PROJECT REPORT

ON

PHRONTISTERY OVERSEE

Submitted by:

PARIVA (1803546)

in partial fulfillment for the
award of the degree of

BACHELOR OF TECHONOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

At

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TECHNOLOGY SHAHPUR (JALANDHAR), PUNJAB (INDIA) - 144020

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(INDIA))

DECLARATION

I hereby declare that the project entitled **"PHRONTISTERY OVERSEE"** submitted for the BTECH (CSE) degree is my original work and the project has not formed the basis for the award of any other degree, diploma, fellowship or any other similar titles.

Signature of Student

Place: Jalandhar

Date: 22-04-2021

CERTIFICATE

O7 SERVICES
An IT Company With Learning Hub

An ISO 9001:2015 Certified Company

Ref No: o7s/6m21/39   **Date: 12/02/2021**

To

The Training & Placement Officer,

CT Institute of Engineering, Management and Technology,

Jalandhar

This has reference to a request letter for **Mr./Ms. Pariva** student of B.Tech CSE 7th, Roll no. 1803546 to undergo 6 Months Industrial Training in **MEAN STACK,** in our Company at **O7 Services (An IT Company with Training Hub)**, has been accepted by our Management.

The 6 Months Industrial Training program shall commence from February 2021 and last till July 2021. You shall be governed by the following terms and conditions. You shall not be eligible for any stipend/financial assistance from our Company. You shall obey all rules and instructions relating to discipline, code of conduct, etc. of our Company. Any absence from the workplace has to be communicated by you to your industrial training Program supervisor (assigned by us) in advance in writing and seek his/her express permission for the same.

We hope you will make all efforts to further enhance your practical knowledge.

Thanking You
Training Department
O7 Services

ABSTRACT

The purpose of college website is to automate the existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing a manipulation of the same.

Basically, the project describes how to manage for good performance and better services for the students and the teachers as well.

This will also maintain the computerized records without redundant entries. That means one need not to be distracted by information that is not relevant, while being able to reach the information.

ACKNOWLEDGEMENT

Through this acknowledgement, I express my sincere gratitude to all those people who are associated with this project and are helping me with it to make it a worthwhile experience. First and foremost, I would like to thank almighty for giving me courage to make this project. At the outset, I would like to propose a word of thanks for the people who gave me unending support and help in numerous ways.

Firstly, I express our thanks to Mr. Prince Verma (HOD CSE DEPTT) who gave me this opportunity to learn the subject in a practical approach who guided me and gave me valuable suggestions regarding the project report.

Secondly, I would like to thank Ms. Damanpreet (Project guide) and FACULTY MEMBER of O7 SERVICES who are giving me their immense support in completing the project. The atmosphere provided is full of gaining more and more knowledge and to keep enthusiastic nature. The teachers provide a lot of help in resolving my doubts and making this project successful in shorter time. I am making this project not only for marks but also to increase my knowledge. Thanks again to all who are helping me in completion of this project.

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CHAPTER 1
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1. INTRODUCTION (PROJECT PROFILE)

1.1 PROBLEM DEFINITION:

The "College Web Application" that has been developed to override the problems prevailing in the practicing manual system.

It is a user friendly "College Web Application" that can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather than to concentrate on the record keeping.

The main motive of this website is the interaction between teachers and students. This system also come with the remote access features so, that one can manage their workforce anytime, at all the times. These systems will ultimately allow you to better manage resources.

In the offline system, it is an overhead to keep the records related to the faculty, students and parents on the papers. Sometimes it is not easy to provide the information to each and everyone. With the help of this website teachers can upload any of the information and vice-versa. Work can be given to the students by their teachers and the students can also revert their work online. And it is easy to maintain the record of their work. At the end of week or a month one can also generate the report of the students and share that with their parents as well.

1.1.2 FEATURES

1. Using this project, the details can be accessed from anywhere at any time.
2. The implementation of this project promotes education effectively.
3. It can be searched more easily from anywhere.
4. With the help of this online software, students can look for the academic institutes located in the city.
5. You can view the complete map of city using this project.
6. Computerization
7. Automation
8. Easy interaction
9. Multi-user account system
10. Responsive user interface
11. Homework documentation
12. Class routine schedule
13. Profile system
14. Daily attendance
15. Notes and video lectures
16. Generate reports

1.1.3 OBJECTIVES

The main objectives of this project are to manage the details of students and the teachers.

It manages all the information about the students and the teachers.

Online attendance is taken.

Teachers can upload the notes and other study material to help the students. They can also upload the video of their lectures so students can take that advantage too.

Online assignments, tests and can also be taken by the teachers so that they check the performance of the students. Students also revert their work online with the help of this website.

1.1.4 SYSTEM SPECIFIC MODULE:

There are three modules in our project. They are listed below with their description.

Admin

Teachers

Students

MODULES OVERVIEW:

1. ADMIN- Admin is the one who controls whole system, every person that is involved in this project. Admin has the power to create, update or delete any record of the system. Admin will be able to view the profile of any other user in the system. Whenever a student is registered into the college, a class and the related section will be assigned by the admin to the student. Assigning timetables to the teachers and students will be the admin's responsibility. The admin will approve the leave application of the teachers and students.

Admin can perform add/update/delete and search following module:

- course module
- semester module
- subject module
- Student module
- exam module
- result module
- the attendance module
- faculty module
- college info module

- download module
- event module
- news module
- login module & user type module

Admin can create an online blacklist using student attendance

Admin can upload student data as excel file as well as syllabus, blacklist, exam time table, student result & attendance, and fresh photo gallery.

**Use Case Diagram of Admin Module-:**
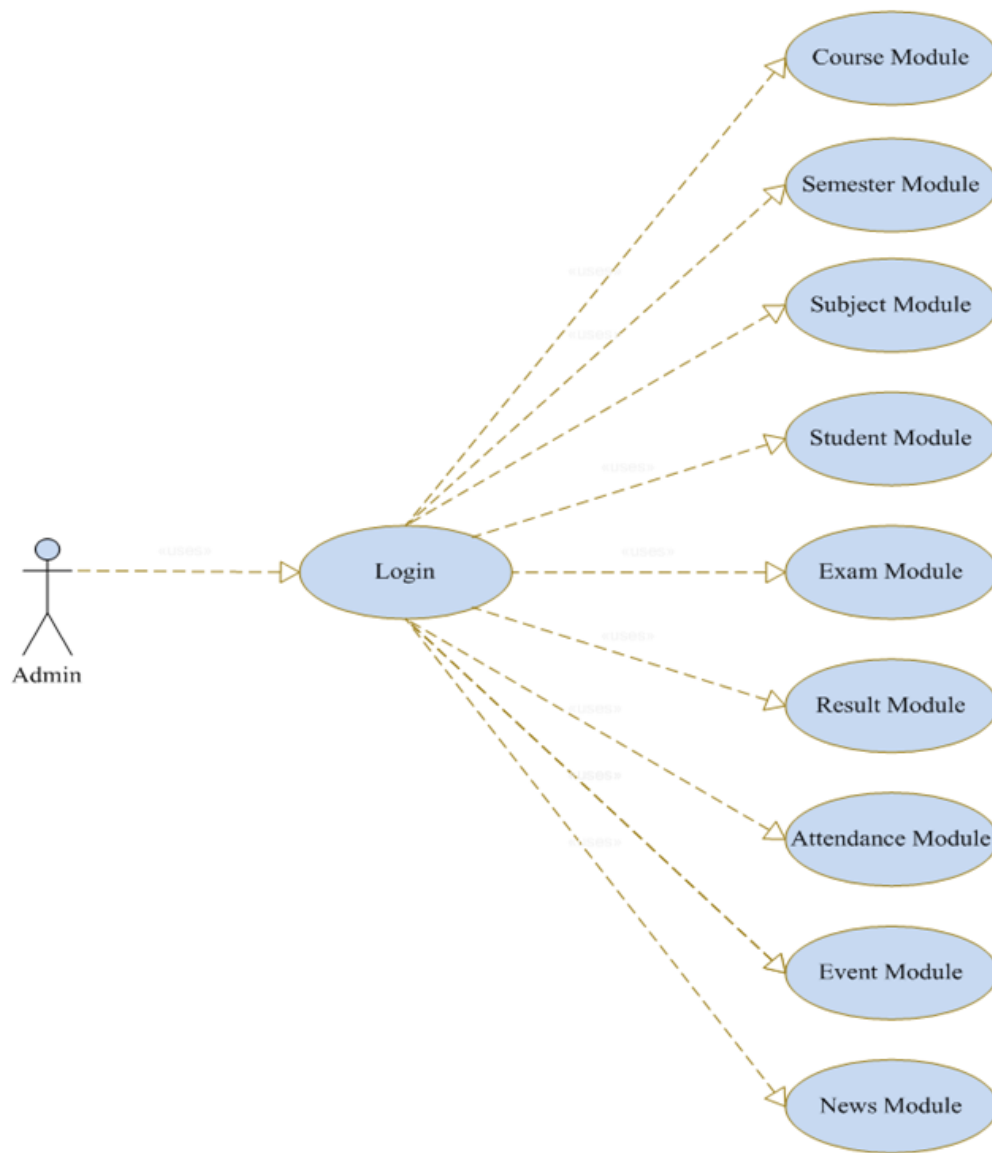
Fig. 1.1.4(a) Admin Module

2. TEACHER- The teacher can take the attendance of the students. He/she just has to enter the class and their roll no into the portal and the whole list pf the registered students of the class will be displayed.

Teacher also give a login to manage his/her profile.

Teacher can view own subject result so faculty can easily analyse own result so they will try to better result. Teacher can view own subject attendance. Teacher can upload own subject assignment.

- o Mark the attendance:
- o Assign and check the work
- o Upload the notes and video lectures
- o View student profile
- o Generate the reports of the students
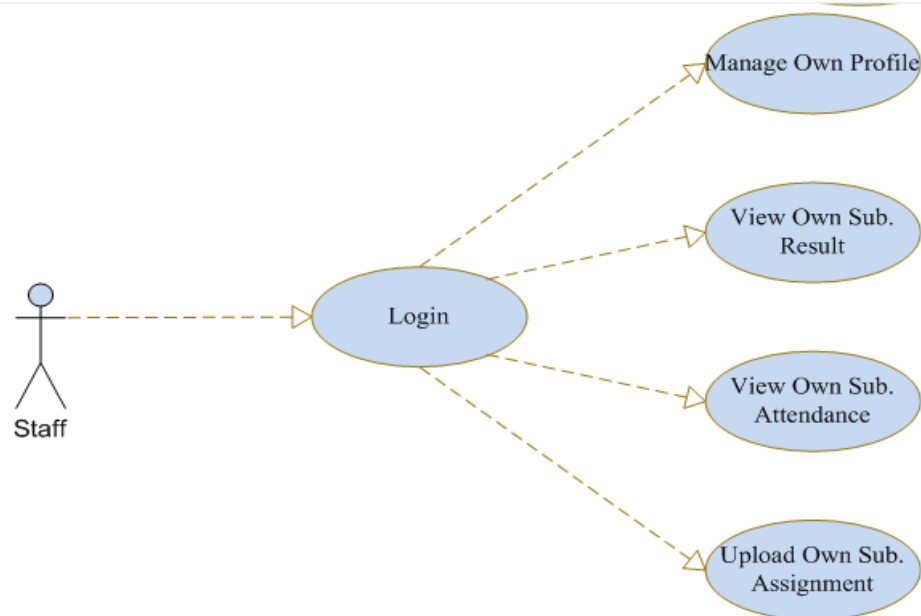
Fig. 1.1.4(b) Teacher Module

3. STUDENT- View the notes and the videos uploaded by teachers

- o View and upload the work
- o View the marks of their works
- o View their report cards, timetable
- o The student can view own result & attendance.

    The student can know about college info., management, goal & objective.

The student will display fresh news & event.

The student downloads fresh exam time table, syllabus, assignment as well as view blacklist which created by admin based on its attendance.

o   The student provides facility to know the fresher message from the director.

The student can easily view courses details as well as subject details which are college given you.

The student can view faculty details as well result of own subject which takes on college.

The student can view fresh album which uploads by admin.
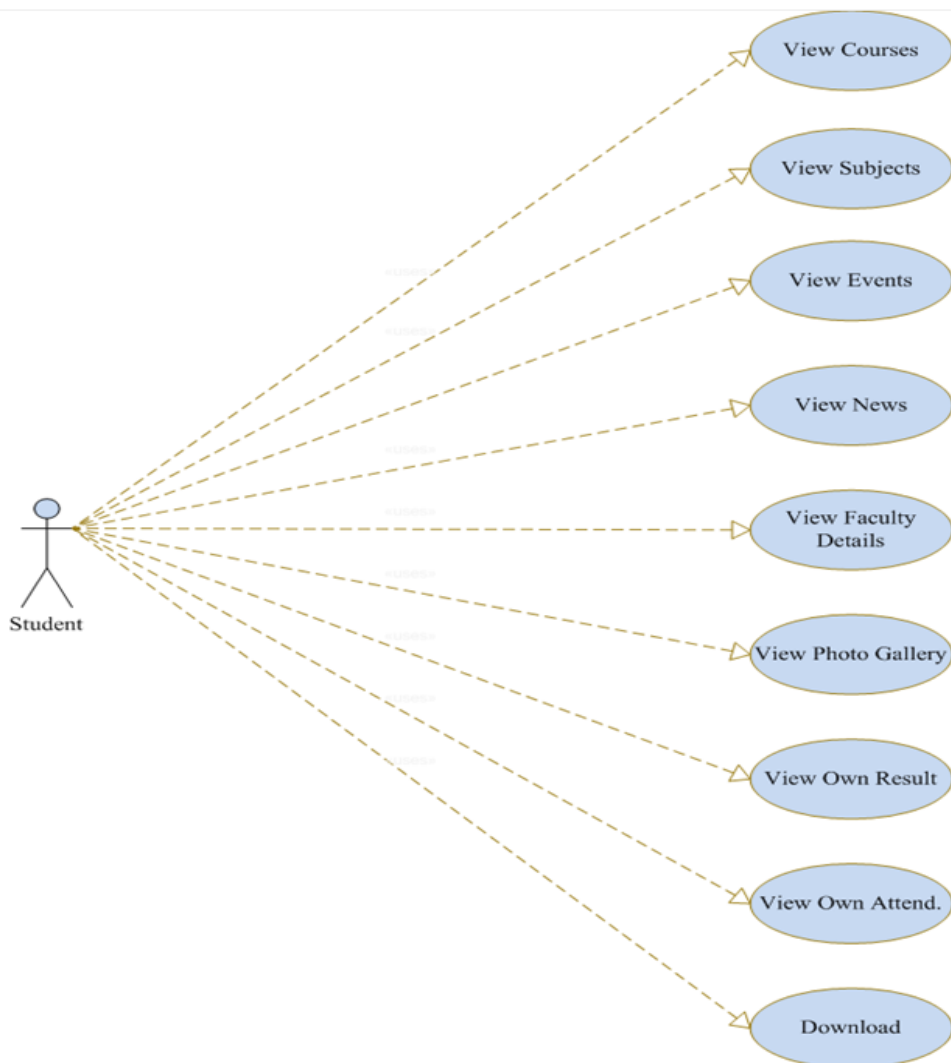
Fig. 1.1.4(c) Student Module

1.2 PROJECT OVERVIEW:

Online system of education is the web application which helps college students and faculties

to connect each other. In this web application facilities can upload marks, daily attendance, time table and they can upload complete syllabus plan. Students can view their attendance report, marks sheet, daily syllabus and topic plan and they can post feedback and reviews in this system. Even Students can discuss with their facilities related to subject and faculty has option to reply to the questions sent by students.

The main objective of this system is to automate all functionalities of a college or university. Using this system, you can manage all college/school management work like admission, fees submission, time table management and result declaration. Using this system, you can view or update data and information about students and staff easily. This system helps in managing the activity like student admission, student registration, fees submission. Admin can also retrieve information of employee student.

Theis system can be used to store student information like attendance, fees, and student result etc. admin can create report regarding any student any time using this system. Using this system, you can register new student and their course details. You can submit students' fees and can check fees details anytime. You can create exam result and submit in this system. Student can check their result online by logging to the system. You can also add new employee in the system and can check details of the employee easily. Student can also check course detail online from this system. Using this system, you can manage all information of all aspects of a college, its students, faculties, Departments, marks and other curricular activities. It provides the easiest way to manage all functionalities of a college. This system facilitates colleges to maintain the functionality related to college employees and their students.

It can store and manage all data of the various departments of a college like Administration, Attendance, Staff details etc. using this system user can retrieve any information related to student, teacher and fees. Using this system teacher can check student attendance anytime. This system also help teacher to announce the result. College administration can also manage college work easily. Admin can check leave, salary and other details of teacher any time. They can also create time table of classes from this system. The Library module is used for the data process of library and book accessing for students and staffs.

1.2.1 EXISTING SYSTEM:

In the existing system all the works are done manually. Students have to fill up admission form on paper and all the records are maintained on paper file. In this system it is very difficult

to find any information. And it is very difficult to maintain the fees and accounting reports of college in proper way.

1.2.2 Requirements: -

For this project minimum hardware and software requirement are listed below: The hardware Requirements stated above are recommended for the optimum possible performance of the new system (computerized system).

Minimum Hardware and Software Requirements-:

Minimum Hardware Requirements-:

Name of the component	Specification
Processor	Intel ® Celeron ®
RAM	2.00 GB
Mouse	Any Mouse
Monitor	15-inch colour monitor
Keyboard	Any keyboard
Printer	In case of printing reports

Minimum Software Requirements-:

Name of the component	Specification
Operating System	Windows Operating system
Language	
Database	
Browser	Use any like google chrome, Mozilla Firefox
Software development kit	
Scripting language Enable	
Database Jdbc Driver	

2. LITERATURE SURVEY

2.1 Limitations of existing system

1. The existing system which we using in our college is traditional process is a complete manual process.

2. Now-a-days, education is playing very significant role in the society. Day-by-day, the percentage of illiterates are decreasing and the percentage of literates is increasing.

3. Education will change the society in all the aspects and everyone wants to study higher professional degrees.

4. Admissions are increasing day by day so there by ratio of establishment new colleges and schools are also increasing.

5. But the actual challenge is starting from now. Most of the schools and colleges are maintain student information in records.

6. When the number of records increased, it is difficult to maintain the information of each student in the old manual system.

7. Maintaining the records manually leads to error prone and required more man power and it consumes more time for processing the records.

2.2 Proposed system

1) The Proposed System provides the facilitates the administrators to know the present status of a student of the college.

2) The software gives the information such as student personal data, student fees details, results etc.

3) Generating the print reports of student personal, fee as well as result details….

4) Hence, we conclude that the present system (CMS for Colleges) would definitely help the user by saving time and effort by reducing the processing time and volume of errors.

5) The efficiency of the work done would be improved and work satisfaction on the part of the employees after computerization would definitely on high.

6) The customer satisfaction would be definitely higher when compared to the old manual system.

2.2.1 Benefits of proposed system

The benefits of proposed system for the students are they can create any kind of certificate easily

using this system. They can easily retrieve all information related to student and employee. Admin has all the Collective records of students of all the branches. Admin can check all the records of employees of all departments anytime. This system gives easy approach to find the detail information for any student/employee. Using this system, it is very easy to handle all functionality of college. This system is beneficial for both students and employees as they can get all previous or current information when they need. This system is also helpful to maintain the students record like admission record, fees record, exam result records. This system can help to get all or a particular student attendance information. Also, it can help to maintain the fees and accounting reports of college in proper way. This system also helps to generate mark sheets of current year.

2.3 FEASIBILITY STUDY

Prior to stating whether the system we have to develop is feasible or not we believe that we should emphasize on what is implied by the word "Feasibility". Feasibility is the measure of how beneficial or practical the development of the system will be to the organization. It is a preliminary survey for the systems investigation. It aims to provide information to facilitate a later in-depth investigation.

When we are developing the system (software), we must know the proposed system will be feasible or i.e., practically implemented or not it may possible the proposed (candidate) system may not implement due to many reasons like it may take long time in development than the specified time limit, cost may increase than proposed one etc.

Therefore, we must analyse the feasibility of the system. Feasibility is the analysis of risks, costs & benefits relating to economics, technology & user operation.

There are several types of feasibility depending on the aspect they cover. Some important feasibility is as follows: -

2.3.1 TYPES-:

There are various measures of feasibility that helps to decide whether a particular project is feasible or not. These measures include –

 Four key considerations are involved in the feasibility analysis:

Operational Feasibility: A study about the operational aspects of the system. A proposed system is beneficial only if it can be turned into an information system that will meet the operational requirements of an organization. A system often fails if it does not fit within existing operations

and if users resist the change. Operational Feasibility is a measure of how people are able to work with system.

Another important fact to be regarded is the security control, which is handled by the system. Since data regarding each Customer and the Organization is confidential, security is a key issue.

Information falling into the wrong hands could jeopardize the entire organization. Unlike in semi-computerized systems

The proposed system offers adequate control to organize our files online and share with the users and Security of data and information. This is handled by the system providing individuals with separate login names and passwords.

The new system is user-friendlier, which enables the end-user to complete his/her work efficiently and accurately with interest. After taking the above fact into consideration we can state the operating of the proposed system within the organization is feasible.

In this phase of the feasibility study the following two main topics-:

Technical Performance Aspect and

Acceptance within the organization

Technical performance aspect is explained in the technical feasibility report and there is no new information is needed in this.

Economic Feasibility: An evaluation of development cost weighted against the ultimate income or benefit derived from the developed system the **economic feasibility** step of business development is that period during which a break-even financial model of the business venture is developed based on all costs associated with taking the product from idea to market and achieving sales sufficient to satisfy debt or investment requirement.

In making recommendations a study of the economics of the proposed system should be made. Even though finding out the costs of the proposed project is difficult we assume and estimate the costs and benefits as follows. According to the computerized system we propose, the costs can be broken down in two categories.

Economic analysis is the most frequently used evaluating the effectiveness of proposed system, more commonly known as Benefit analysis.

- Costs associated with the development of the system.
- Costs associated with operating the system.

Technical Feasibility: A **technical feasibility** study assesses the details of how you intend to deliver a product or service to customers. A study of function, performance and constraints that

may affect the ability to achieve an acceptable system. The technically feasibility study basically centres on alternatives for hardware, software and design approach to determine the functional aspects of system.

Based on the outline design of the system requirements in terms of inputs, output, Procedures, the technical issues raised during technical feasibility include:

- Does the necessary technology exist to do what is proposed?
- Adequate responses provided by the proposed system?
- Is there any technical guarantee of accuracy, reliability, ease of access and data security?

The system developer's task is to view needed capabilities in light of currently available technology. Our project works hand in hand with high technology. A database has to be maintained in order to update and backup data whenever required. To create databases, we use SQL server. After taking the above facts into consideration we can state that the new proposed system is technically feasible. As the software is very much economically feasible, then it is really important for it to be technically sound.

Think materials, labour, transportation, where your business will be located, and the technology that will be necessary to bring all this together.

3. INTRODUCTION ABOUT TECHNOLOGY

3.1 What I learned from Industrial Training

1. HTML

HTML stands for **Hyper Text Markup Language**, which is the most widely used language on Web to develop web pages. **HTML** was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01 was a major version of HTML and it was published in late 1999. Though HTML 4.01 version is widely used but currently we are having HTML-5 version which is an extension to HTML 4.01, and this version was published in 2012.Originally, pages with the help of different tags available in HTML language.

The key advantages of learning HTML:

- **Create Web site** - You can create a website or customize an existing web template if you know HTML well.
- **Become a web designer** - If you want to start a career as a professional web designer, HTML and CSS designing is a must skill.
- **Understand web** - If you want to optimize your website, to boost its speed and performance, it is good to know HTML to yield best results.
- **Learn other languages** - Once you understand the basic of HTML then other related technologies like JavaScript, php, or angular are become easier to understand.
- **Web pages development** - HTML is used to create pages which are rendered over the web. Almost every page of web is having html tags in it to render its details in browser.
- **Internet Navigation** - HTML provides tags which are used to navigate from one page to another and is heavily used in internet navigation.
- **Responsive UI** - HTML pages now-a-days works well on all platform, mobile, tabs, desktop or laptops owing to responsive design strategy.
- **Offline support** HTML pages once loaded can be made available offline on the machine without any need of internet.
- **Game development**- HTML5 has native support for rich experience and is now useful in gaming development arena as well.

2. CSS

Cascading **S**tyle **S**heets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the colour of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colours are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.

CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

Advantages of CSS

- **CSS saves time** − You can write CSS once and then reuse same sheet in multiple HTML pages. You can define a style for each HTML element and apply it to as many Web pages as you want.

- **Pages load faster** − If you are using CSS, you do not need to write HTML tag attributes every time. Just write one CSS rule of a tag and apply it to all the occurrences of that tag. So, less code means faster download times.

- **Easy maintenance** − To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.

- **Superior styles to HTML** − CSS have a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.

- **Multiple Device Compatibility** − Style sheets allow content to be optimized for more than one type of device. By using the same HTML document, different versions of a website can be presented for handheld devices such as PDAs and cell phones or for printing.

- **Global web standards** − Now HTML attributes are being deprecated and it is being recommended to use CSS. So, it's a good idea to start using CSS in all the HTML pages to make them compatible to future browsers.

CSS Versions

Cascading Style Sheets level 1 (CSS1) came out of W3C as a recommendation in December 1996. This version describes the CSS language as well as a simple visual formatting model for all the HTML tags.

3. JavaScript

JavaScript is a cross-platform, object-oriented scripting language used to make webpages interactive (e.g., having complex animations, clickable buttons, popup menus, etc.). There are also more advanced server-side versions of JavaScript such as Node.js, which allow you to add more functionality to a website than downloading files (such as Realtime collaboration between multiple computers). Inside a host environment (for example, a web browser), JavaScript can be connected to the objects of its environment to provide programmatic control over them.

JavaScript contains a standard library of objects, such as Array, data and math and a core set of language elements such as operators, control structures, and statements. Core JavaScript can be extended for a variety of purposes by supplementing it with additional objects; for example:

- *Client-side JavaScript* extends the core language by supplying objects to control a browser and its *Document Object Model* (DOM). For example, client-side extensions allow an application to place elements on an HTML form and respond to user events such as mouse clicks, form input, and page navigation.
- *Server-side JavaScript* extends the core language by supplying objects relevant to running JavaScript on a server. For example, server-side extensions allow an application to communicate with a database, provide continuity of information from one invocation to another of the application, or perform file manipulations on a server.

This means that in the browser, JavaScript can change the way the webpage (DOM) looks. And, likewise, Node.js JavaScript on the server can respond to custom requests from code written in the browser.

The JavaScript language resembles Java but does not have Java's static typing and strong type checking. JavaScript follows most Java expression syntax, naming conventions and basic control-flow constructs which was the reason why it was renamed from Live Script to JavaScript.

JavaScript is a very free-form language compared to Java. You do not have to declare all variables, classes, and methods. You do not have to be concerned with whether methods are public, private,

or protected, and you do not have to implement interfaces. Variables, parameters, and function return types are not explicitly typed.
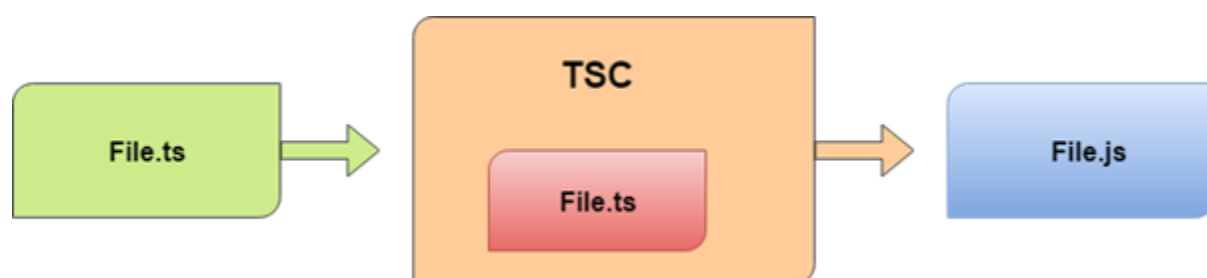
4. Type Script

TypeScript is an **open-source**, object-oriented programming language, which is developed and maintained by **Microsoft** under the *Apache 2* license. It was introduced by **Anders Hejlsberg**, a core member of the development team of C# language. TypeScript is a strongly typed **superset of JavaScript** which compiles to plain JavaScript. It is a language for application-scale JavaScript development, which can be executed on any **browser**, any **Host**, and any **Operating System**. TypeScript is not directly run on the browser. It needs a compiler to compile and generate in JavaScript file. TypeScript is the *ES6 version* of JavaScript with some additional features.

Our TypeScript tutorial includes all the topics which help to learn TypeScript. These are Introduction of TypeScript, Features of TypeScript, Components of TypeScript, TypeScript first program, TypeScript Types, TypeScript Variables, TypeScript Operators, TypeScript Decision-making, TypeScript Loops, Functions, Classes, Arrays, Namespace, Module, Ambient, and many more.

TypeScript is an open-source pure object-oriented programing language. It is a strongly typed superset of JavaScript which compiles to plain JavaScript. It contains all elements of the JavaScript. It is a language designed for large-scale JavaScript application development, which can be executed on any browser, any Host, and any Operating System. The TypeScript is a language as well as a set of tools. TypeScript is the ES6 version of JavaScript with some additional features.

TypeScript cannot run directly on the browser. It needs a compiler to compile the file and generate it in JavaScript file, which can run directly on the browser. The TypeScript source file is in ".ts" extension. We can use any valid ".js" file by renaming it to ".ts" file. TypeScript uses TSC (TypeScript Compiler) compiler, which convert Typescript code (.ts file) to JavaScript (.js file).

5. Angular

Angular is a platform and framework for building single-page client applications using HTML and TypeScript. Angular is written in TypeScript. It implements core and optional functionality as a set of TypeScript libraries that you import into your apps.

The architecture of an Angular application relies on certain fundamental concepts. The basic building blocks of the Angular framework are Angular components that are organized into *NgModules*. NgModules collect related code into functional sets; an Angular app is defined by a set of NgModules. An app always has at least a *root module* that enables bootstrapping, and typically has many more *feature modules*.

- Components define *views*, which are sets of screen elements that Angular can choose among and modify according to your program logic and data.
- Components use *services*, which provide specific functionality not directly related to views. Service providers can be *injected* into components as *dependencies*, making your code modular, reusable, and efficient.

Modules, components and services are classes that use *decorators*. These decorators mark their type and provide metadata that tells Angular how to use them.

- The metadata for a component class associates it with a *template* that defines a view. A template combines ordinary HTML with Angular *directives* and *binding markup* that allow Angular to modify the HTML before rendering it for display.
- The metadata for a service class provides the information Angular needs to make it available to components through *dependency injection (DI)*.

An app's components typically define many views, arranged hierarchically. Angular provides the Router service to help you define navigation paths among views. The router provides sophisticated in-browser navigational capabilities.

Angular *NgModules* differ from and complement JavaScript (ES2015) modules. An NgModule declares a compilation context for a set of components that is dedicated to an application domain, a workflow, or a closely related set of capabilities. An NgModule can associate its components with related code, such as services, to form functional units.

Every Angular app has a *root module*, conventionally named AppModule, which provides the bootstrap mechanism that launches the application. An app typically contains many functional modules.

Like JavaScript modules, NgModules can import functionality from other NgModules, and allow their own functionality to be exported and used by other NgModules. For example, to use the router service in your app, you import the Router NgModule.

6. Material Design and SCSS

Material Design-:

Material Design (codenamed **Quantum Paper**) is a design language that Google developed in 2014. Expanding on the "card" motifs that debuted in Google Now, Material Design uses more grid-based layouts, responsive animations and transitions, padding, and depth effects such as lighting and shadows.

Designer Matias Duarte explained that, "unlike real paper, our digital material can expand and reform intelligently. Material has physical surfaces and edges. Seams and shadows provide meaning about what you can touch." Google states that their new design language is based on paper and ink but implementation takes place in an advanced manner.

Material Design will gradually be extended throughout Google's array of web and mobile products, providing a consistent experience across all platforms and applications. Google has also released application programming interfaces (APIs) for third-party developers to incorporate the design language into their applications. The main purpose of material design is creation of new visual language that combines principles of good design with technical and scientific innovation.

In 2018, Google detailed a revamp of the language, with a focus on providing more flexibility for designers to create custom "themes" with varying geometry, colours, and typography. Google released Material Theme Editor exclusively for the macOS design application Sketch.

In 2018, with the introduction of the ability to create custom themes, Google also began redesigning most of their apps into a customized and adapted version of Material Design called the Google Material Theme, also dubbed "Material Design 2", which heavily emphasized white space, rounded corners, colourful icons, bottom navigation bars, and utilized a special size-condensed version of Google's proprietary Product Sans font called Google Sans. As of 2020, most Google applications have also applied the new Google Material Theme design, with the notable exception of YouTube.

The canonical implementation of Material Design for web application user interfaces is called Polymer. It consists of the Polymer library, a shim that provides a Web Components API for browsers that do not implement the standard natively, and an elements catalogic, including the "paper elements collection" that features visual elements of the Material Design.

SCSS-:

CSS on its own can be fun, but stylesheets are getting larger, more complex, and harder to maintain. This is where a pre-processor can help. Sass lets you use features that don't exist in CSS yet like variables, nesting, mixings, inheritance and other nifty goodies that make writing CSS fun again.

Once you start tinkering with Sass, it will take your pre-processed Sass file and save it as a normal CSS file that you can use in your website.

The most direct way to make this happen is in your terminal. Once Sass is installed, you can compile your Sass to CSS using the sass command. You'll need to tell Sass which file to build from, and where to output CSS to. For example, running sass input. CSS output.css from your terminal would take a single Sass file, input. CSS, and compile that file to output.css.

You can also watch individual files or directories with the --watch flag. The watch flag tells Sass to watch your source files for changes, and re-compile CSS each time you save your Sass. If you wanted to watch (instead of manually build) your input.scss file, you'd just add the watch flag to your command, like so:

Sass would watch all files in the app/sass folder for changes, and compile CSS to the public/stylesheets folder.

Think of variables as a way to store information that you want to reuse throughout your stylesheet. You can store things like colours, font stacks, or any CSS value you think you'll want to reuse. Sass uses the $ symbol to make something a variable. Here's an example:

When the Sass is processed, it takes the variables we define for the $font-stack and $primary-colour and outputs normal CSS with our variable values placed in the CSS. This can be extremely powerful when working with brand colours and keeping them consistent throughout the site.

You can create partial Sass files that contain little snippets of CSS that you can include in other Sass files. This is a great way to modularize your CSS and help keep things easier to maintain. A partial is a Sass file named with a leading underscore. You might name it something like _partial. sass. The underscore lets Sass know that the file is only a partial file and that it should not be generated into a CSS file. Sass partials are used with the @use rule.

7. Express Server

Express.js, or simply **Express**, is a back-end web application framework for Node.js, released as free and open-source software under the MIT License. It is designed for building web applications and APIs. It has been called the de facto standard server framework for Node.js.

The original author, described it as a Sinatra-inspired server, meaning that it is relatively minimal with many features available as plugins. Express is the back-end component of popular development stacks like the MEAN, MERN or MEVN stack, together with the MongoDB database software and a JavaScript front-end framework or library.

History

Express.js was founded by TJ Holowaychuk. The first release, according to Express's GitHub repository, was on the 22nd of May, 2010. Version 0.12

In June 2014, rights to manage the project were acquired by Strong Loop. Strong Loop was acquired by IBM in September 2015, in January 2016, IBM announced that it would place Express.js under the stewardship of the Node.js Foundation incubator.

Express Server is a **web** application framework for Node. js that allows you to spin up robust APIs and **web servers** in a much easier and cleaner way. It is a lightweight package that does not obscure the core Node.

The primary **use** of **Express** is to provide server-side logic for web and mobile applications, and as such it's **used** all over the place.

Express. **js** is a free and open-source web application framework for Node. **js**. It is **used** for designing and building web applications quickly and easily. Web applications are web apps that you can run on a web browser.

It's a web framework that lets you structure a web application to handle multiple different http requests at a specific URL. **Express** is a minimal, open source and flexible Node. js web app framework designed to make developing websites; web apps, & APIs much easier.

Express is the **backend** part of something known as the MEAN stack. Node. js - Framework used for scalable server-side and networking applications.

Express is not **hard** and should take just a good day or two to get down. It's a plus at least as there really isn't much to **learn** about **express**. js. I'm sure with an hour or two, you can call yourself an expressjs expert as it's a minimal framework at its core.

Express is a JavaScript back-**end** framework that's designed to develop complete web applications and APIs. **Express** is the back-**end** component of the MEAN stack, which also includes MongoDB for the database, AngularJS for the **front end** and Node.

8. Mongo DB

MongoDB is an open-source document database and leading NoSQL database. MongoDB is written in C++. This tutorial will give you great understanding on MongoDB concepts needed to create and deploy a highly scalable and performance-oriented database. It will throw light on MongoDB concepts and after completing this tutorial you will be at an intermediate level of expertise, from where you can take yourself at higher level of expertise. basic understanding of database, text editor and execution of programs, etc. Because we are going to develop high performance database, so it will be good if you have an understanding on the basic concepts of Database (RDBMS).

MongoDB is a cross-platform, document-oriented database that provides, high performance, high availability, and easy scalability. MongoDB works on concept of collection and document.

Database

Database is a physical container for collections. Each database gets its own set of files on the file system. A single MongoDB server typically has multiple databases.

Collection

Collection is a group of MongoDB documents. It is the equivalent of an RDBMS table. A collection exists within a single database. Collections do not enforce a schema. Documents within a collection can have different fields. Typically, all documents in a collection are of similar or related purpose.

Document

A document is a set of key-value pairs. Documents have dynamic schema. Dynamic schema means that documents in the same collection do not need to have the same set of fields or structure, and common fields in a collection's documents may hold different types of data.
_id is a 12 bytes hexadecimal number which assures the uniqueness of every document. You can provide _id while inserting the document. If you don't provide then MongoDB provides a unique id for every document. These 12 bytes first 4 bytes for the current timestamp, next 3 bytes for machine id, next 2 bytes for process id of MongoDB server and remaining 3 bytes are simple incremental VALUE.

9. Node

Node.js is a server-side platform built on Google Chrome's JavaScript Engine (V8 Engine). Node.js was developed by Ryan Dahl in 2009 and its latest version is v0.10.36. Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on OS X, Microsoft Windows, and Linux.

Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.

Features of Node.js

- **Asynchronous and Event Driven** − All APIs of Node.js library are asynchronous, that is, non-blocking. It essentially means a Node.js based server never waits for an API to return data. The server moves to the next API after calling it and a notification mechanism of Events of Node.js helps the server to get a response from the previous API call.

- **Very Fast** − Being built on Google Chrome's V8 JavaScript Engine, Node.js library is very fast in code execution.

- **Single Threaded but Highly Scalable** − Node.js uses a single threaded model with event looping. Event mechanism helps the server to respond in a non-blocking way and makes the server highly scalable as opposed to traditional servers which create limited threads to handle requests. Node.js uses a single threaded program and the same program can provide service to a much larger number of requests than traditional servers like Apache HTTP Server.

- **No Buffering** − Node.js applications never buffer any data. These applications simply output the data in chunks.

- **License** − Node.js is released under the MIT license.
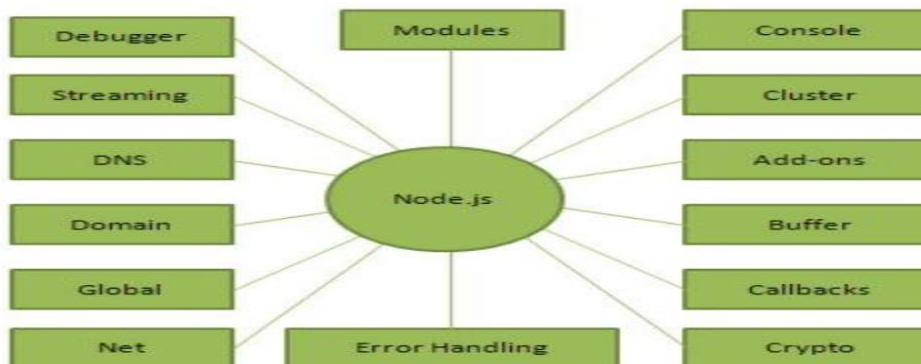
4. SYSTEM ANANLYSIS AND DESIGN

4.1 SYSTEM ANANLYSIS

4.1.1 PURPOSE:

The purpose of this project is to specify the requirements and preview some elements of the analysis model of the program "Improver", Improver is a small program which consists of two programs:

- Improver Server - Questions/Answers Database.
- Improver Client – The IDE is to install onto client computer.

  This project provides facility to collaborate the cities in effective manner.

Maintain company information:

The manager maintains the company information in the system which has details about a company like its name, Address, City, State, Zip code.

Taking up the project:

The consulting company takes up the project from the client. They need to know every detail about the project.

Maintain project person information:

The company should maintain all the information about the project person such as project number, project name.

Maintain Employee information:

The company should maintain information about the employees working. It should provide details like Name, their title in the company and also the role they play in completing the project.

Maintain project data:

The company should have the proper information about the project such as client id which is provided by the company, project number, its name, start date, and end date, status, the name of the manager, name of the client, and budget for the project completion.

4.1.2 SCOPE:

1. **Data-driven real estate development:** The increased availability of data will enable stakeholders to better understand a property or site, its surroundings and residents. This can be used to guide site selection, planning process and building design. Examples include an

investor using foot traffic data generated by embedded sensors to inform its selection of sites to construct new retail premises, or a tenant doing the same to lease a property. However, given privacy concerns, this could be challenging unless such data is provided by the Government as an open source.

2. **Asset flexibility:** Advances in technology are transforming the traditional processes of companies deciding on a location where they would like to do business; buying or leasing an office; fitting it out to their specifications; and installing it with technology for their staff to perform their jobs. The digital age is reversing this process; individuals are in the driving seat and companies' decisions are being informed by connectivity and accessibility as well as talent attraction and retention. While location will remain important, this will require buildings and workspaces to be far more flexible and adaptable than before. New developments will therefore have to be constructed with flexibility in mind.

3. **Data centre demand:** Data centres are set to play a leading role in Smart Cities as repositories for massive volume of data required to be collected, stored, analysed and archived. Data centres are already becoming as important a part of business operations as office, retail and industrial assets, supported by increasingly digital world, IT development and the importance enterprise IT strategy plays in business delivery. This will drive demand for state-of-the-art data centre development in and around the Smart Cit

4.2 SYSTEM DESIGN

Project design is an early phase of the project where a project's key features, structure, criteria for success, and major deliverables are all planned out. The point is to develop one or more designs which can be used to achieve the desired project goals.

Identifying the steps used in the design of the application/system.

The prerequisites for this phase are the Business Case, Project Management Plan, and Requirements Document.

The Design Document is a deliverable of the Design Phase.

It contains the various designs related aspects of our project. These designs will include Layered diagrams, Data Flow Diagrams (DFDs), Entity-Relationship diagrams (ER), structure of the database, and the interface designs in the form of snapshots.

Design is the abstraction of solution; it is the general description of solution to a problem without details. Design is the view pattern seen in the analysis phase to be a pattern in a design phase. After a design phase, we can reduce the time required to create

requirement.

Here we introduce models, system architecture, principal system object, design model and object interface.
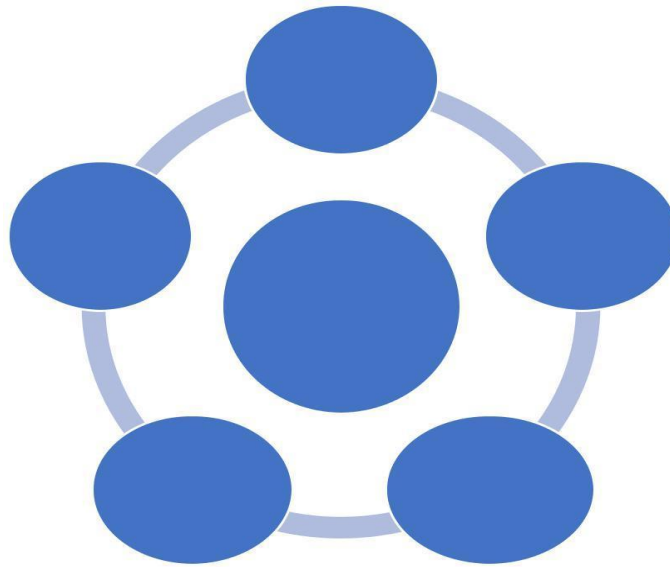

Fig. 4.2: System Design

After the analysis phase we have with us the details of the existing system and the requirements of the user for the new system. This phase diverts focus from the problem domain to the solution domain. It acts as a bridge between the requirement phase and its solution. The design phase focuses on the detailed implementation of the system recommended in the feasibility study. Emphasis is on translating performance specifications into design specifications.

The most creative and challenging phase of SDLC is system design. The term design describes a final system describes the final system and the process by which it is developed. It includes construction of programs and program testing.

The purpose of the design phase is to plan a solution of the problem specifies by the requirements document.

This phase is the first step in the moving from the problem domain to the solution domain. Starting with what is needed; design takes us towards how to satisfy the needs. The design of the systems perhaps the most critical factor affecting the quality of the software.

It has major impact on the later phase, particularly testing and maintenance. The output of this phase is the design document.

This document is similar to blueprint or plan for the solution and is used later during implementation, testing and maintenance.

"System Design is the process of defining the architecture, component, modules, interfaces and data for a system to satisfy specified requirements. system design could be seen as the application of systems theory to product development". A systematic method has to achieve the beneficial result at the end. It includes starting with average idea and developing it into a series of steps. The series of steps for successful system development are given below:

a) Study problem completely because first of all I should know the goal, which I have to achieve. I should see what kind of output I require and what kind of input I give so I can get the desired output from system output from system. It is very challenging step of system development.

b) According to the output requirement of system the strength of various databases should be design.

c) Next, I should know what kind of program i should develop, which will lead us to reach final goal.

d) Then I write this individual program, which later on joining solve problem.

e) Then I test these programs and make necessary correction in them to achieve target of program.

f) At last, combining all these problems in the forms of a bar in the menu of windows, this will complete software package for general insurance.
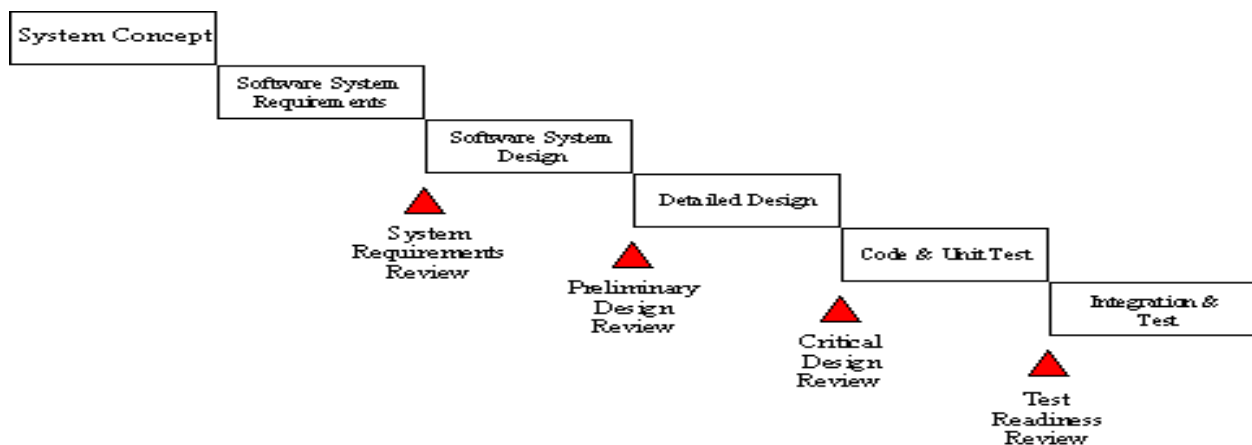

fig 4.2.1   Phases of system design

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4.2.1 ELEMENTS OF DESIGN

PROCESS DESIGN

The process design phase focuses on the detailed implementation of the system recommended in the feasibility study. It is the transformation from user-oriented document (system proposal) to a document oriented to the programmers or database personnel.

The dataflow diagram (DFD) was first developed by Larry Constantine as a way of expressing system requirements in a graphical from. A DFD also known as a bubble chart has a purpose of clarifying system requirement and identifying major transformation that will become the program in the system design.

DFD stands for Data Flow Diagrams and is also known as Bubble chart. A data flow diagram illustrates how data is processed by a system in terms of inputs and outputs. As its name indicates its focus is on the flow of information where data comes from, where it goes and how it gets stored. A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. Data flow diagram can also be used for the visualization of data processing /structured design. On a DFD, data items flow from an external data source or an internal data store to an internal data store or an external data sink, via an internal process

TYPES OF DFD-

Data Flow Diagrams are of two types as follows:

1.Physical DFD

2.Logical DFD

1. PHYSICAL DFD

Structured analysis states that the current system should be first understand correctly. The physical DFD is the model of the current system and is used to ensure that the current system has been clearly understood. Physical DFDs shows actual devices, departments, and people etc., involved in the current system.

2 LOGICAL DFD

Logical DFDs are the model of the proposed system. They clearly should show the requirements on which the new system should be built. Later during design activity this is taken as the basis for drawing the system's structure charts.

DFD SYMBOLS: -

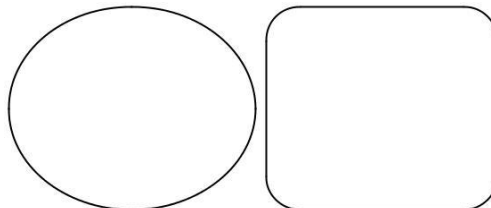**a). Square: -** A square defines a source or destination of system data.
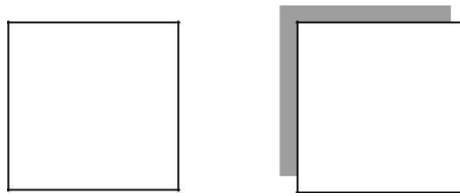
Fig 4.2.2 Square

b). Arrow: - An arrow identifies data.

Fig 4.2.3 Arrow

c). Circle or Bubble: - It represents a process that transforms incoming data flow(s) into outgoing data flow(s).

Fig 4.2.4 Circle or Bubble

In our system, I have made DFD which explains the working of the whole system.

0 LEVEL DFD FOR MODULE: - In this Level of DFD, an implementation showing what task is carried out and how they are performed. 0-level of DFD describe the overview of the project. It is also called as context level DFD.

1 **LEVEL DFD FOR MODULES: -** This highlights the main functions carried the system. It give the overview of an entire system. It shows the main processes within the system. Each of these processes can be broken into further processes.

STAGES OF SYSTEM DESIGN

Logical Design

Physical Design

Logical Design: - It is an abstract concept in computer programming by which programmers arrange data in a series of logical relationship known as attributes or entities. An entity refers to a chunk of information where as an attribute define the unique properties of an entities.

Physical Design: - It relates to the actual input and output processes of the system. This is explained in terms of how data is input into a system, how it is verified/authenticated, how it is processed and how it is displayed. In physical design following requirements about the system are decided:

a) Input

b) Output

c) Storage

d) Processing

e) System control backup and recovery

There are three subtasks performed in physical design:

➢ **User interface design: -**It is concerned with how users add information in the system and how the system present information back to them.

➢ **Data design: -** It is concerned with how the data is represented and stored within the system

➢ **Process design: -** It is concerned with how data moves through the system and with how and where it is validated.

4.2.2 INTERFACE REQUIREMENT ANALYSIS:

Interface Requirements analysis ensures those tasks that go into determining the needs or conditions to meet for a new or altered product in software and systems, taking account of the possibly conflicting requirements of the various users.

Interface Requirements analysis is critical to the success of a development project. Requirements must be documented, actionable, measurable, testable, related to identified needs or opportunities of users, and defined to a level of detail sufficient for system design.

Requirements can be architectural, structural, behavioural, functional, and non-functional.

The development of project needs some requirement to make the project perform better and achieves the goal of project.

In developing KeepToo City Life, the capabilities of computer and hardware plays a big impact on project quality.

The project maker should determine the minimum requirements of hardware

and also, software to be used to develop a good and attractive project.

4.3 FLOW CHART

Fig 4.2.5 flow chart

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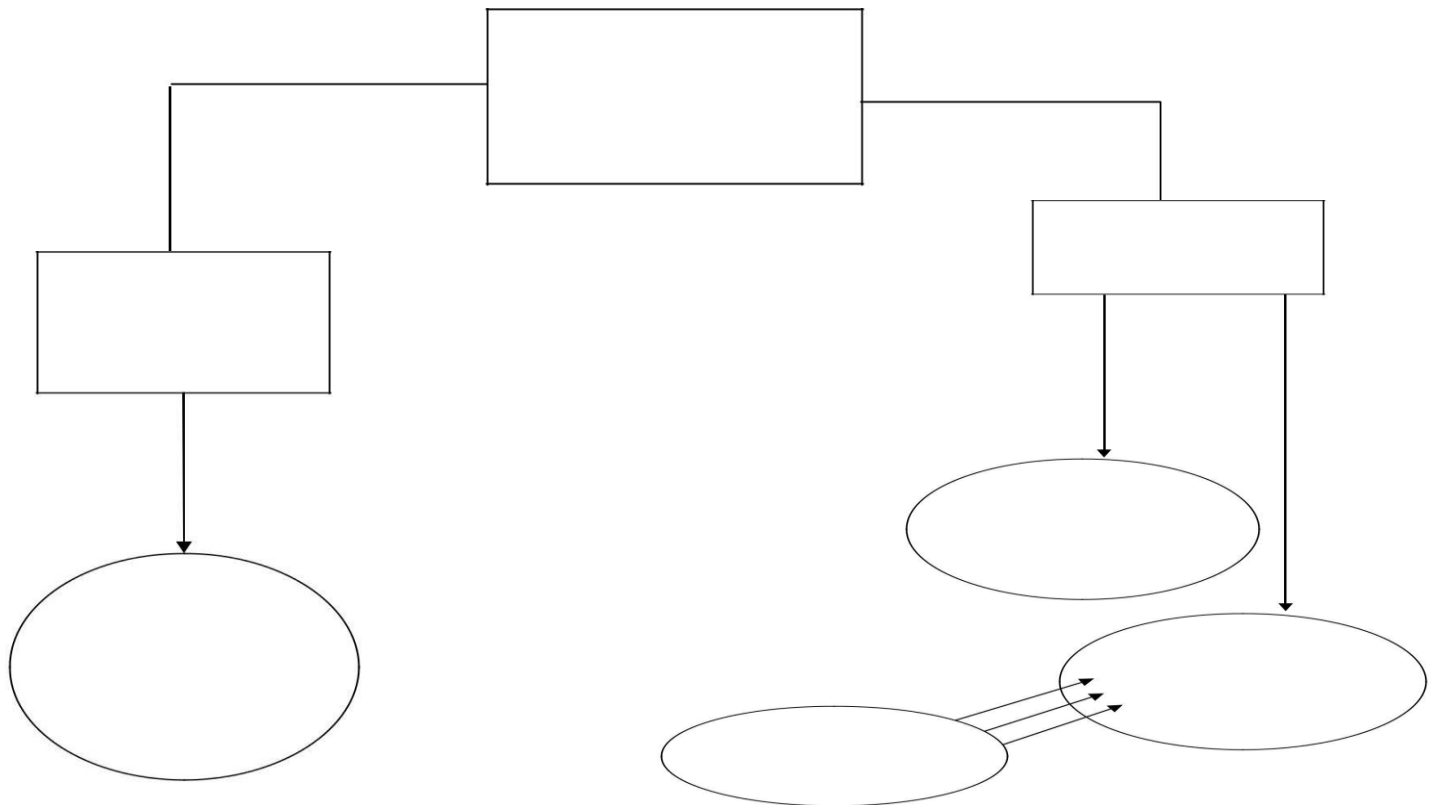
4.4 Context Level Diagram

A system **context diagram** (SCD) in engineering is a **diagram** that defines the boundary between the system, or part of a system, and its environment, showing the entities that interact with it. This **diagram** is a high-level view of a system.

How to make a context diagram

1. Select the "**Data Flow**" shape library or choose a template.

2. Place your system in the centre of your **context diagram**.

3. Add all external entities around your system. ...

4. Add and specify data flows between your system and external entities.

5. Share your system **diagram** with team members and stakeholders.
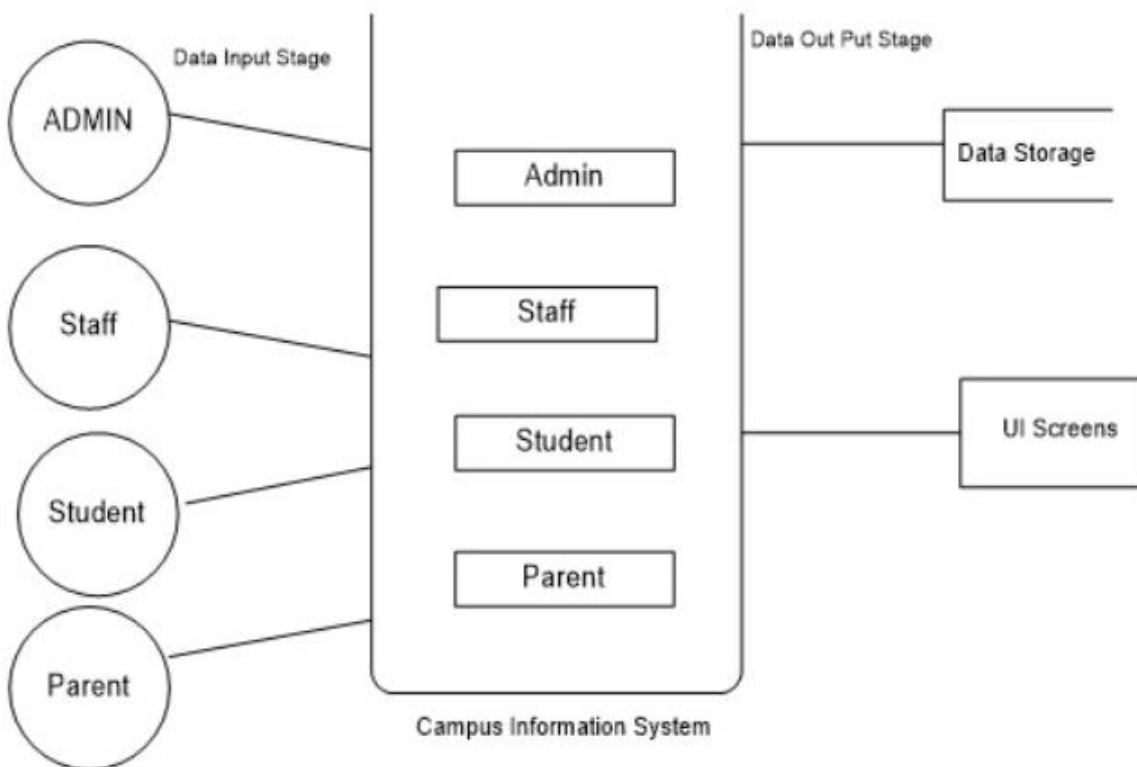
Fig 4.4 context level 0 diagram

4.4.1 DFD (Data Flow Diagrams)

DFD is the abbreviation for **Data Flow Diagram**. The flow of data of a system or a process is represented by **DFD**. It also gives insight into the inputs and outputs of each entity and the process itself.
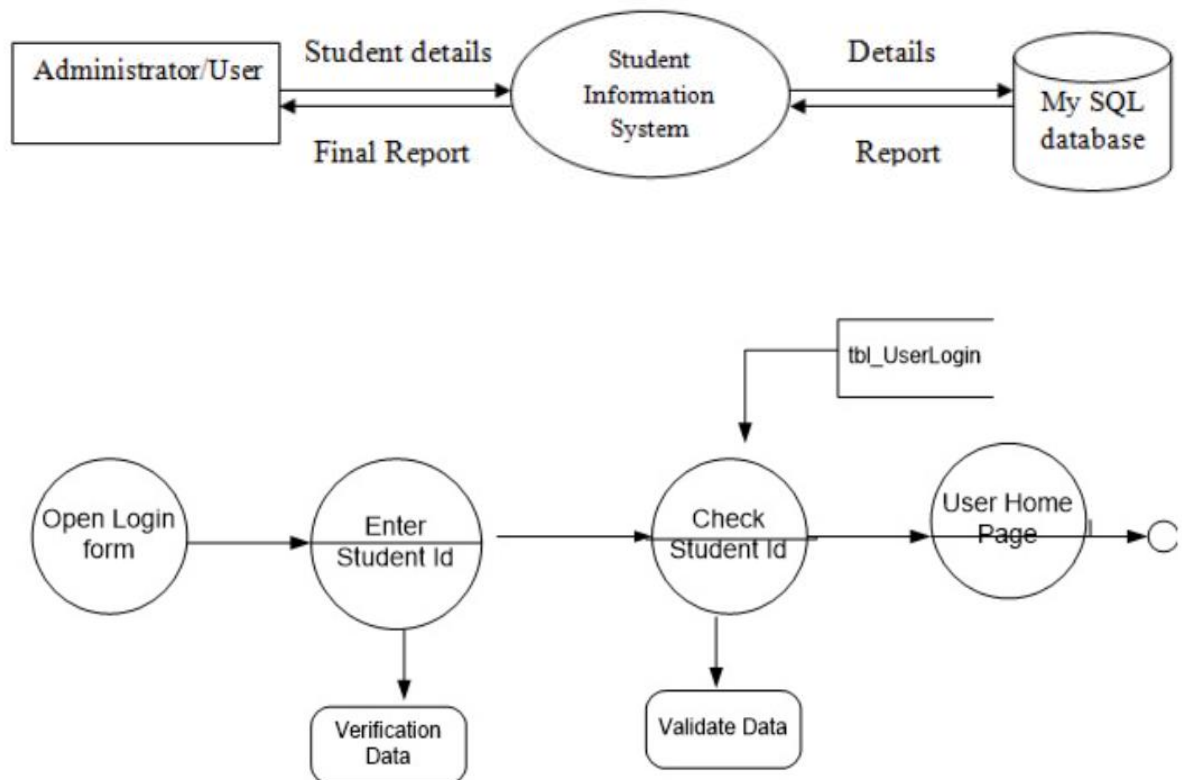
Zero level DFD- Phrontistery Oversee (Login Details)

Fig 4.4.1 (a) DFD Level-0

1st level DFD- Phrontistery Oversee (Admin Details)
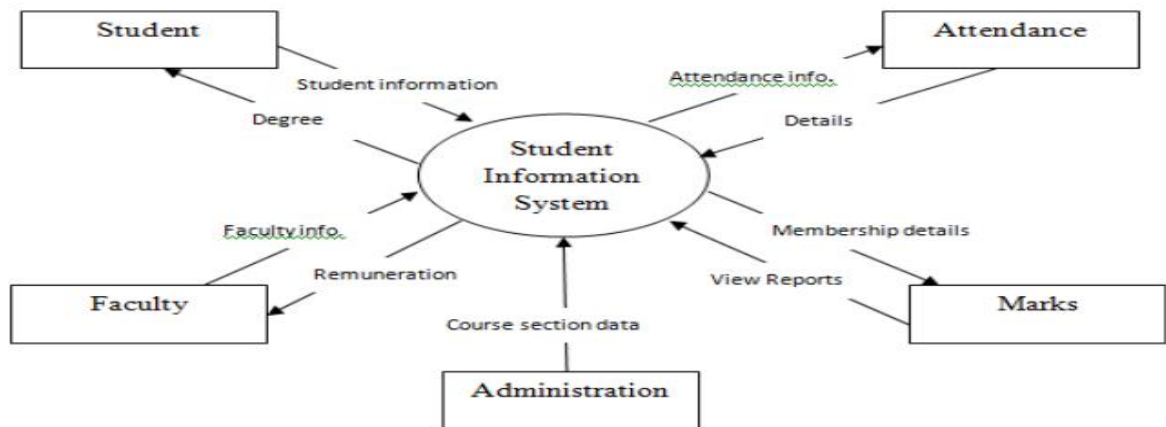
Fig 4.4.1 (b) DFD Level-1

Fig 4.4.1 (b) DFD Level-1

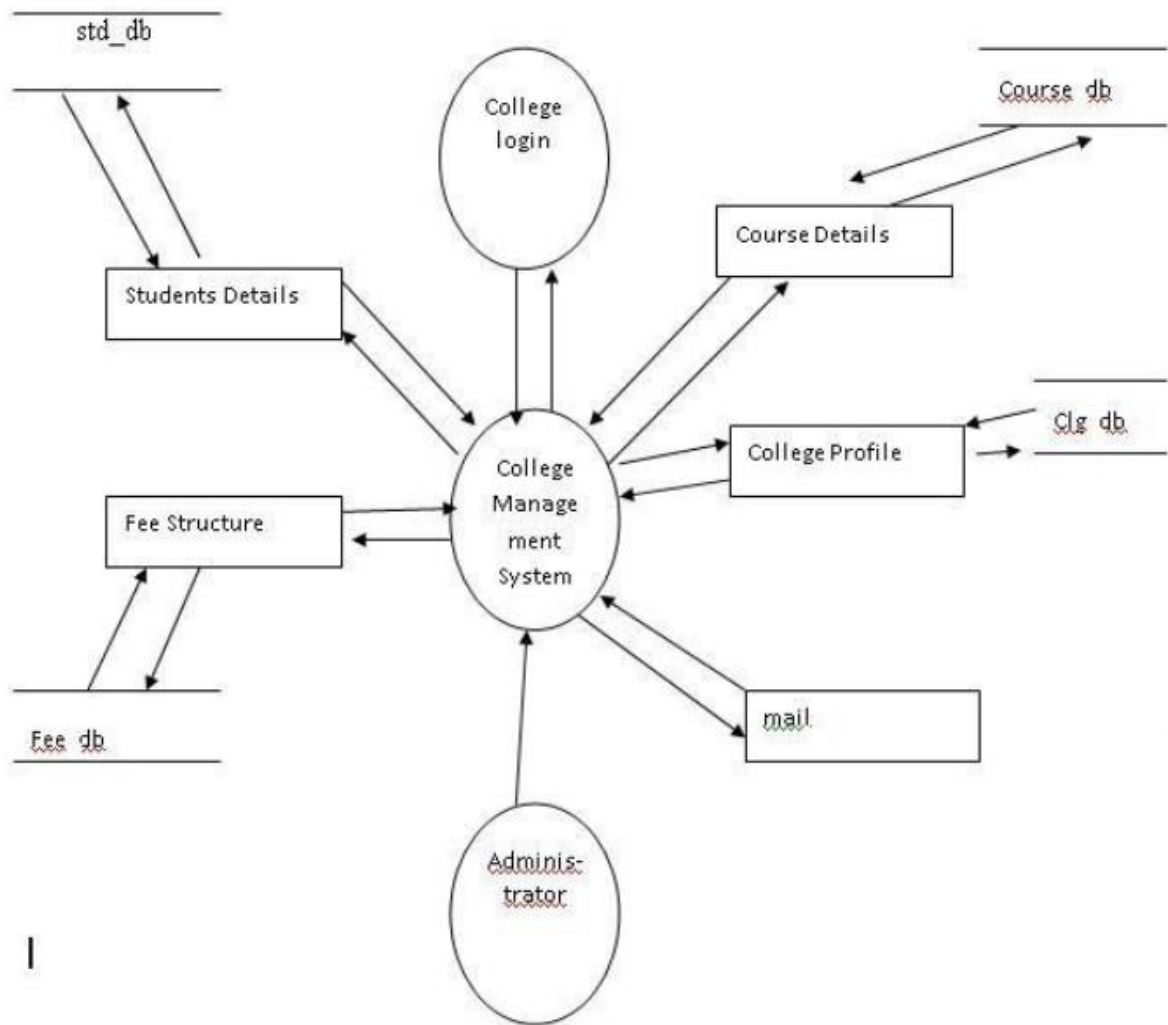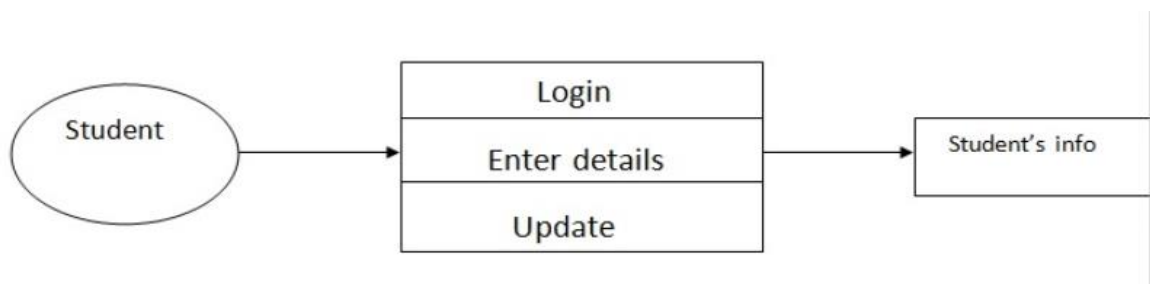**2nd level DFD- Phrontistery Oversee (Admin Details)**
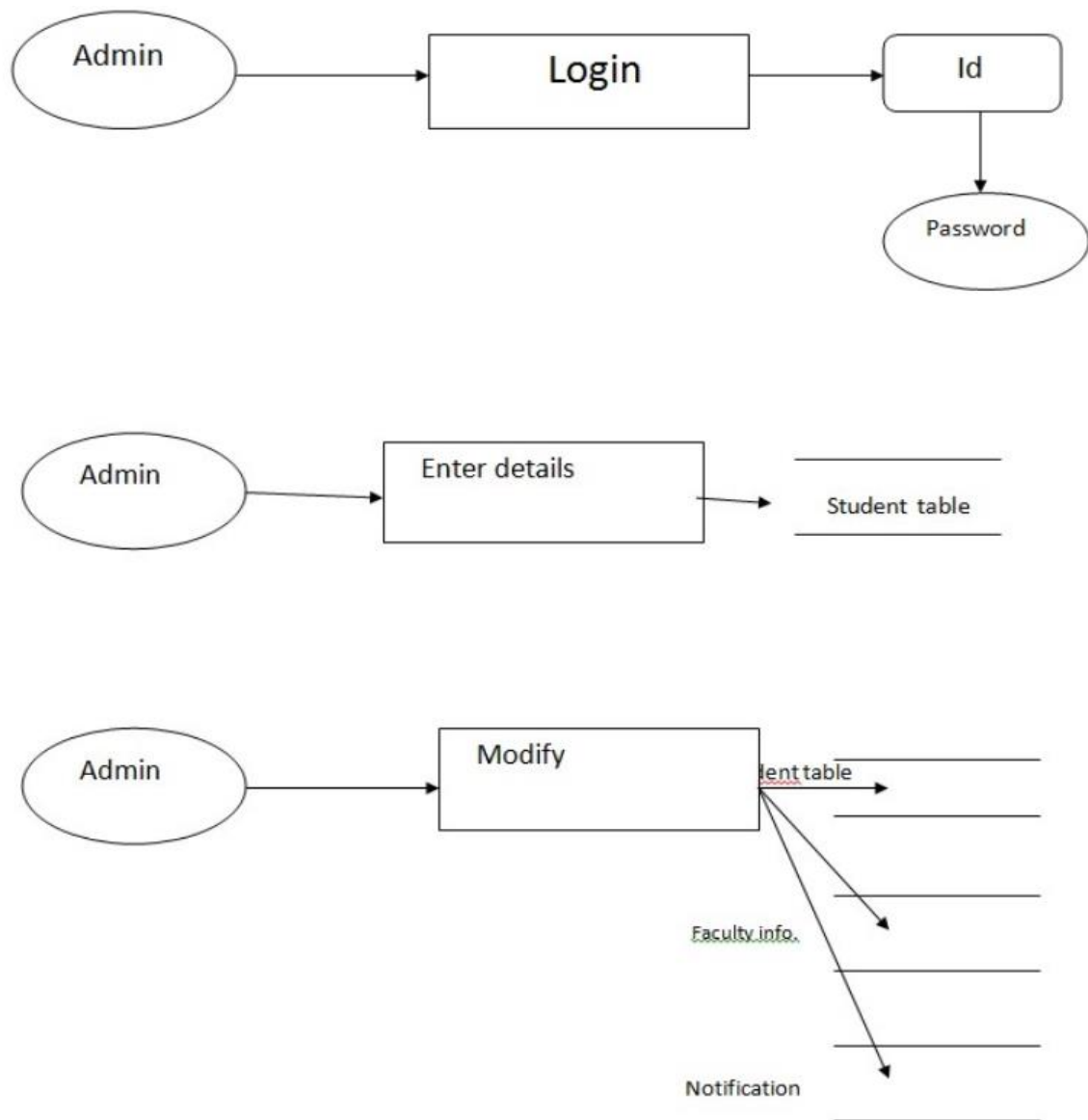
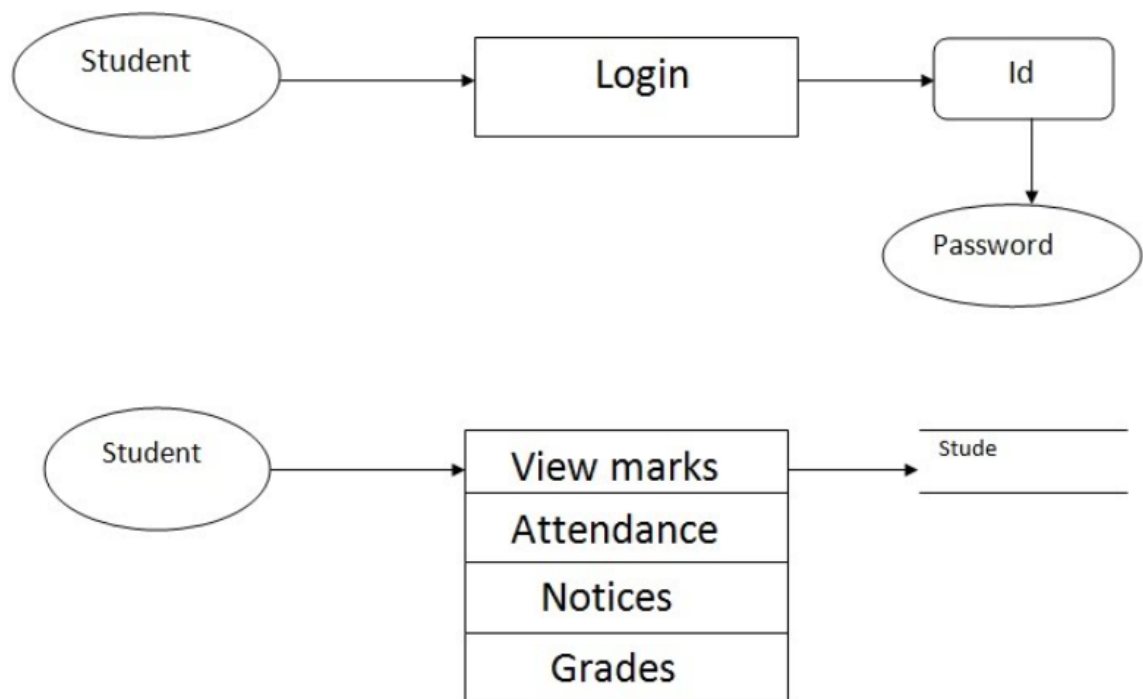**Fig 4.4.1 (c) DFD Level-2**

Fig 4.4.1(d) DFD Level-2

Student Details Data Flow-:

1st level DFD

Fig 4.4.1(e) DFD Level-1

2nd level DFD

Fig 4.4.1(f) DFD Level-2

4.4.2 ER (Entity Relationship) Diagram-:

ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.

ER Diagrams contain different symbols that use rectangles to represent entities, ovals to define attributes and diamond shapes to represent relationships.

ER Model stands for Entity Relationship Model is a high-level conceptual data model diagram. ER model helps to systematically analyse data requirements to produce a well-designed database. The ER Model represents real-world entities and the relationships between them. Creating an ER Model in DBMS is considered as a best practice before implementing your database.

ER diagrams are a visual tool which is helpful to represent the ER model. It was proposed by Peter Chen in 1971 to create a uniform convention which can be used for relational database and network. He aimed to use an ER model as a conceptual modelling approach.
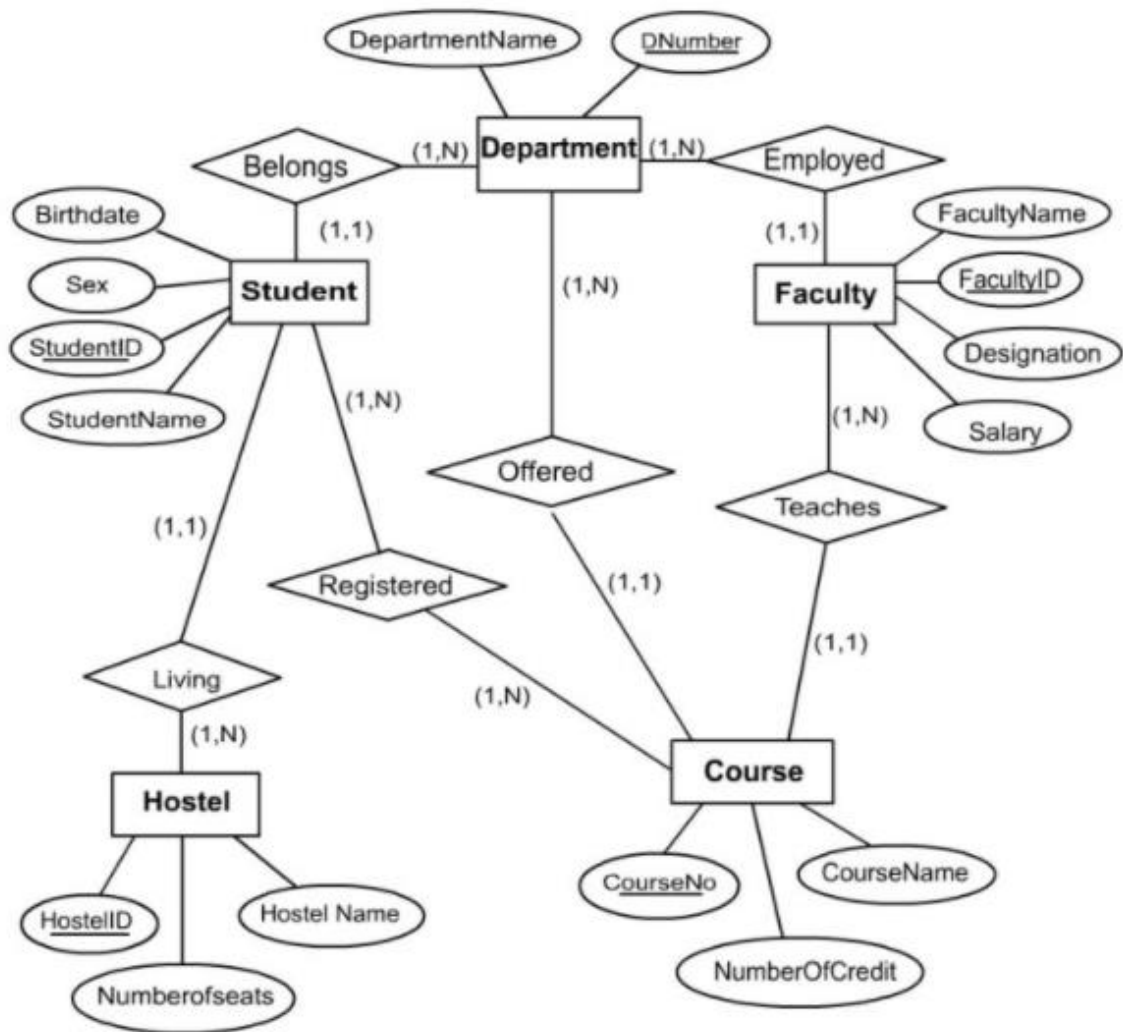
Fig 4.4.2(a) ER Diagram

4.5 System Description

4.5.1 Project Planning

Project planning is the process of establishing the scope, defining the objectives and steps to obtain them. It is one of the most important of the processes that make up project management. The output of the project planning process is a project management plan.

A project plan, also known as a project management plan is a document that contains a project scope and objective.

Learning how to develop a project plan doesn't need to be complicated.

Project planning steps to follow to create a project plan that you will work on.

1. Conduct extensive research.
2. Ask the tough questions.
3. Create your project plan outline.
4.   Talk with your team.

5. Write your full project plan.

6. Execute your plan in Team.

7. Publish your plan.

8. Share your plan with the team and make sure they read it.

4.6 Front End and Back End

5 RESULT ANAYSIS

5.1 PROJECT SNAPSHOTS:

6 CONCLUSIONS

6.1 CONCLUSION

This paper presents a method for increasing information requested by students with the use of automated System. In this, instead of direct Contacting with direct Contacting with the faculty the student can directly checks the Results from the System if the student is registered in.

It helps educational institute to do regular activities accurately, fastly and reliably.

By using this, student and faculty can find out overall attendance percentages, fee details and result analysis.

It increases quality in work for educational institutes.

- The software facilitates the administrators to know the present status of a student of the college.
- The software gives the information such as student personal data, student fees details, results etc.
- Generating the print reports of student personal, fee as well as result details.
- Hence, we conclude that the present system would definitely help the user by saving time and effort by reducing the processing time and volume of errors.
- The efficiency of the work done would be improved and work satisfaction on the part of the employees after computerization would definitely on high.
- The customer satisfaction would be definitely higher when compared to the old manual system

7 REFERENCES

This System deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details and other resource related details too. It tracks all the details of a student from the day one to the end of his course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result; and all these will be available for future references too. Our program will have the databases of Courses offered by the college under all levels of graduation or main streams, teacher or faculty's details, batch execution details, students' details in all aspects. This program can facilitate us explore all the activities happening in the college, even we can get to know which teacher / faculty is assigned to which batch, the current status of a batch, attendance percentage of a batch and upcoming requirements of a batch. Different reports and Queries can be generated based of vast options related to students, batch, course, teacher / faculty, exams, semesters, certification and even for the entire college.

7.1 BIBLIOGRAPHY-:

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The following books and manuals provided a lot of help to us in making this project a reality.
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- **MEAN** Web Development.
- Pro MERN **Stack**.

Search Engine Used
- Google
- Yahoo

7.2 FUTURE SCOPE-:

It tracks all the details of a student from the day one to the end of his course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters years, coming semester year curriculum details, exam details,

project or any other assignment details, final exam result; and all these will be available for future references too. Our program will have the databases of Courses offered by the college under all levels of graduation or main streams, teacher or faculty's details, batch execution details, students' details in all aspects