well.

6. Ease of Access Center: Ease of Access Center is the place to find and change settings that can enhance how you hear, see and use your computer. You can adjust text size and the speed of your mouse. This is also where you can go to set up your screen reader and find other helpful tools.

7. Default Programs: This is a features of your Windows Operating System where you can adjust and set your default programs, associate a file type or a protocol with a program, change and set auto play settings, set program access and computer defaults.

8. Remote Desktop Connection: This feature helps a user with a graphical user interface to another computer. It is a proprietary protocol developed by Microsoft especially for Windows Operating System. Basically by entering the IP address of the other computer you can directly see that computer's desktop right on to your desktop.

3.2 FRONT END

ANDROID SDK

Android software development is the process by which new applications are created for the Android operating system. Applications are usually developed in the Java programming language using the Android software Development Kit (SDK), but other development environments are also available.

The Android software development kit (SDK) includes a comprehensive set of development tools. These include a debugger, libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials. Currently supported development platforms include computers running Linux (any modern desktop Linux distribution), Mac OSX10.5.8 or later, and Windows XP or later. The SDK is not currently available on Android; however software can be developed by using specialized Android applications. Until around the end of 2014, the officially supported integrated development environment (IDE) was Eclipse using the Android Development Tools (ADT) plug-in, through IntelliJ IDEA IDE (all editions) fully supports Android Development out of the box, and NetBeans IDE also supports Android Development via a plug-in. As of 2015, Android Studio, made by Google and powered by intellij, is the officials IDE;

However, developers are free to use others. Additionally, developers may use any text editor to edit Java and XML files, then use command line tools(java development kit and Apache Ant are required) to create, build and debug Android applications as well as control attached Android devices(eg: triggering a reboot, installing software packages(s) remotely Enhancements to Android's SDK go hand in hand with the overall Android platform development. The SDK also supports older versions of the Android platform in case developers wish to target their applications at older devices.

Development tools are downloadable components, so after one has downloaded the latest version and platform, older platforms and tools can also be downloaded for compatibility testing. Android applications are packed in .apk format and stored

under/data/app folder on the Android OS (the folder is accessible only to the root user for security reasons).

JAVA

Java was conceived by James Gosling, Patrick Naughton, at Sun Microsystems in 1991. This language was initially called 'Oak' but was renamed 'java' in 1995. It is a Language grounded in the need and experience of the people who device it. This reason why Java becomes so important is described in its buzzards, Simple, Object-oriented, Secure, portable, Robust, Multithreaded, Architectural-neutral, Interpreted.

Features

Simple: Java is a simple language. Even though it is object oriented, it avoids certain C++ features like operator overloading (although Java language does have method overloading) and multiple inheritance. Java allows automatic garbage collection. By virtue of having automatic garbage collection (periodic freeing of memory that is not being referenced) java language not only makes the programming task easier, it also dramatically cut down on bugs.one of the goal of java is to enable construction of software that can run stand-alone in small machine. The java interpreter and standard libraries have a small footprint. A small size is important for use in embedded system and java can be easily downloaded on the net.

Object-oriented: Java is an object oriented programing language .It considers everything as an object. Object oriented programming allows new, complex objects inherited from the parent objects. A child object can be used wherever the parent object was used and any of the code communicating with the child does not know that it is a child not the parent.

Secure: Java is intended for use in networked / distributed environment .Java enables the construction of virus-free, tamper-free system. Java achieves this security by confining a java program to the java execution environment and not following it to access other parts of the computer.

Architectural-neutral: The main goal of the java is "Write once; run anywhere, anytime forever". With most programming languages, you either compile or interpret a program so that you can run it on your computer. The java programming language is

unusual in that a program is both compiled and interpreted. With the compiler, first translate a program into an intermediate language called java byte code –this platform independent code is then interpreted by the interpreter on the java virtual machine (JVM). The interpreter parses and runs each byte code instruction on the computer.

Portable: The libraries that are a part of the system defines portable interfaces.java itself is portable. The compiler is written in java and the java virtual machine is written in ANSI C with a clean portability boundary.

Robust: Java is intended for writing programs that must be reliable in a variety of ways.java puts a lot of emphasis on early checking for possible , later dynamic(runtime) checking and eliminating the situation that are error prone. One of the advantages of strong typed language it is allow extensive compile- time checking, so bugs can be found early. This single biggest difference between Java and C/C++ is that Java has a non-pointer model that eliminates the possibility of memory overwriting and corrupting data. Instead of pointer arithmetic Java has true arrays.

Multithreaded: Java was designed to meet the real world requirement of creating interactive, networked programs. To accomplish this, Java support multithreaded programming, which allows us to write programs that do many things simultaneously. The benefits of multithreading are better interactivity, responsiveness and real-time behaviour.

Interpreted and High performance: Java enables the creation of cross- platform program by compiling into an intermediate representation called byte code. This code can be executed on any system that implements the Java Virtual Machine. The java byte code is designed in a way that easily translates directly in to the native machine code for very high performance.

Distributed: Java is designed to work in distributed environment of the internet, because it handles TCP/IP protocols. In fact, accessing a resource using URL is not much different from accessing a file. Java also supports Remote Method Invocation (RMI). This method invokes methods across the network.

Dynamic: In a number of ways Java is a dynamic language. Java makes use of the object oriented paradigm. Interface specifics a set of methods that an object can perform, but leaves open how the object should implement those methods.

3.3 BACK END

MYSQL

MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. MySQL was owned and sponsored by the Swedish company MySQL AB, which was bought by Sun Microsystems (now Oracle Corporation). In 2010, when Oracle acquired Sun, Widenius forked the open-source MySQL project to create MariaDB. MySQL is written in C and C++. Its SQL parser is written in vacc, but it uses a home-brewed lexical analyser. MySQL works on many systems platforms,including AIX, BSDi, FreeBSD, HPUX, eComStation, i5/OS, IRIX, Linux, macOS, Microsoft.Windows, NetBSD, NovellNetware, OpenBSD, OpenSolaris, OS/2 Warp, QNX, etc.exists.

Features

- High Performance: MySQL is faster, more reliable and cheaper because of its unique storage engine architecture.
- High Productivity: MySQL uses Triggers, Stored procedures and views which allows the developer to give a higher productivity.
- Free to download: MySQL is free to use and you can download it from MySQL official website.
- Client/ Server Architecture: MySQL follows a client /server architecture. There is a database server (MySQL) and arbitrarily many clients (application programs), which communicate with the server; that is, they query data, save changes, etc.
- Easy to use: MySQL is easy to use. You have to get only the basic knowledge of SQL. You can build and interact with MySQL with only a few simple SQL statements.
- High Flexibility: MySQL supports a large number of embedded applications which makes MySQL very flexible.
- It is secure: MySQL consist of a solid data security layers that protect sensitive data from intruders. Passwords are encrypted in MySQL

Advantages of My SQL

- My SQL is a very solid Database. So it is a very good choice to develop embedded software for devices like televisions, mobile phones, cameras, home electronic devices, etc.
- Data storing is very easy and efficient in My SQL. When you need to store an archive of files, My SQL can produce smaller size archives and much amount metadata included than regular ZIP archives.
- MySQL comes with the assurance of 24×7 uptime and offers a wide range of high-availability solutions, including specialized cluster servers and master/slave replication configurations..
- It supports several development interfaces: Development interfaces include JDBC, ODBC, and scripting (PHP and Perl), letting you create database solutions that run not only in your NetWare 6.5 environment, but across all major platforms, including Linux, UNIX, and Windows.
- My SQL provides an easy and efficient way to deal with data rather than do the data processing internally inside in-memory variables. For example: If you are developing a program and you have some records that you want to do some calculations on them.
- It's scalable: MySQL can handle almost any amount of data, up to as much as 50 million rows or more. The default file size limit is about 4 GB. However, you can increase this number to a theoretical limit of 8 TB of data.
- Reusable and transparent: Stored procedures expose the database interface to all applications so that developers don’t have to develop functions that are already supported in stored procedures. Hence, we can say that MySQL stored procedures are reusable and transparent.
- Being more secure and reliable database management system MySQL is being globally renowned and used in the popular web applications like WordPress , Drupal , Joomla , Facebook and twitter. The data security and support for transactional processing that accompany the most recent version of MySQL , can greatly benefit any business especially if it is an e-commerce business that involves the frequent money transfers.

4. SYSTEM ANALYSIS

4.1 EXISTING SYSTEM

There are so many BCA Academic materials applications available in android market. Some of them provide basic BCA material for the students. Others provides only one materials in their application at a time likes BCA programming languages, BCA notes etc.None of them provides all these study materials together.

4.2 PROPOSED SYSTEM

It is an application which provides all the BCA academic materials together in this Android application. This help the BCA students and faculty to revise and reference other than the classroom studies.It includes all the subjects question papers, notes, textbooks, programs and syllabus in the pdf format so they can easily download it when they needed. And the tutorial class also included linked from youtube. These in a discussion forum to interact with the teacher and the students, to clear the doubts.

4.3 DATA FLOW DIAGRAM

Data flow diagrams were proposed by Larry Constantine, the original developer of structured design, based on Martin and Estrin's "Data Flow Graph" model of computation. Stating in the 1970's, data flow diagrams (DFD) became a popular way to visualize the major steps and data involved in software system processes.

DFDs were usually used to show data flow in computer system, although they could in theory be applied to business process modeling. DFD were useful to document the major data flows or to explore a new high- level design in terms of data flow.It is common practice to draw the context- level data flow diagram first, which shows the interaction between the system and external act as data sources and data sinks.This helps to create an accurate drawing in the context diagram. The system's interactions with the outside world are modeled purely in terms of data flows across the system boundary. The context diagram

shows the entire system as a single process, and gives no clues as to its internal organization. Data flow diagrams can be used in both Analysis and Design phase of the SDLC. There are different notation to draw data flow diagrams (Yourdon & Coad and Gane Sarson, defining different visual representation for processes, data stores, data flow, and external entities.

Entity names should be comprehensible without further comments. DFD is a system created by analyst based on interviews with system users. It is determined for system developers on the one hand, project contractor on the other, so the entity names should be adapted for model domain or amateur users or professionals. Entity names should be general (independent, eg specific individuals carrying out the activity), but should clearly specify the entity. Processes should be numbered for easier mapping and referral to specific processes. The numbering is random, however, it is necessary to maintain consistency across all DFD levels (see DFD Hierarchy). DFD should be clear, as the maximum number of processes in one DFD is recommended to be from 6 to 9, minimum is 3 processes in one DFD.[1][2] The exception is the so-called contextual diagram

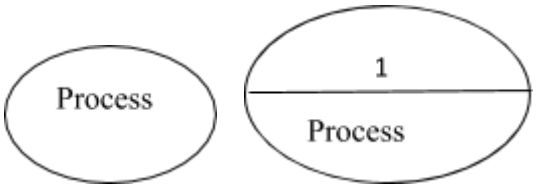
where the only process symbolizes the model system and all terminators with which the system communicates.

Data Flow Diagram Notations

You can use two different types of notations on your data flow diagramYourdon& Coad or Gane Sarson.

- **Process Notation**

A process transforms incoming data flow into outgoing dataflow.



- **Data Store Notations**

A data store does not generate any operations but simply holds data for later access.

- **Data Flow Notations**

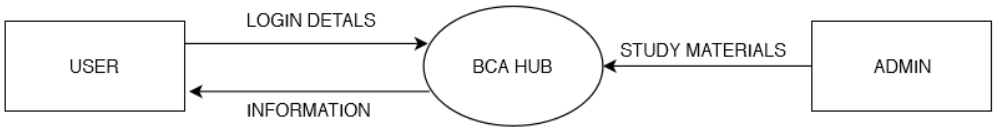
Dataflow are pipelines through which packets of information flows. Label the arrows with the processes.

- **External Entity Notations**

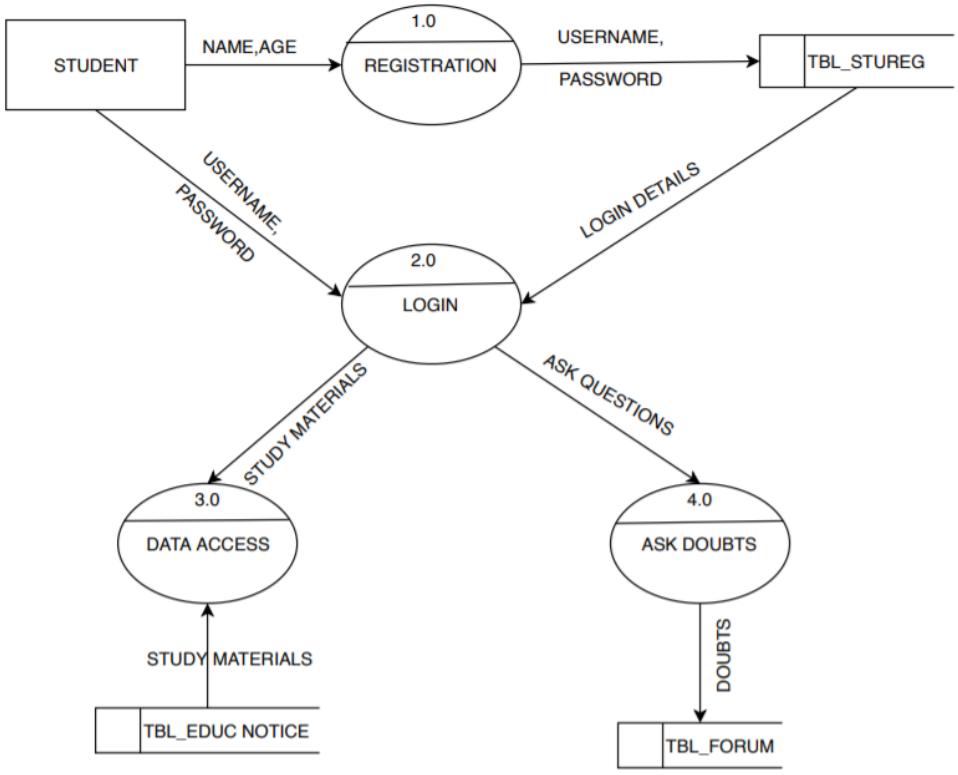
This is known as actors, sources or sinks. They produce and consume data that flows between the entity and the system being diagrammed.

DATA FLOW DIAGRAM

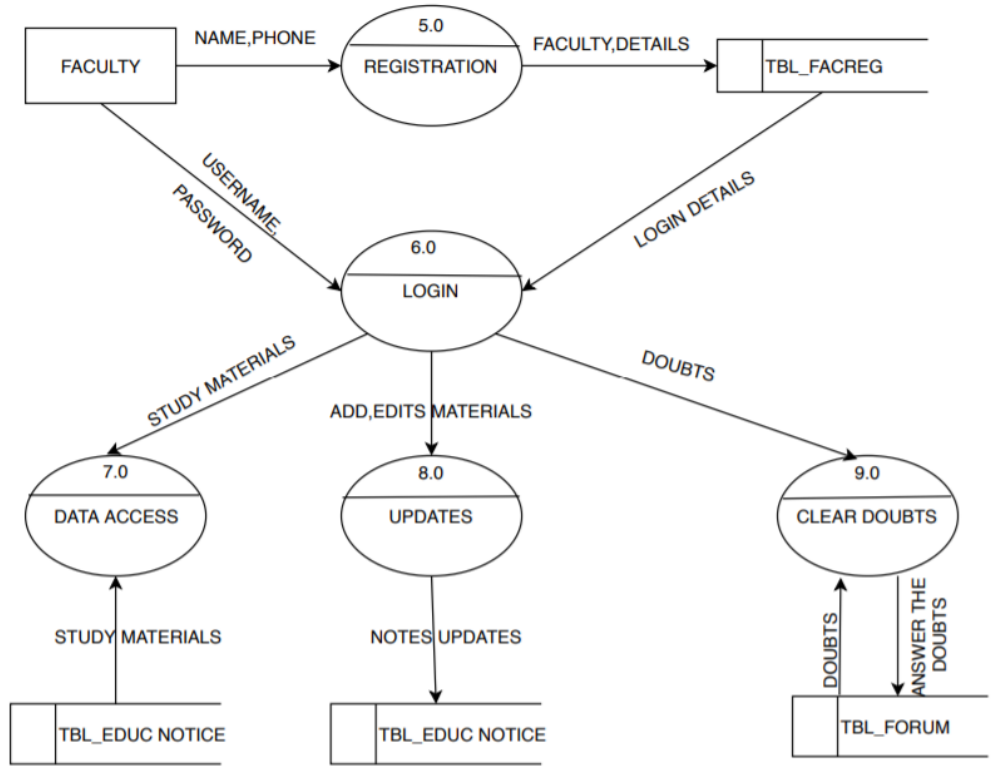
LEVEL 0

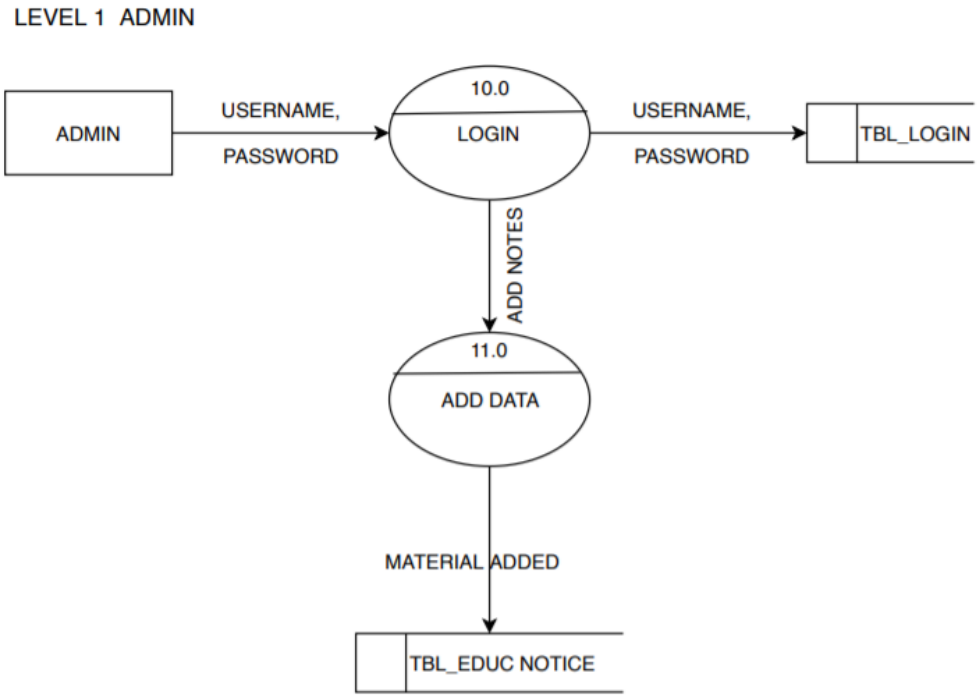


LEVEL 1 - STUDENT



LEVEL 1 - FACULTY





4.4 ER DIAGRAM

An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system's entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.

The elements of an ERD are:

- Entities
- Relationships
- Attributes

An entity-relationship diagram (ERD) is crucial to creating a good database design. It is used as a high-level logical data model, which is useful in developing a conceptual design for databases.

An entity is a real-world item or concept that exists on its own. Entities are equivalent to database tables in a relational database, with each row of the table representing an

instance of that entity.relationship is the association that describes the interaction between entities. Cardinality, in the context of ERD, is the number of instances of one entity that can, or must, be associated with each instance of another entity. In general, there may be one-to-one, one-to-many, or many-to-many relationships.

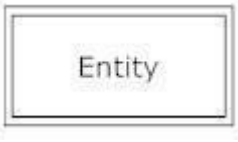
For example, let us consider two real-world entities, an employee and his department. An employee has attributes such as an employee number, name, department number, etc. Similarly, department number and name can be defined as attributes of a department. A department can interact with many employees, but an employee can belong to only one department, hence there can be a one-to-many relationship, defined between department and employee.

In the actual database, the employee table will have department number as a foreign key, referencing from department table, to enforce the relationship.

An ER diagram is a means of visualizing how the information a system produces is related. There are five main components of an ERD:

- **Entities**, which are represented by rectangles. An entity is an object or concept about which you want to store information.

A weak entity is an entity that must be defined by a foreign key relationship with another entity as it cannot be uniquely identified by its own attributes alone.



- **Actions**, which are represented by diamond shapes, show how two entities share information in the database.

In some cases, entities can be self-linked.

- **Attributes**, which are represented by ovals. A key attribute is the unique, distinguishing characteristic of the entity. For example, an employee's social security number might be the employee's key attribute.

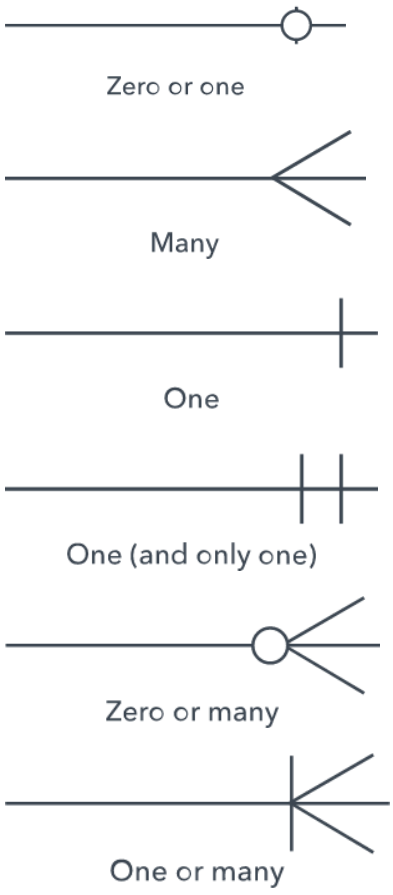
A multivalued attribute can have more than one value. For example, an employee entity can have multiple skill values.

A derived attribute is based on another attribute. For example, an employee's monthly salary is based on the employee's annual salary.

- **Connecting lines**, solid lines that connect attributes to show the relationships of entities in the diagram.

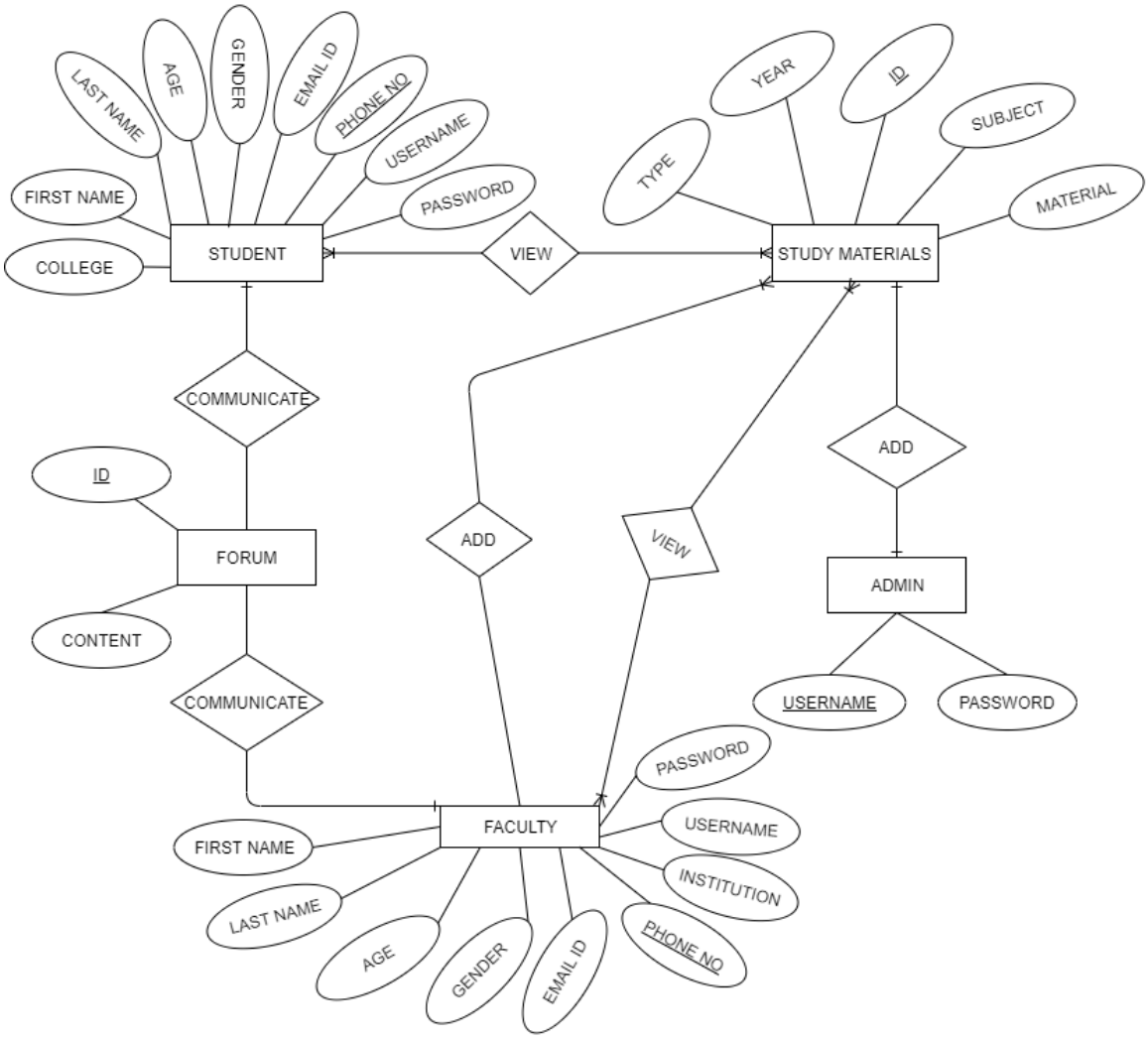
Cardinality

Defines the numerical attributes of the relationship between two entities or entity sets. The three main cardinal relationships are one-to-one, one-to-many, and many-many. A **one-to-one example** would be one student associated with one mailing address. A **one-to-many example (or many-to-one, depending on the relationship direction):** One student registers for multiple courses, but all those courses have a single line back to that one student. **Many-to-many example:** Students as a group are associated with multiple faculty members, and faculty members in turn are associated with multiple students.



Cardinality views: Cardinality can be shown as look-across or same-side, depending on where the symbols are shown.

Cardinality constraints: The minimum or maximum numbers that apply to a relationship.



5. PROJECT DESCRIPTION

5.1 MODULE DESCRIPTION

A module is a separate unit of software or hardware. Typical characteristics of modular components include portability, which allows them to be used in a variety of systems, and interoperability, which allows them to function with the components of other systems. The term was first used in architecture.

5.1.1 study materials

After successful login the study and faculty can access study materials like notes,textbooks,question papers,syllabus and tutorial of different subjects and they can easily download it.it is in pdf format. All they study materials are added and updated by the admin of this application. The students can only view and download the materials from this application.

5.1.2 faculty updates

After login the faculty can updates the notes and programs into this application. They can access all the study materials. They can download it as they needed.

5.1.3 forum

In this application forum is used to interact with students and faculty. The student can ask their doubts in this forum and faculty have to answer their questions and clear it. Here the faculty and student communication is easy possible through these applications.

5.2 DATABASE DESIGN

A database is an organized mechanism that has the capability of storing information through which a user can retrieve stored information in an effective and efficient manner. The data in the database is safe and easily accessed. The database design is a two level process. In the first step, user requirements are gathered together and a database is designed which will meet these requirements as clearly as possible. This step is called information level design and it is taken independent of any individual DBMS. In the second step, this information level design is transferred into a design for the

specific DBMS that will be used to implement the system in question. This step is called Physical Level Design, concerned with the characteristics of the specific DBMS that will be used. A database design runs parallel with the system design. The organization of the data in the database is aimed to achieve the following two major objectives.

- Data Integrity
- Data Independence

Normalization is the process of decomposing the attributes in an application, which results in a set of tables with very simple structure. The purpose of normalization is to make tables as simple as possible. Normalization is carried out in this system for the following reasons. To structure the data so that here is no repetition of the data, this helps in saving space. To permit simple retrieval of data in response to query and report request. To simplify the maintenance of the data through updates, insertions, deletions. To reduce the need to restrict or recognize data which new application requirements arise.

Relational Database Management System (RDBMS):

A relational model represents the database as a collection of relations. Each relation resembles a table of values or file of records. In formal relational model terminology,
a row is called a tuple, a column header is called an attribute and the table is called a relation. A relational database consists of a Collection of tables, each of which is assigned a unique name. A row in a table represents a set of related values.

5.2.1 STUDENT REGISTRATION

FIELD NAME	DATA TYPE	CONSTRAINTS
FIRST NAME	TEXT	NOT NULL
LAST NAME	TEXT	NOT NULL
PLACE	TEXT	NOT NULL
COLLEGE	TEXT	NOT NULL
PHONE NO	INT	PRIMARY KEY
EMAIL	TEXT	NOT NULL
AGE	INT	NOT NULL
GENDER	TEXT	NOT NULL
USERNAME	TEXT	NOT NULL
PASSWORD	TEXT	NOT NULL

5.2.2 FACULTY REGISTRATION

FIELD NAME	DATA TYPE	CONSTRAINTS
FIRST NAME	TEXT	NOT NULL
LAST NAME	TEXT	NOT NULL
PLACE	TEXT	NOT NULL
INSTITUTION	TEXT	NOT NULL
PHONE NO	INT	PRIMARY KEY
EMAIL	TEXT	NOT NULL
AGE	INT	NOT NULL
GENDER	TEXT	NOT NULL
USERNAME	TEXT	NOT NULL
PASSWORD	TEXT	NOT NULL

5.2.3 STUDY MATERIALS

FIELD NAME	DATA TYPE	CONSTRAINTS
ID	INT	PRIMARY KEY
TYPE	TEXT	NOT NULL
YEAR	INT	NOT NULL
SUBJECT	TEXT	NOT NULL
MATERIALS	TEXT	NOT NULL

5.2.4 DISCUSSION FORUM

FIELD NAME	DATA TYPE	CONSTRAINTS
ID	INTEGER	PRIMARY KEY
CONTENT	TEXT	NOT NULL

5.3 INPUT DESIGN

The Input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data into a usable form for processing data entry. The activity of putting data into the computer for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required ,controlling errors, avoiding delay, avoiding extra steps and keeping the process simple.

The system needs the data regarding the asset items, depreciation rates, asset transfer, and physical verification for various validation, checking, calculation and report generation. The error raising method is also included in the software, which helps to raise error message while wrong entry of input is done. So in input design the following things are considered:

- What data should be given as input?
- How data should be arranged or coded?
- The dialogue to guide the operating personnel in providing input.
- methods for preparing input validations and steps to follow when error occur.

Objectives

- To produce a cost-effective methods of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable and understood by the user.

Input design is used to enter all the values which are normally carried by the user and the administrator. In this application the inputs are entered by the administrator and the user client. Special forms are used for entering these values, which will be in the predetermined formats for later analysis. Input design involves determining the record media, method of input, speed of capture and entry to the system. The design decisions for input design specify how data are accepted for computer processing. Data can be entered directly or through some source files.

The Input design is the process of converting the user-oriented inputs into the computer based format. Errors entered by data entry operators can be controlled by input design. The data is fed into system using simple interactive forms. The forms have been supplied with messages so that users can enter data without facing any difficulty. The data is validated wherever it requires in the project. This ensures that only the correct data have been incorporated into the system. The goal of designing input data is to make data entry as easy, logical and free from errors.

Points

- Allow only information needed by user.
- Don’t overcrowd the input screen.
- Keep the same style between screens.
- Ask for confirmation of critical data
- Validate data as soon as possible on the input, thereby preventing storing the incorrect data into system.
- The elements of the data that uniquely identifies the record being processed.

XML in Android

XML stands for Extensible Mark-up Language. XML is a markup language much like HTMLused to describe data. XML tags are not predefined in XML. We must define our own Tags. Xml as itself is well readable both by human and machine. Also, it is scalable and simple to develop. In Android we use xml for designing our layouts because xml is lightweight language so it doesn't make our layout heavy.In this article we will go through the basic concepts of xml in Android and different XML files used for different purposes in Android. This will help you in writing a UI code to design your desired user interface.

Different XML Files Used in Android:

In Android there are several xml files used for several different purposes

1. Layout XML Files: Layout xml files are used to define the actual UI (User interface) of our application. It holds all the elements (views) or the tools that we want to use in our application. Like the TextView's, Button's and other UI elements.
2. Manifest xml File (Mainfest.xml): This xml is used to define all the components of our application. It includes the names of our application packages, our Activities, receivers, services and the permissions that our application needs. For Example – Suppose we need to use the internet in our app then we need to define Internet permission in this file.
3. Strings xml File (strings.xml): This xml file is used to replace the Hard-coded strings with a single string. We define all the strings in this xml file and then access them in our app (Activity or in Layout XML files) from this file. This file enhances the reusability of the code.
4. Styles xml File (styles.xml): This xml is used to define different styles and looks for the UI (User Interface) of application. We define our custom themes and styles in this file.
5. Drawable xml Files: These are those xml files that are used to provide various graphics to the elements or views of application. When we need to create a custom UI

6. we use drawable xml files. Suppose if we need to define a gradient color in the background of Button or any custom shape for a view then we create a Drawable xml file and set it in the background of View.

7. Color xml File (colors.xml): This file is used to define the color codes that we used in our app. We simply define the colors in this file and used them in our app from this file.

8. Dimension xml File (dimens.xml): This xml file is used to define the dimensions of the View's. Suppose we need a Button with 50dp (density pixel) height then we define the value 50dp in dimens.xml file and then use it in our app from this file.

5.4 OUTPUT DESIGN

One of the most important features of an information system for users is the output it produces. Output is information delivered to users through the information system. Users generally merit the system solely by its output. Hence the system analysts work closely with user through an interactive process, until the result is considered to be satisfactory.

Objective of Output Design:

- Design output to serve the intended purpose.
- Design output to fit the user.
- Deliver the appropriate quantity of output.
- Assure that output is where it is needed.
- Provide output on time.
- Choose the right output method.

Two phases of output design are

1. Output Specification
2. Output Definition

Output definition takes into account the type of output content, its frequency and its volume. The appropriate output media is determined for outputs. Once the output media is chosen, the detail specification of output documents are carried out. The nature of output required from the proposed system is determined during the logical design stage itself. The Physical design stage takes the outline of the output from the logical design

and produces the output as specified during the logical design phase. The necessary reports are generated which provide the complete information required by the user. User Interface All user interface elements in an Android app are built using View and View Group objects. A View is an object that draws something on the screen that the user can interact with. A View Group is an object that holds other View (and View Group) objects in order to define the layout of the interface. Android provides a collection of both View and View Group subclasses that offer you common input controls (such as buttons and text fields) and various layout models (such as a linear or relative layout).

User Interface Layout

The user interface for each component of your app is defined using a hierarchy of View and View Group objects, as shown in figure 1. Each view group is an invisible container that organizes child views, while the child views may be input controls or other widgets that draw some part of the UI. This hierarchy tree can be as simple or complex as you need it to be (but simplicity is best for performance). To declare your layout, you can instantiate View objects in code and start building a tree, but the easiest and most effective way to define your layout is with an XML file. XML offers a human-readable structure for the layout, similar to HTML..

User Interface Components

You don't have to build all of your UI using View and View Group objects. Android provides several app components that offer a standard UI layout for which you simply need to define the content. These UI components each have a unique set of APIs that are described in their respective documents, such as Adding the App Bar, Dialogs, and Status Notifications.

6. SYSTEM TESTING

In a software development project, errors can be injected at any stage during the development phase. For each phase we have discussed, there are different methods and techniques that are available for eliminating errors. However, no technique is perfect, and it is expected that some of the errors of the earlier phase will manifest themselves in the code. Hence, the code developed during the coding activities is likely to have some requirements errors and design errors, in addition to introduce during the coding activity. Testing is an important and critical stage in software development. Testing plays an important role in determining the quality and reliability of the application. With this process, several test cases are devised. A test case means a set of data that the system will process as the normal input. System testing consists of several key activities and steps for program testing.

6.1 WHITE BOX TESTING

White box is a testing technique that examines the program structure and derives test data from the program logic/code. The other names of glass box testing are clear box testing, open box testing, logic driven testing or path driven testing or structural testing.

Advantages of white box testing:

- Forces test developer to reason carefully about implementation.

Spots the Dead Code or other issues with respect to best programming practices.

Disadvantages of white box testing:

- Expensive as one has to spend both time and money to perform white box testing.
- In-depth knowledge about the programming language is necessary to perform white box testing.

6.2 BLACK BOX TESTING

Black box testing, also known as Behavioural testing, is a software testing method in which the internal structure design/ implementation if the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional. This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see. This method to find errors in the following categories:

- Incorrect to missing functions Interface errors.
- Errors in data structures or external database access.
- Behaviour or performance errors. Initialization and termination errors.

6.3 UNIT TESTING

Unit testing, a testing technique using which individual modules are tested to determine if there are any issues by the developer himself. It is concerned with functional correctness of the standalone modules. The main aim is to isolate each unit of the system to identify, analyse and fix the defects.

Advantages:

- Reduces defects in the newly developed features or reduces bugs when changing the existing functionality
- Reduces cost of testing as defects are captured in very early phase.
- Improves design and allows better refactoring of code.

6.4 INTEGRATION TESTING

Integration testing, also known as integration and testing (I&T), is a software development process which program units are combined and tested as groups in multiple ways. In this context, a unit is defined as the smallest testable part of an application. Integration testing can expose problems with the interfaces among program components before trouble occurs in real-world program execution.

Integration testing is a component of Extreme Programing (XP), a pragmatic method of software development that takes meticulous approach to building a product by means of continual testing and revision.

There are two major ways of carrying out an integration test, called the bottom-up method and the top-down method. Bottom-up integration testing begins with unit testing, followed by tests of progressively higher-level combinations of units called modules or builds. In top-down integration testing, highest-level modules are tested first and progressively lower-level modules are tested after that. In a comprehensive software development environment, bottom-up testing is usually done first, followed by top-down testing. The process concludes with multiple tests of the complete application, preferably in scenarios designed to mimic those it will encounter in customers' computers, systems and networks.

6.5 ACCEPTANCE TESTING

Acceptance testing, a testing technique performed to determine whether or not the software system has met the requirement specifications. The main purpose of this test is to evaluate the system's compliance with the business requirements and verify if it has met the required criteria for delivery to end users.

There are various forms of acceptance testing:

- User acceptance testing
- Business acceptance testing
- Alpha testing

6.6 TEST CASES

TEST	TEST DATA	DB TABLE NAME	ACTIVITY	EXPECTED RESULT	ACTUAL RESULT	REMARK
1	User registration (user _details)	User	Signup	User registration	User registration	Successfully registered
2	User login (email, password)	User	Login	Load user home page	Load user home page	Successfully Loaded user home page
3	Admin login (email, password)	User	Login	Load admin home page	Load admin home page	Successfully loaded admin home page
4	Upload	Study Materials	Study Materials Activity	Upload Study Materials	Upload Study Materials	Successfully Uploaded materials
5	View	Study Materials	Study Materials Activity	Get User Materials	Get User Materials	Successfully viewed materials
6	Download	Study Materials	Study Materials Activity	Download Pdf Materials	Download Pdf Materials	Successfully Download Materials
7	Discussion Forum	Forum	Forum Activity	User Communication	User Communication	Successfully User Communication

7. SYSTEM IMPLEMENTATION

Implementation is the realization of an application, or execution of a plan, idea, model, design, specification, standard, algorithm, or policy.

Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. Implementation is the action that must follow any preliminary thinking in order for something to actually happen.

7.1 MAINTENANCE

Maintenance, repair and operations (MRO) or maintenance, repair, and overhaul involve fixing any sort of mechanical, plumbing or electrical device should it become out of order or broken (known as repair, unscheduled, or casualty maintenance). It also includes performing routine actions which keep the device in working order or prevent trouble from arising.

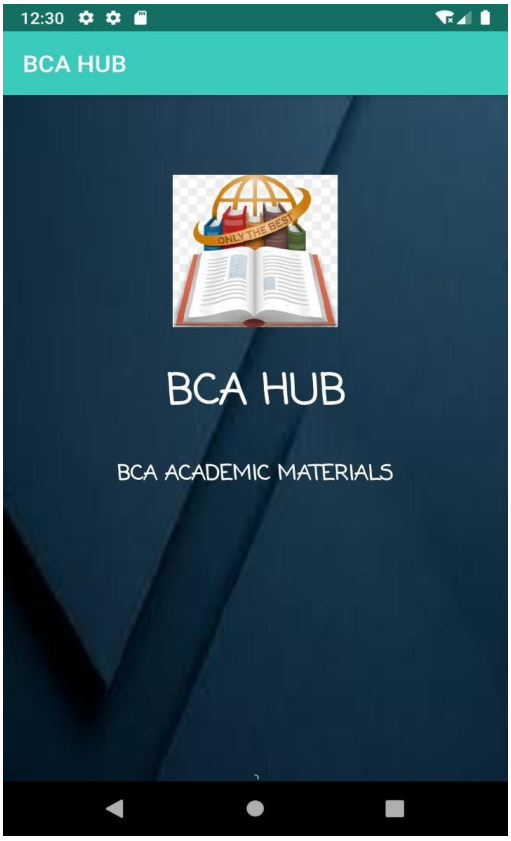
MRO may be defined as," All actions which have the objective of retaining or restoring an item in or to a state in which it can perform its required function. The actions include the combination of all technical and corresponding administrative, managerial and supervision actions".

MRO operations can be categorized by whether the product remains the property of the customer, i.e. a service is being offered. Or whether the product is brought by the reprocessing organization and sold tom any customer wishing to make the purchase. In the former case it may be a back shop operation within.

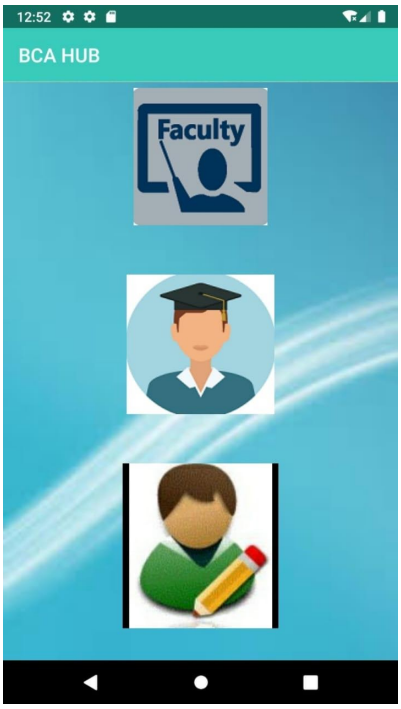
8. SCREENSHOTS

USER INTERFACE:

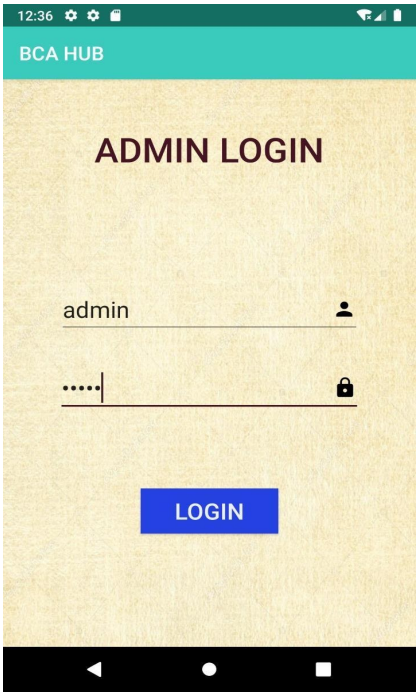
8.1 SPLASH PAGE



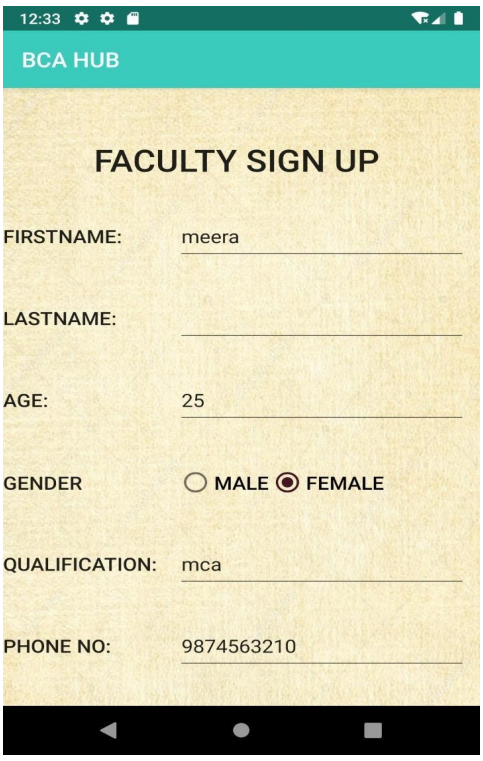
8.2 LOGIN PAGE



8.3 ADMIN LOGIN

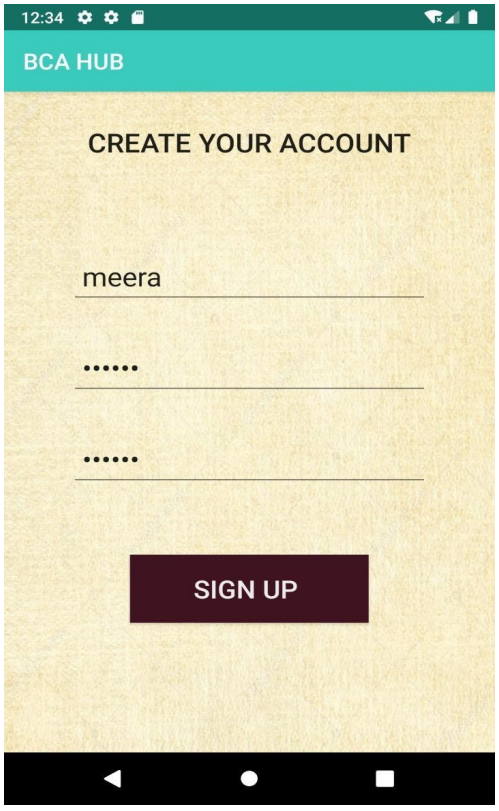


8.4 FACULTY REGISTRATION

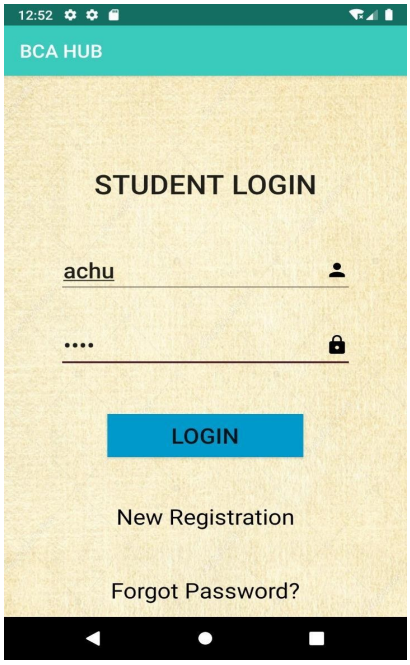


8.5 STUDENT REGISTRATION

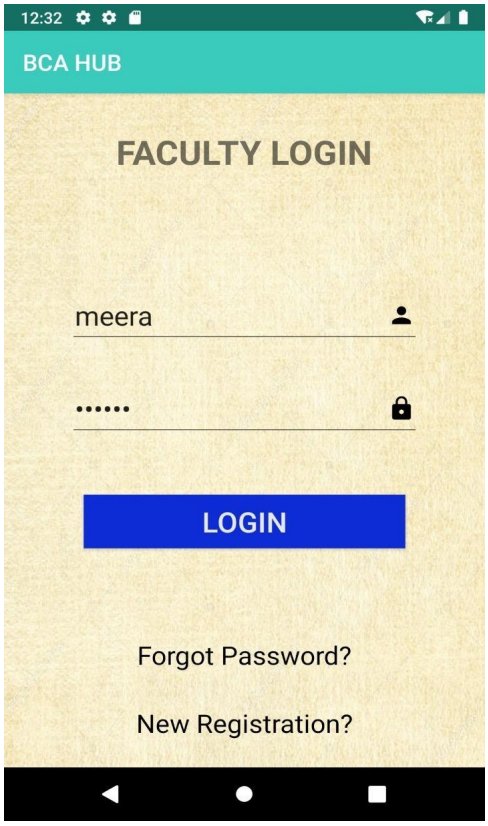
8.6 PASSWORD CREATION



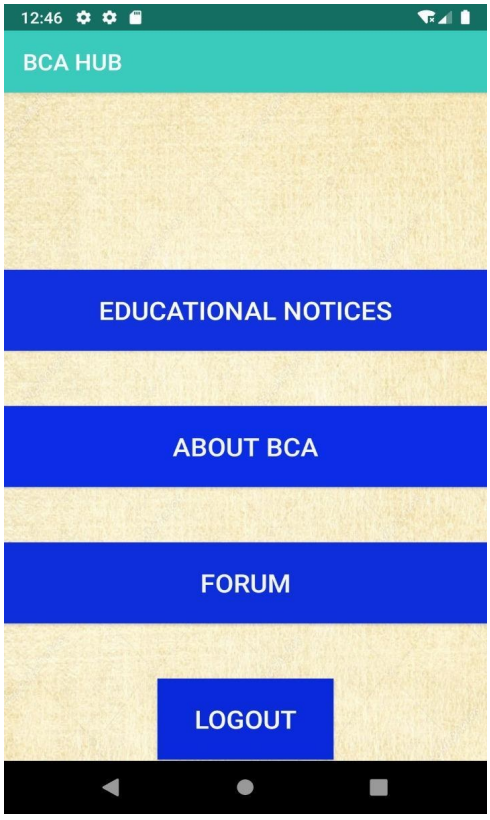
8.7 STUDENT LOGIN



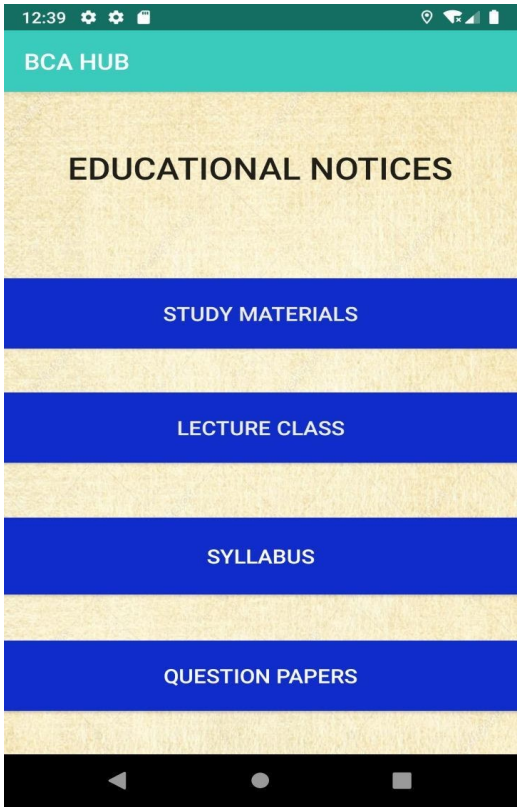
8.8 FACULTY LOGIN



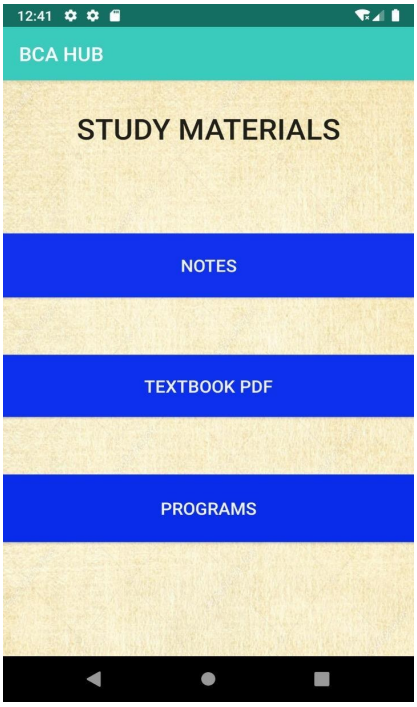
8.9 HOME PAGE



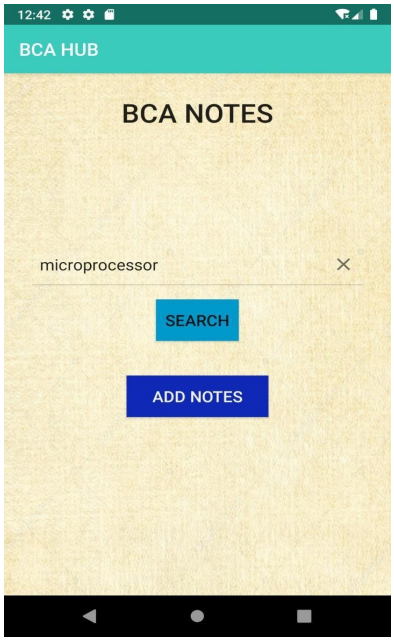
8.10 EDUCATIONAL NOTICE



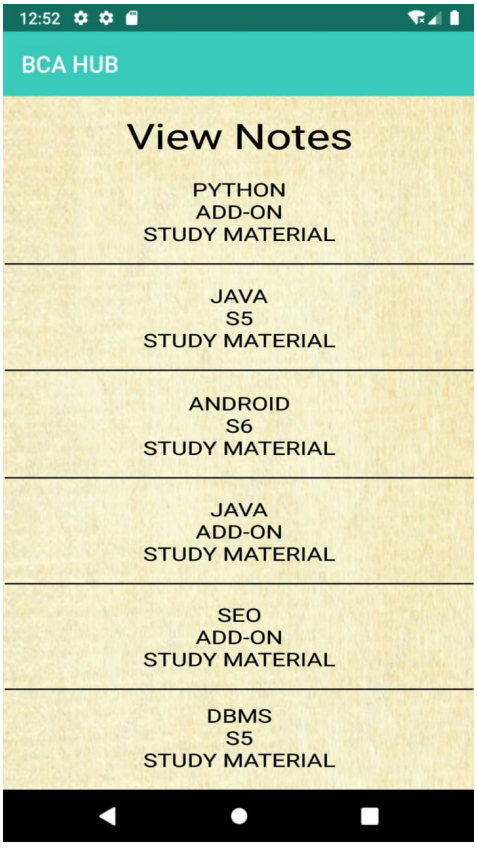
8.11 STUDY MATERIALS



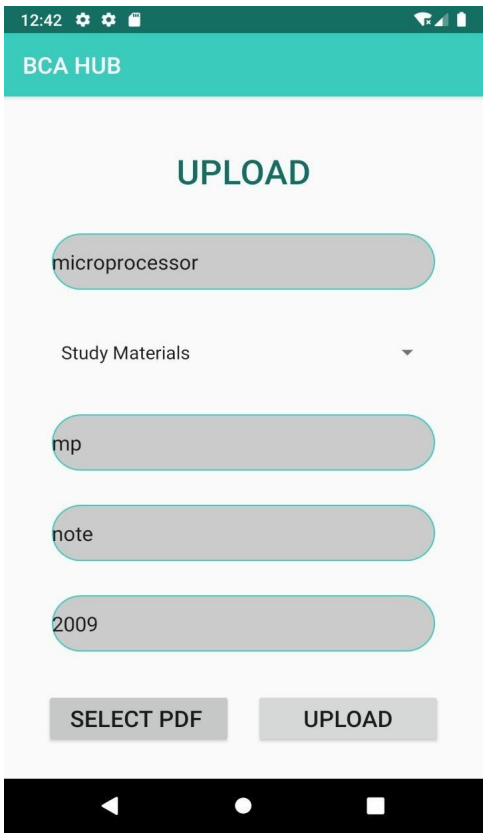
8.12 ADD NOTES



8.13 VIEW NOTES

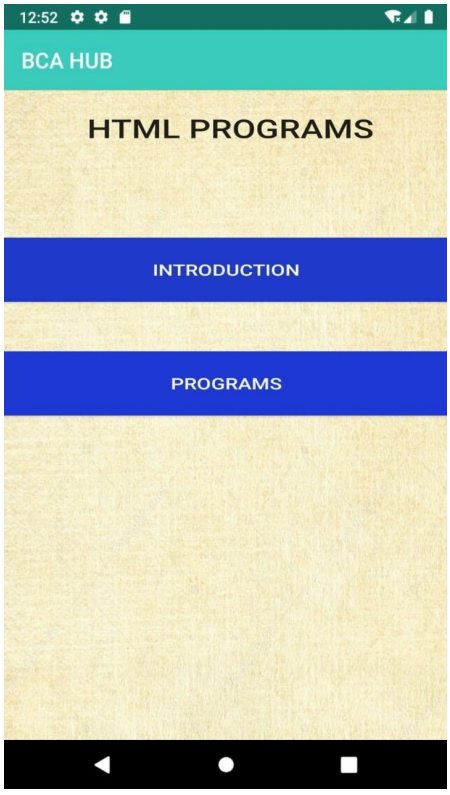


8.14 UPLOADING STUDY MATERIAL

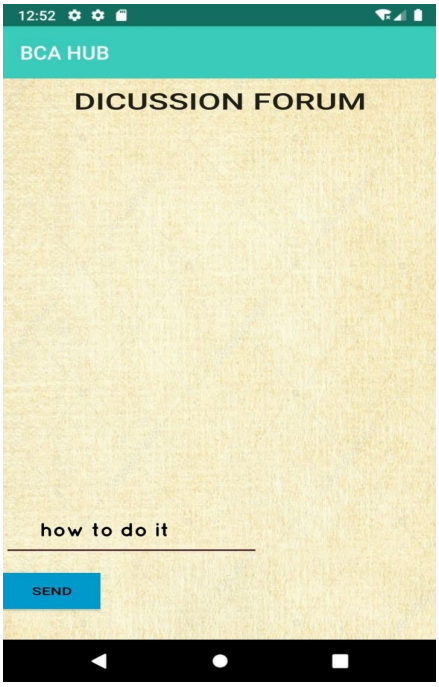


8.15 PROGRAMS

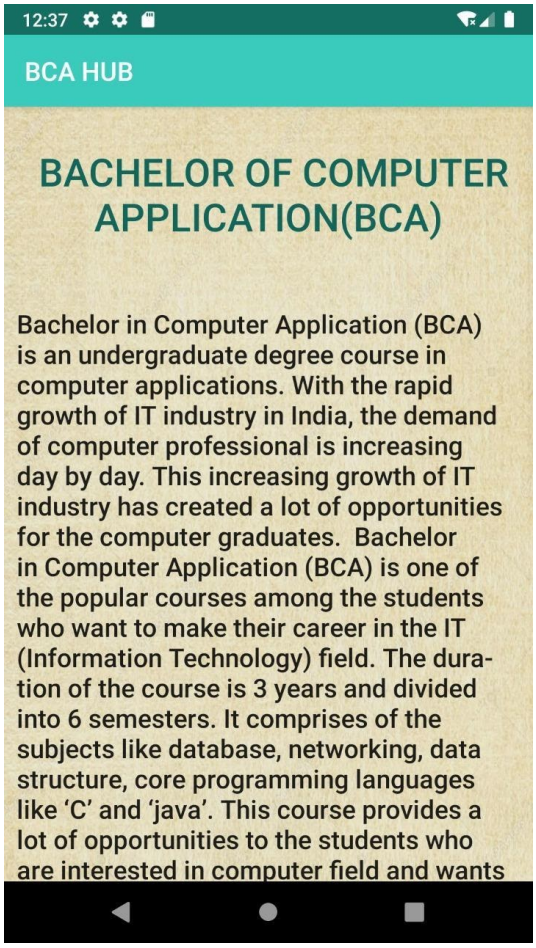
8.16 HTML PROGRAMS



8.17 DISCUSSION FORUM



8.18 ABOUT BCA



9. CONCLUSION

9.1 FUTURE ENHANCEMENT

BCA Academic Study Materials application, BCA HUB provides all the study materials that are useful for BCA students are involved in this application. To improvement or further modification can be done to this application we can introduce an aptitude test session to the student to evaluate their self what all changes are comes to them. Multiple choice questions are tagged to the session. In this application add BCA Professional and their details, the students can interact with them for their future life and more ideas about their higher education.

9.2 CONCLUSION

BCA HUB (BCA Academic Study Materials Application) is a mobile application that is developed for bca student to get all their study materials in this android application. The study materials likes pdf notes, textbooks, syllabus, programs, question papers, lecture class. The users can download all these materials as they needed. The main aim of this application is to get all their academic materials easily accessed through this application. Something the students want to search different websites to get a good materials to references, it is not easy to search all these websites to get study materials. It leads to a waste of time,to overcome this all problems we built this android application to the students and faculty. There are many applications to BCA students but it will not involve all these study materials together. The use of this application to both users are reference more than in the classroom. BCA is a professional course so there were changes according to our world, so all year introduce new subject to them. According the changes this application will update all the materials. This application is really useful for both the users for their academic knowledge improvement.

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