CHAPTER 1

1. INTRODUCTION

"Student Project Allocation and Management with Online Marks Submission" is a tool to make the process of managing project allotment to the participating institutions in an easy and an efficient way.

This project is aimed at developing a web-based system, which manages the activity of "Student Project Management" and "Online Marks Submissions". This system will manage the database and maintain a list of all student groups that have registered on this site.

This is a system used by Educational Institutions or other organizations, which are willing to give student projects. We have three roles in this system, an administrator, a professor and a student. An administrator logs into this system, and can register a professor who belongs to that institution.

In order to organize and manage a software development project successfully, one must combine specific knowledge, skills, efforts, experience, capabilities, and even intuition. They are all necessary in order to be able answer questions such as:

- What artifacts to manage and control during software development?
- How to organize the development team? What are the indicators and measures of the product's quality? How to employ a certain set of development practices?
- How to transition a software development organization to a new modeling and/or development paradigm?
- How to create and maintain a good relationship with the customers and end-users? What remedial actions to take when something goes wrong in the course of the project?
- What are the heuristics that can help managers in conducting the software development process?

1.1 OBJECTIVE

This project focuses on allotment of project to the student of collage. This is a system used by Educational Institutions or other organizations, which are willing to give student projects. We have three roles in this system, an administrator, a professor and a student. An administrator logs into this system, and can register a professor who belongs to that institution.

1.2 PURPOSE

To develop a user-friendly tool that will help the student involved in the process of getting project in participated institution in project management system, available various services like list of participate student along with project allotments.

- The manager of a software development project should answer the above questions in the context of the project itself. However, there is a vast amount of knowledge the manager should possess that transcends the boundaries of any specific project.
- Software development is a complex process involving such activities as domain analysis, requirements specification, communication with the customers and end-users, designing and producing different artifacts, adopting new paradigms and technologies, evaluating and testing software products, installing and maintaining the application at the end-user's site, providing customer support, organizing end-user's training, envisioning potential upgrades and negotiating About them with the customers and many more.
- In order to keep everything under control, eliminate delays, always stay within the budget, and prevent project runaways, i.e. situations in which cost and time exceed what was planned, software project managers must exercise control and guidance over the development team throughout the project's lifecycle.

The tool will be developed in a user-friendly manner considering all the use-cases including different forms of actors like primary actors and secondary actors.

Making the tool free from any problems like atomicity problem, data integration problem and more importantly making it to work concurrently i.e. multiple users support at the same time on same application in various modes.

1.3 SCOPE

The project management website tool is a web-enabled tool, which will be used by the university which involved in the project allotment procedure. Website makes the project allotment in flexible manner and with great easiness for student as well as the faculty also.

1.4 ROLE OF THE SOFTWARE

This software is developed keeping in mind many practical problems. The needs and requirements of the end users are also kept in mind while designing this software. This software will enable its users to maintain, retrieve and generate reports quickly and requiring minimum effort.

Thus, Student Project Allocation and Management with Online Marks Submission (SPM**)** are developed in order to facilitate it users to keep a track of project which are allotted to the student. It also helps them to save their time and energy when they want to retrieve some kind of information for their specific purposes and needs.

1.5 EXTERNAL BEHAVIOUR

Three types of user will use the software, by providing their respective user login and password. The tool will have to behave or provide user interface as per the authentication information provided by the user when the person logs in the s/w. These are:

Administrator: Authority that will have rights to perform updating, modification in the database.

1. **An administrator's role**
    - Can login to the system through the first page of the application
    - Can create new user account for a professor and assign/change(if existing user) username and a password
2. **A student's role**
    - A student if he is a new user registers into the system.

- He enters details like his name, age, date of birth, college, B.E. Percentage up to 6 semesters, his knowledge of the latest technologies and other prior experience details if any…etc.
- He also enters the name of all his team members and their details
- For the professor, this student would act as the primary interface between the student group and the professor
- After entering successfully all details he is given a student group code which he shares with his team members.
- Whenever, a student successfully logs in (after registration) is asked for his project code and if successfully entered is taken to a screen (via link) where he can give an online test
- His/her details are then stored in the database

3. A professors role

A registered professor, who is assigned a user name and a password by the administrator logs in, should enter at least one project and its description which he is willing to allocate to the students.

- He/she is given an option to sort and shortlist students by various criteria such as academic performance, technologies familiar with, past experience etc. A professor can view all students' information.
- He can see student status, such as whether the student is available or has been assigned a project by any other professor, and if assigned then by which professor
- A professor after short-listing students, clicks a button so that he locks the student group. i.e. no other professor can assign them any projects now, as they have already been assigned one by this professor, thus assigning the a status

CHAPTER 2

2. SOFTWARE DEVELOPMENT LIFE CYCLE

2.1 OVERVEIW

A system development life cycle (SDLC) is a framework composed of a sequence of distinct steps or phases in the development of a system.. The documentation products of each step are well described. Documentation contents of the SDLC process are described in what are called Data Item Description or DID.

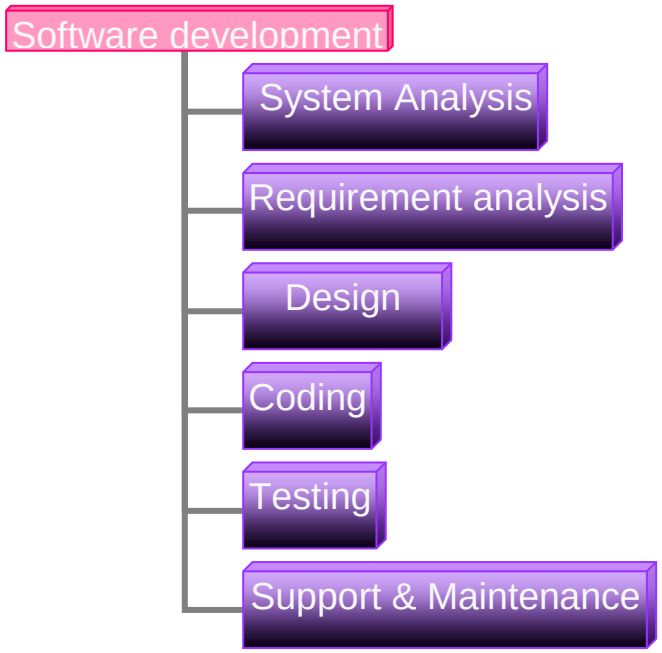


Figure 2.1 S/w development life cycle

2.2 PROTOTYPE MODEL

Software prototyping, an activity during certain software development, is the creation of prototypes, i.e., incomplete versions of the software program being developed. A prototype typically simulates only a few aspects of the features of the eventual program, and may be completely different from the eventual implementation.

The conventional purpose of a prototype is to allow users of the software to evaluate developers' proposals for the design of the eventual product by actually trying them out, rather than having to interpret and evaluate the design based on descriptions. Prototyping can also be used by end users to describe and prove requirements that developers have not considered, so "controlling the prototype" can be a key factor in the commercial relationship between solution providers and their clients.

Prototyping has several benefits: The software designer and implementer can obtain feedback from the users early in the project. The client and the contractor can compare if the software made matches the software specification, according to which the software program is built. It also allows the software engineer some insight into the accuracy of initial project estimates and whether the deadlines and milestones proposed can be successfully met. The degree of completeness and the techniques used in the prototyping have been in development and debate since its proposal in the early 1970s.

The process of prototyping involves the following steps:-

- **Identify basic requirements**

  Determine basic requirements including the input and output information desired. Details, such as security, can typically be ignored.

- **Develop Initial Prototype**

  The initial prototype is developed that includes only user interfaces.

- **Review**

  The customers, including end-users, examine the prototype and provide feedback on additions or changes.

- **Revise and Enhance the Prototype**

  Using the feedback both the specifications and the prototype can be improved. Negotiation about what is within the scope of the contract/product may be necessary. If changes are introduced then a repeat of steps #3 ands #4 may be needed.

Figure 2.2 The Prototype Model

The main goal when using Evolutionary Prototyping is to build a very robust prototype in a structured manner and constantly refine it. "The reason for this is that the Evolutionary prototype, when built, forms the heart of the new system, and the improvements and further requirements will be built.

When developing a system using Evolutionary Prototyping, the system is continually refined and rebuilt.

“Evolutionary prototyping acknowledges that we do not understand all the requirements and builds only those that are well understood”. This technique allows the development team to add features, or make changes that couldn't be conceived during the requirements and design phase.

For a system to be useful, it must evolve through use in its intended operational environment. A product is never "done;" it is always maturing as the usage environment changes…we often try to define a system using our most familiar frame of reference---where we are now. We make assumptions about the way business will be conducted and the technology base on which the business will be implemented. A plan is enacted to develop the capability, and, sooner or later, something resembling the envisioned system is delivered. In Evolutionary Prototyping, developers can focus themselves to develop

parts of the system that they understand instead of working on developing a whole system.

To minimize risk, the developer does not implement poorly understood features. The partial system is sent to customer sites. As users work with the system, they detect opportunities for new features and give requests for these features to developers. Developers then take these enhancement requests along with their own and use sound configuration-management practices to change the software-requirements specification, update the design, recode and retest.

CHAPTER 3

3. REQUIREMENT ANALYSIS

This website begins from the registration of student. Students are authenticated by providing user id and password to their respective email id. After furnishing the valid detail students can appears in entrance paper. After the specified time period they can view their rank wise result on which basis the counseling is to be done. Thereafter students appear in counseling which commence after specified time. On the basis of the merit they will be allotted seats.

3.1 FUNCATIONAL REQUIREMENT

The website follows the following modules:

- Registration module
- Project allotment module
- Upward motion module

3.1.1 Registration Module

This module requires details of student name, date of birth, category, address, email id, etc.... It requires their group name, team leader or all details of group members. After filling all the entries the registration process will be completed.

3.1.2 Project Allotment Module

Registered student can see their allotted projects, Requirements of their project, Alloted guide etc.

3.2 NONFUNCTIONAL REQUIREMENT

- We are developing the tool keeping in mind that the tool is accessible only by the member of the organization by providing their respective user login i.e. their identification number and the password.
- At any time the student can change the password but the college level password is maintained by administration.

- If the college wants to change the password then he must have a permission granted from the administrator.
- There must a good communication link between the organization and its members i.e. the student must have a good web based communication with the facilities provided by the project management website on web for the product to be popular amongst the student.
- The organization must have a server to support all the users of its organization for any congestion or system crash.

3.3 SYSTEM AND SOFTWARE REQUIREMENTS

3.3.1 DEVELOPER SIDE

1. **Hardware Requirements:-** Minimum requirements of this software are as following:

- This system will run on IBM PC compatible computer with hard disk of at least 5 GB capacity.
- A CD-ROM.
- Use of Pentium 4 or Celeron 2.4 GHZ will give much better result.
- Windows operating system.(version 2000 or above)

2. **Software requirements:-**To make software successfully one needs to install following software in his computer.

- Server- Apache 2.4.3
- Presentation and mapping- HTML and CSS
- Database- MySQL 5.5
- DreamWeaver5 as IDE
- Testing- Firebug 11.0
- Microsoft word: - Any of the new versions of Microsoft Word can be used for developing the documentation of the project. DFD's, outputs are generated using this software.

3.3.2 CLIENT SIDE

1. Hardware Requirements:-Minimum requirements of this software are as following:

- This system will run on IBM PC compatible computer with hard disk of at least 5 GB capacity.
- A CD-ROM.
- Use of Pentium 4 or Celeron 2.4 GHZ will give much better result.
- Windows operating system.(version 2000 or above)

2. Software requirements:-To make software successfully one needs to install following software in his computer.

- Client software

CHAPTER 4

4. USE CASE MODEL

Use case modal as we know specifies how software is to be used in different scenarios. The actors in our system as the system operates come out to be three:

4.1 STUDENT: the main tasks performed by the student are:

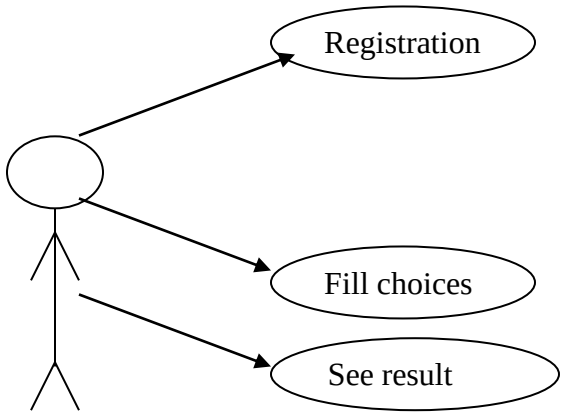


Figure 4.1 Use Case Diagrams for Student

- A student if he is a new user registers into the system.
- He enters details like his name, age, date of birth, college, B.E. Percentage up to 6 semesters, his knowledge of the latest technologies and other prior experience details if any…etc.
- He also enters the name of all his team members and their details
- For the professor, this student would act as the primary interface between the student group and the professor
- After entering successfully all details he is given a student group code which he shares with his team members.
- Whenever, a student successfully logs in (after registration) is asked for his project code and if successfully entered is taken to a screen (via link) where he can give an online test His/her details are then stored in the database
- In such a fashion he all team members give a test and their respective scores are listed

4.2 ADMINISTRATOR: the main tasks performed by the administrator are:

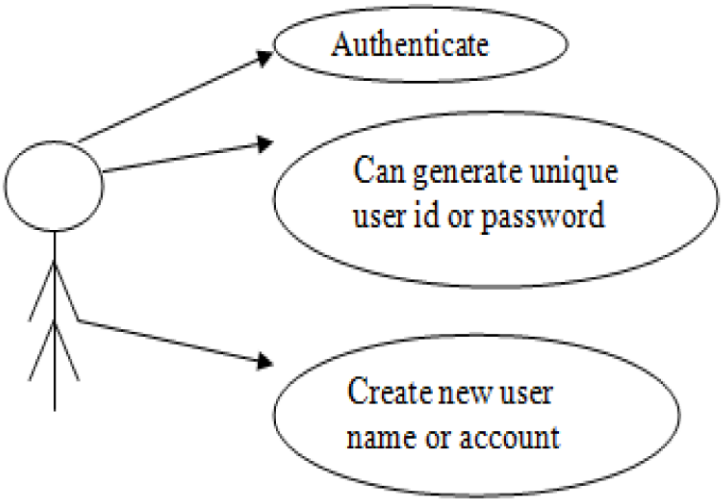


Figure 4.2 Use Case Diagram for Administrator

- The administrator sees the first web page displaying the login form to be filled by him. If the form does not appear then try again.
- The administrator enters a special number in the user-id field of the input form and password for getting access to his user account.
- The administrator can generate unique user-id and password for every student.
- Can login to the system through the first page of the application
- Can create new user account for a professor and assign/change(if existing user) username and a password

The administrator logs out of the website.

- The administrator logs out of the website.

4.3 A PROFESSOR'S ROLE:-the main tasks performed by the preformed by are

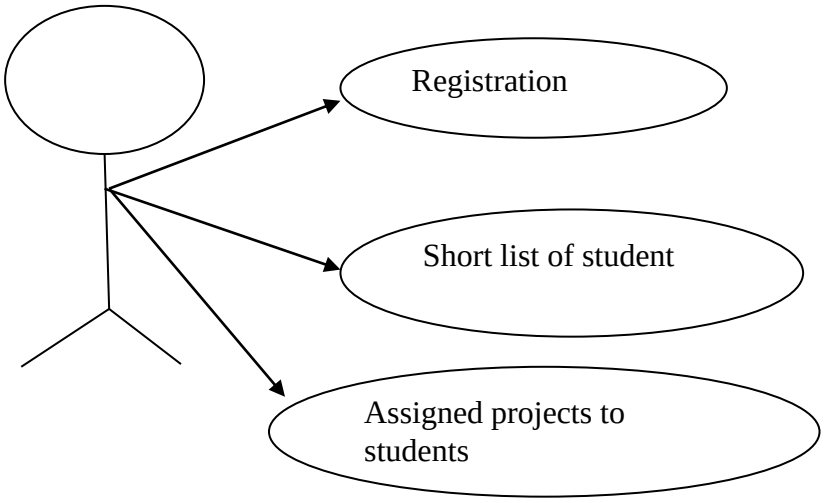


Figure 4.3 Use Case Diagrams for Professor

- A registered professor, who is assigned a user name and a password by the administrator logs in, should enter at least one project and its description which he is willing to allocate to the students.
- He/she is given an option to sort and shortlist students by various criteria such as percentage scored in the online test, academic performance, technologies familiar with, past experience etc. A professor can view all students' information.
- He can see student status, such as whether the student is available or has been assigned a project by any other professor, and if assigned then by which professor
- A professor after short-listing students, clicks a button so that he locks the student group. i.e. no other professor can assign them any projects now, as they have already been assigned one by this professor, thus assigning the a status
- A mail is automatically, sent to the student group i.e. all its team members that they are assigned a project, by this professor

CHAPTER 5

5. DEVELOPMENT TOOLS

Front-end:- PHP

Back-end:- MySQL 5.5

5.1 PHP OVERVIEW

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1995, the reference implementation of PHP is now produced by The PHP Group. While PHP originally stood for **Personal Home Page**, it now stands for PHP: **Hypertext Preprocessor,** a recursive acronym.

PHP code is interpreted by a web server with a PHP processor module which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications.

Php scripts are executed on the server. It costs nothing, it is free to download and use. PHP codes are executed on the server, and the result is returned to the browser as plain HTML. It can generate dynamic page content. It can create, open, read, write, and close files on the server. It can collect form data. It can send and receive cookies. It can add, delete, and modify data in your database. It can restrict users to access some pages on your website. It can encrypt data. With PHP you are not limited to output HTML. You can output images, PDF files, and even flash movies. You can also output any text, such as XHTML and XML.

PHP is free software released under the PHP License, which is incompatible with the GNU General Public License (GPL) due to restrictions on the usage of the term **PHP**. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

5.2 FEATURES OF PHP

- **PHP CAN RUN ON VARIOUS PLATFORMS:**
  PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- **PHP IS COMPATIBLE:**
  PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- **DATABASE COMPATIBLE:**
  PHP supports a wide range of databases like SQL, MYSQL and AJAX etc.
- **PHP IS SIMPLE:**
  PHP is easy to learn and runs efficiently on the server side.
- **ALLOW GUESTS TO BROWSE THE FORUM:**
  If checked, guests will have the privilege of browsing your forum. Otherwise, only registered users will be allowed to browse your Forum and when a guests tries to access the Forum they will see a login screen and a note that the Forum is only for registered members.
- **ENABLE USER-SELECTABLE LANGUAGE SUPPORT:**
  Turning this option on will allow users to select which language file they use. It will not affect the default selection.

5.3 ADVANTAGES OF PHP

There are various advantages of PHP language used to develop web application for creating dynamic web pages:

- **Open Source**

  PHP is freely available for use. The community of open source PHP developers provides technical support and is constantly improving updating the core PHP functionalities. PHP is available at free of cost under PHP General Public License and most of its associative required software's like MySQL, Text Editors and Apache Server are also freely available, so it proves very cost effective for the developers.

- **Cost Saving**

  PHP is an open source language so it makes the development cost comparatively low.

- **Time saving**

  PHP Frameworks let software developers create a web application rapidly. When using framework PHP web developers don't have to think about the structure of applications, switched modules and classes.

- **Versatile**

  PHP is a very versatile language. It can run on all major operating systems including Windows, Linux and Mac OS. It runs on almost all web servers including Apache and IIS.

- **Compatible**

  Developing web applications in a team using frameworks is much simpler and more compatible. PHP application developers don't have to care about the programming style or code format as it compatible with different platforms and very easy to install and configure.

- **Constant architecture**

  When using a framework, all the software development projects will have the same structure of folders and files, which eliminates the need to look the required components everywhere.

- **Convenient to Maintain**

  Many frameworks have their own built-in computer program which allows finding bugs more rapidly and getting well elaborated information about the bugs during PHP web application development.

- **Security**

  PHP offers security as well that helps prevent malicious attacks. These security levels can be adjusted in the .ini file.

- **Automatically Refreshes**

  Nowadays developing dynamic websites are in the huge demand due to its specific characteristics like it automatically refreshes and does not need to make many changes manually.

- **Quick**

  PHP is designed to work well with the web, and so things like accessing the GET and POST and working with HTML and URLs are built-ins in the PHP language. This makes it really concise and straightforward to make a website.

- **User Friendly**

  Designed in a user friendly manner, PHP gives more flexibility than C, C++ and ASP and overall helps in increasing traffic to the site.

5.4 MY SQL

MySQL is a database. A database is a data storage feature. It can be used to store, sort, arrange, and display information. MySQL is a functional feature on its own. MySQL is most commonly used for Web applications and for embedded applications and has become a popular alternative to proprietary database systems because of its speed and reliability. MySQL can run on UNIX, Windows and Mac OS.

Data Types:

- Many data types:

  signed/unsigned integers 1, 2, 3, 4, and 8 bytes long, FLOAT, DOUBLE, CHAR, VARCHAR, TEXT, DATE, TIME, DATETIME, TIMESTAMP, YEAR, SET, ENUM

- Fixed-length and variable-length records.

MySQL is a relational database management system.

A relational database stores data in separate tables rather than putting all the data in one big storeroom. This adds speed and flexibility. The SQL part of “MySQL” stands for

“Structured Query Language.” SQL is the most common standardized language used to access databases and is defined by the ANSI/ISO SQL Standard.

MySQL software is Open Source.

Open Source means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying anything. If you wish, you may study the source code and change it to suit your needs.

CHAPTER 6

6. STRUCTURED ANALYSIS

6.1 ENTITY RELATIONSHIP DIAGRAM

In software engineering, an Entity-Relationship Model (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion.

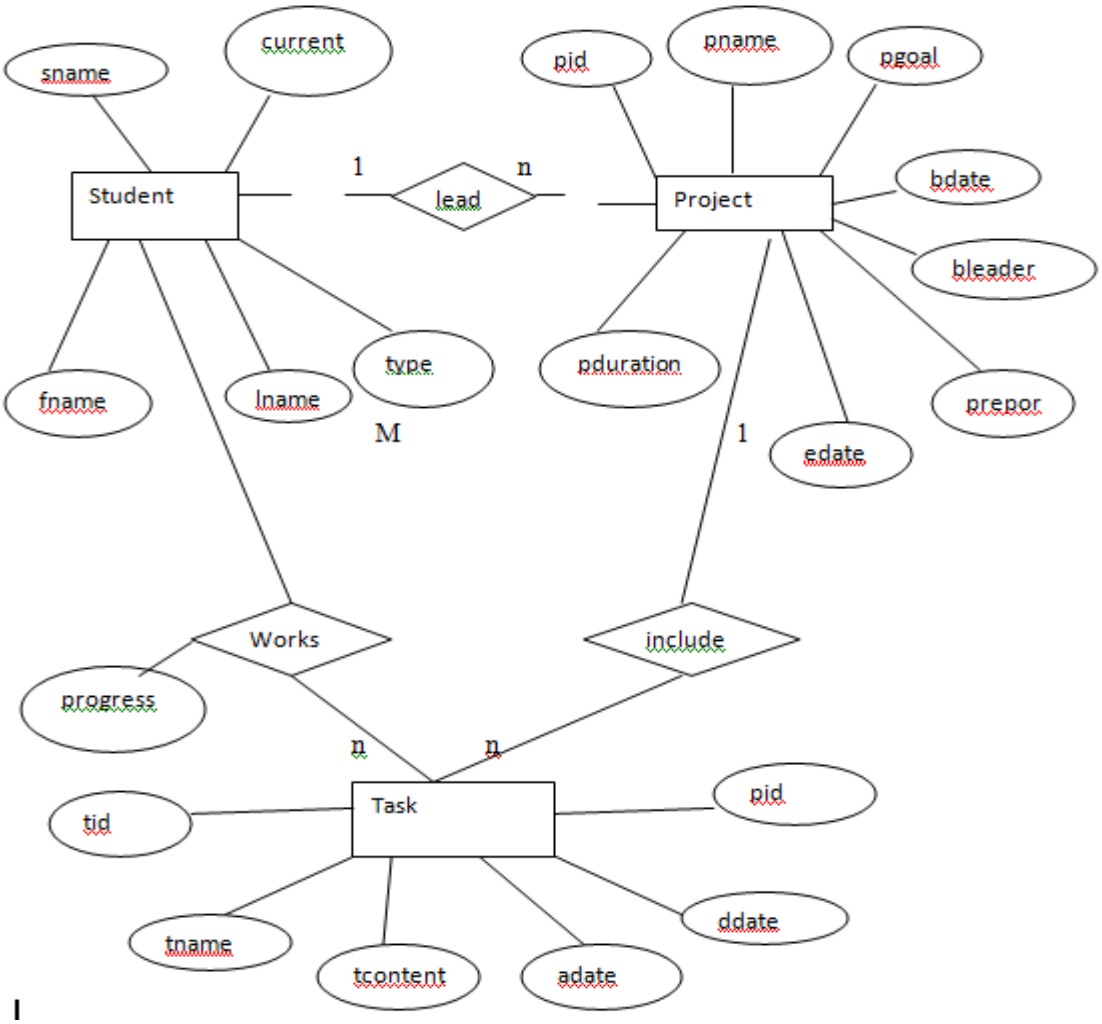


Figure 6.1 E-R Diagram

6.2 DATA FLOW DIAGRAM

A data-flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. DFDs 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.

A DFD provides no information about the timing or ordering of processes, or about whether processes will operate in sequence or in parallel. It is therefore quite different from a flowchart, which shows the flow of control through an algorithm, allowing a reader to determine what operations will be performed, in what order, and under what circumstances, but not what kinds of data will be input to and output from the system, nor where the data will come from and go to, nor where the data will be stored (all of which are shown on a DFD).

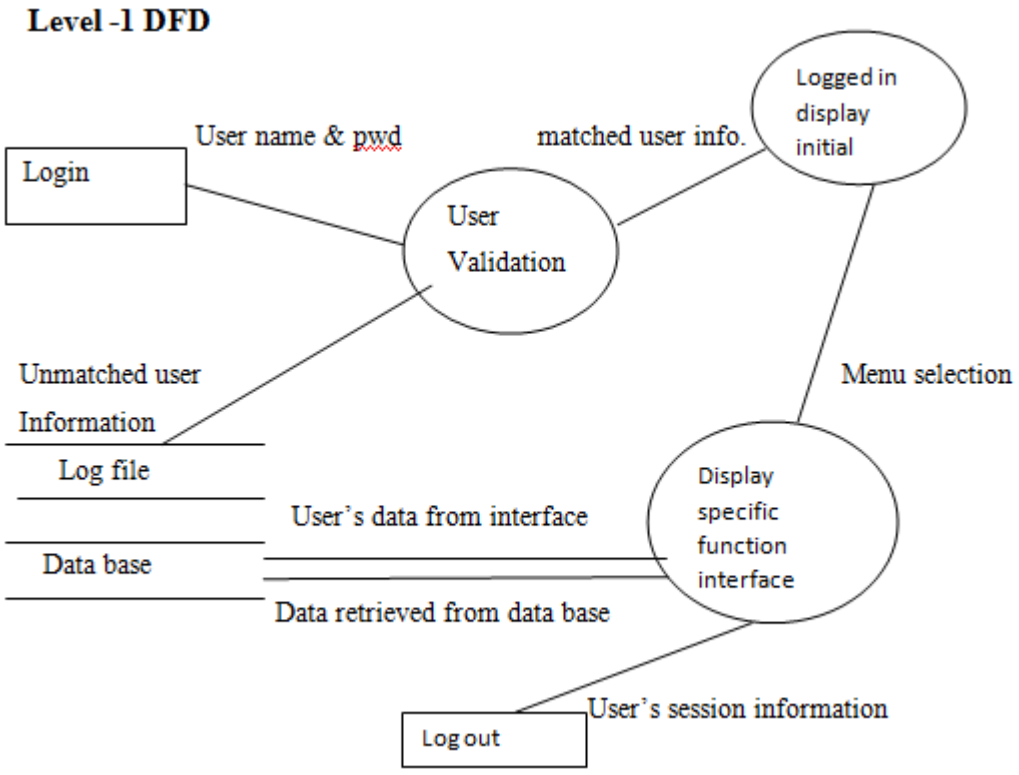


Figure 6.2 Level 1 DFD

Level -2 DFD for faculty

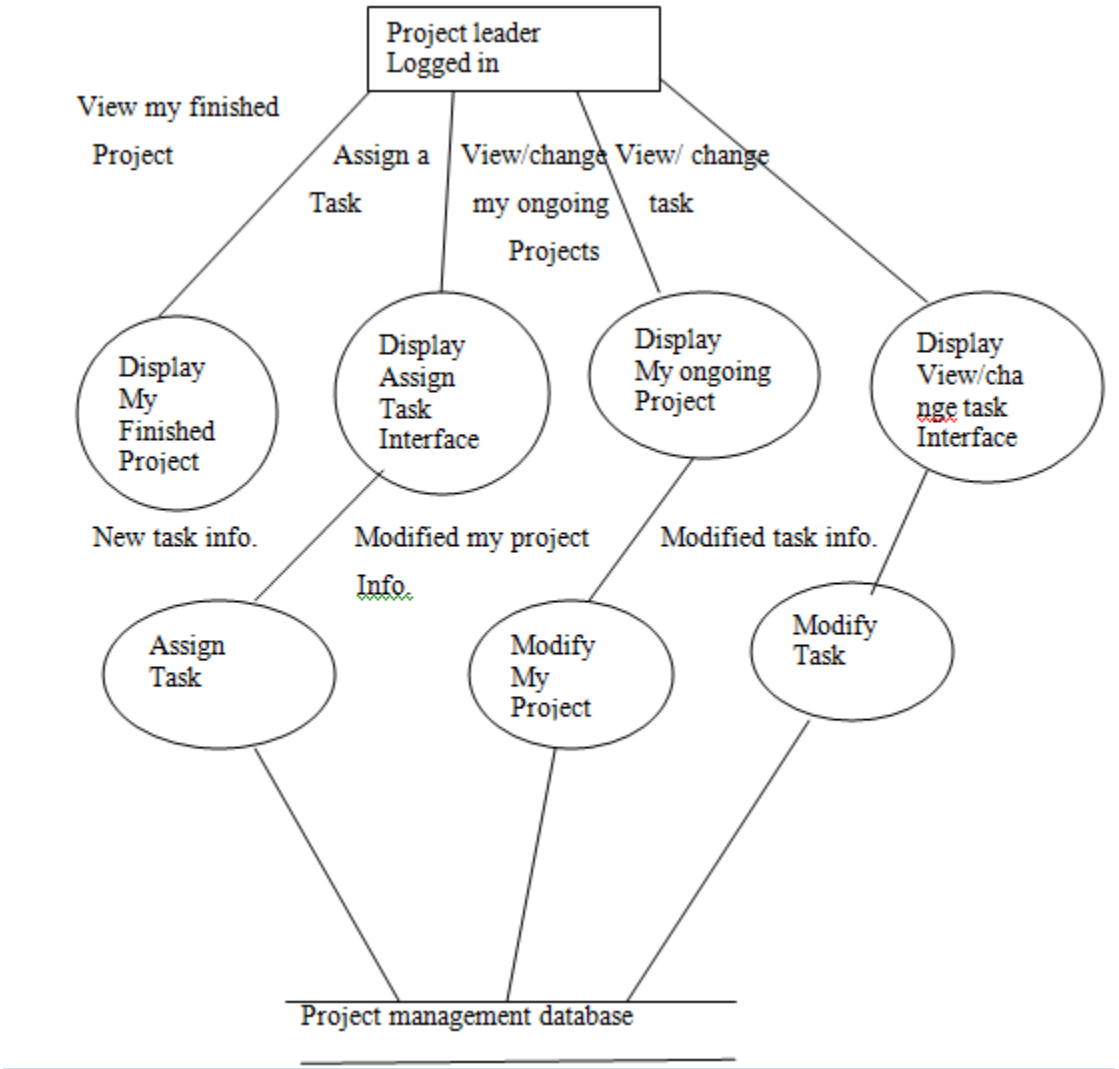


Figure 6.3 Level 2 DFD for Faculty

Level -2 DFD for leader

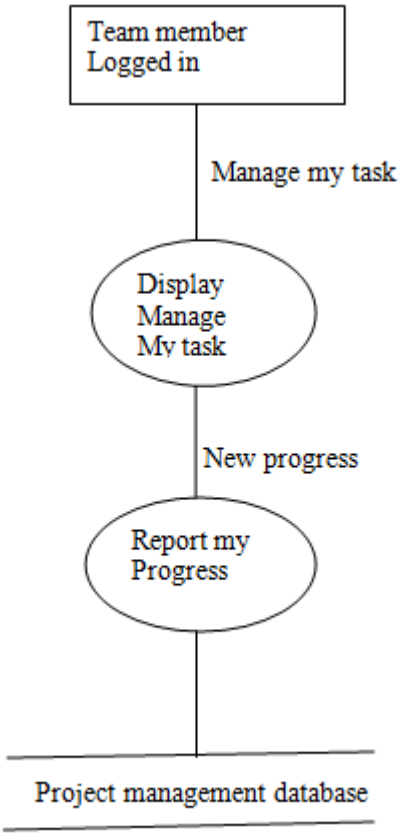


Figure 6.4 Level-2 DFD for Team member

6.3 INTERFACES

- **System Interfaces**

  - IDE : Dreamweaver
  - Debugging tool for JavaScript and CSS :
  - Firebug , IE Developer
  - Packaging tool : Xampp
  - Technologies used:
    - PHP
    - HTML
    - CSS
    - SQL

- **User Interfaces**

  - From each and every web page, the user can easily go to any desired web page as there would be an absolute and relative linking.
  - The design or layout of every form will be very clear and very interactive to the user.
  - When the user opens the web application, the Home page will appear.
  - There will be a proper collection of GUI interface, which will provide better look and feel.
  - In the screen layout, the background color is very light and the graphics and font style will be in proper manner and well organized.
  - This web application will be easily understandable and operable by the user.

- **Software Interfaces**

  - Apache 2.2 Web Server
  - Dreamweaver
  - SQL
  - XAMPP

- **Hardware Interface**

  - Processor : 1.6Gz or above
  - RAM : 1GB
  - Hard disk space : 5GB

- **Communication Interface**

  - Browser (Mozilla 4.1 compatible with JavaScript support)
  - Client (customer) on Internet will be using HTTP/HTTPS protocol.
  - Client (system user) on Internet will be using HTTP/HTTPS protocol.

CHAPTER 7

7. TESTING

For testing of the system "online counseling website" and for its proper working and reliability, two phases have to be incorporated:

- Alpha testing
- Beta testing

7.1 ALPHA TESTING

Some of the things that could be tested in the development phase of the product can be given as:

1. Check for the queries being written to retrieve information from the database, whether they produce appropriate results/output or not.

2. Check that the data integrity and atomicity is maintained by performing some of the transaction and see if they successfully complete.

3. Check for the load on the server and if the server is able to withstand the given amount of load which is there on it.

4. Check for the PHP if they produce forms and web pages in the desired manner.

5. Check for if the parameters are being passed from one web page to another where it is required. As in the case where the user enters the information on a web form, which are then passed to the application server to retrieve from here.

7.2 BETA TESTING

1. Check for the validity of the system and the result returned by the queries hitting at the database. The way is enter the user id and the password and see the web page being produce at the o/p. check this and with the information available on paper.

2. Same can be done for different actor of the system as college or administrator. Check this and verify this with the information available on paper.

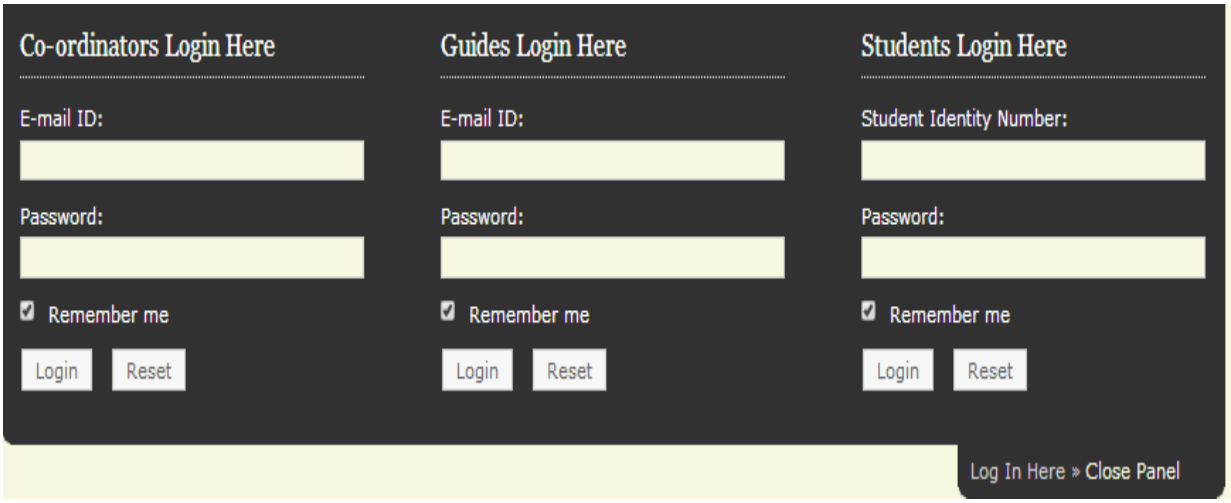
3. Check that any updation to the database is being properly incorporated at suitable place.

CHAPTER 8

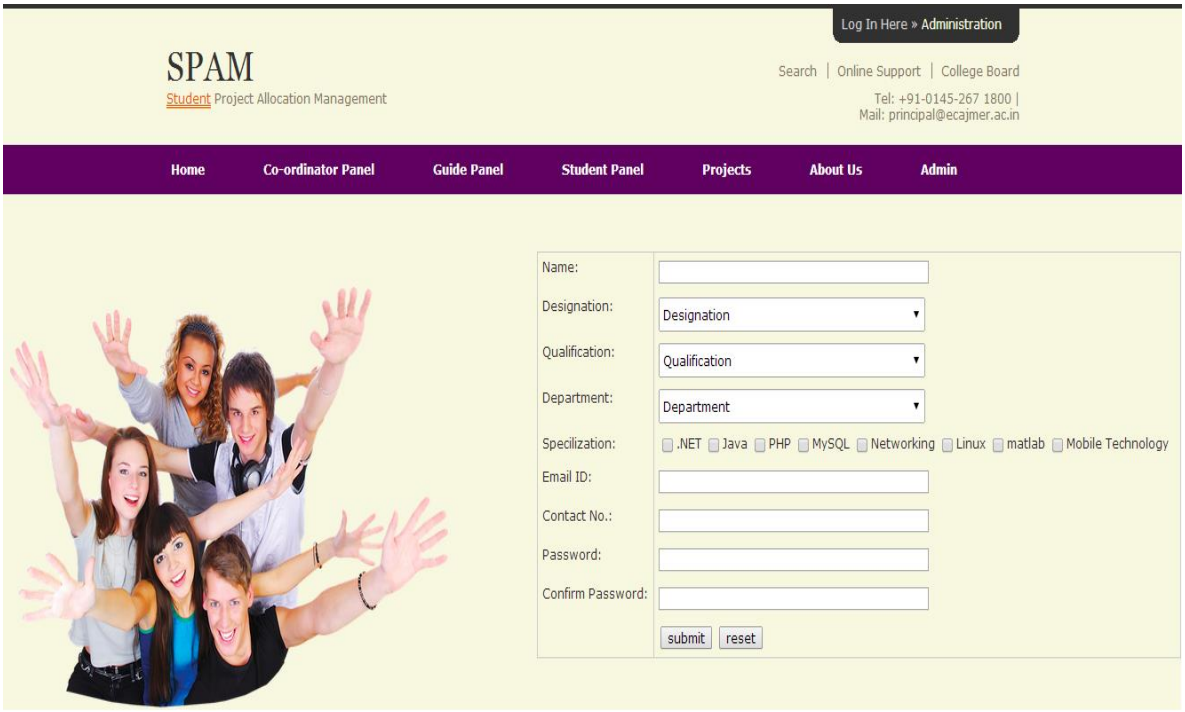
8. PROJECT SNAPSHOT

8.1 HOME PAGE

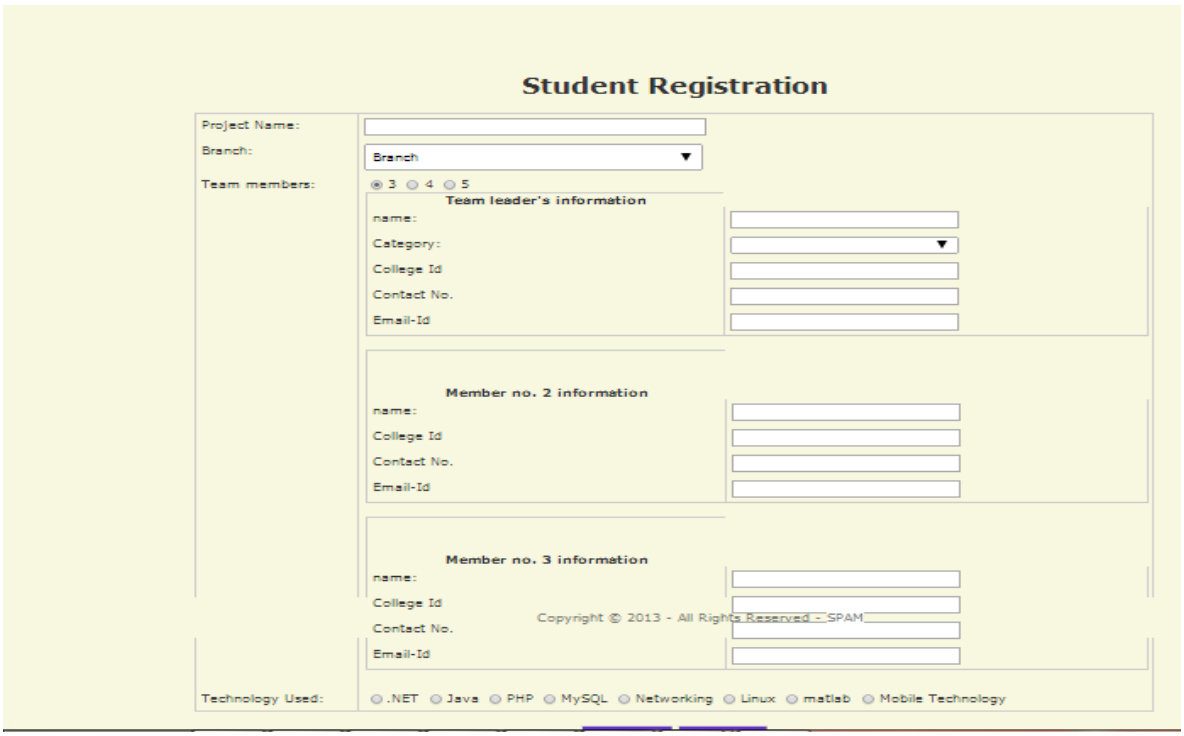
8.2 LOGIN PANEL



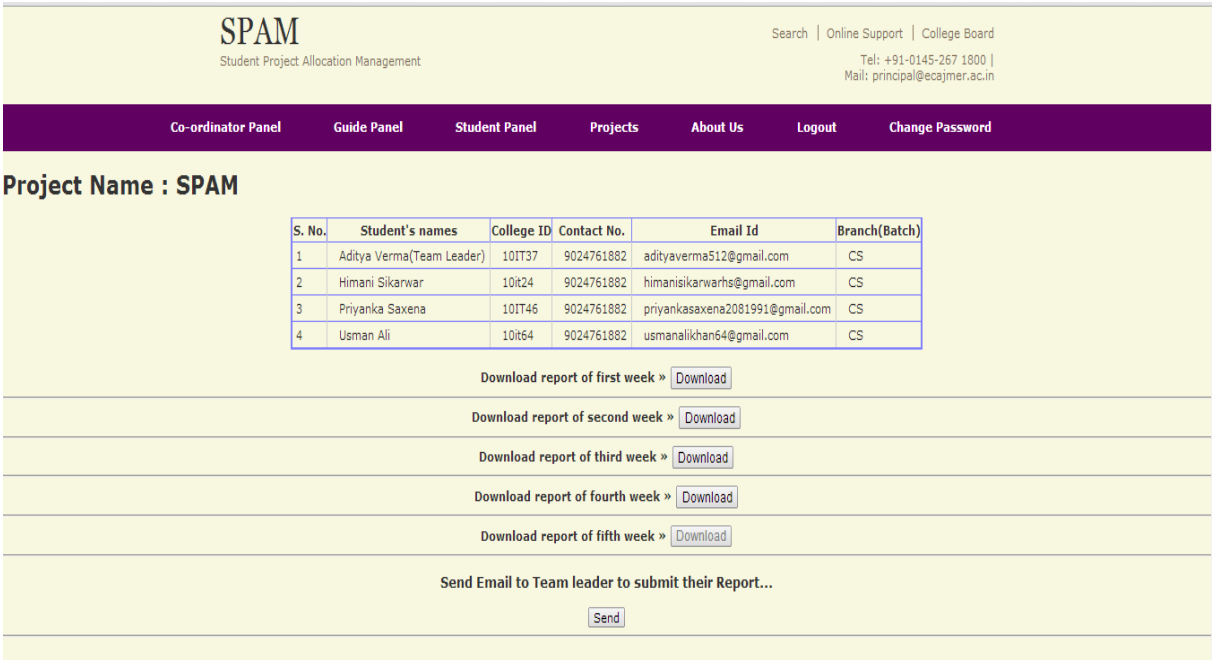
8.3 REGISTRATION PAGE



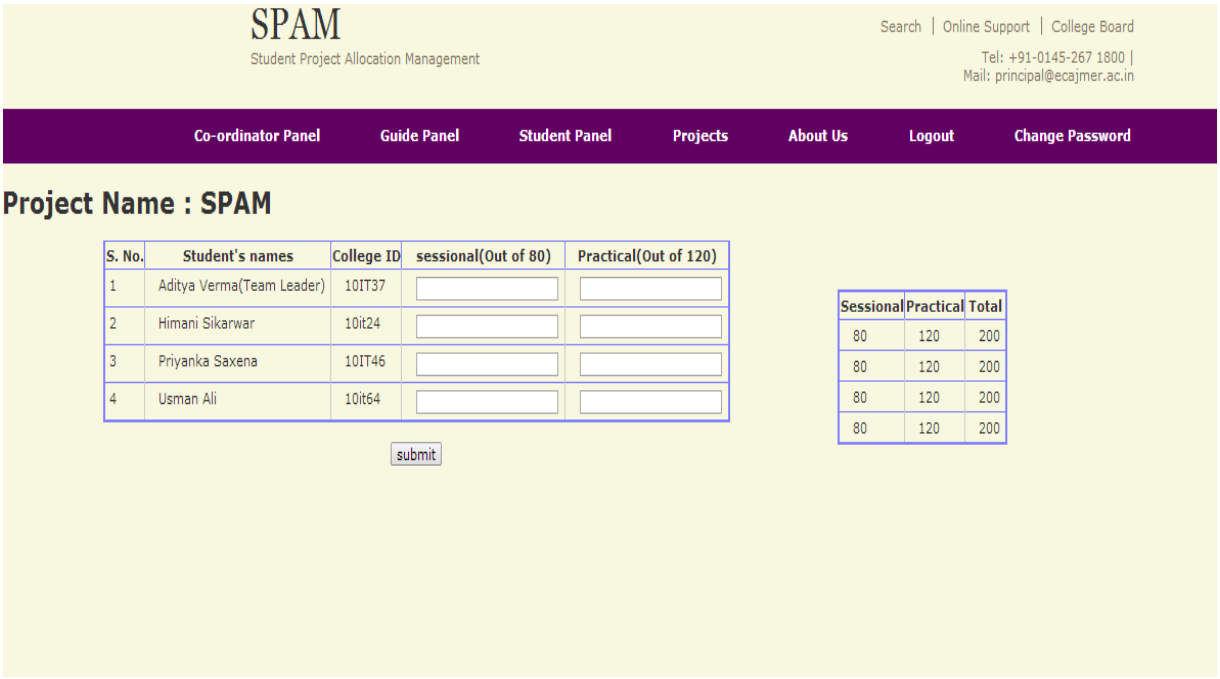
8.4 STUDENT REGISTRATION PAGE



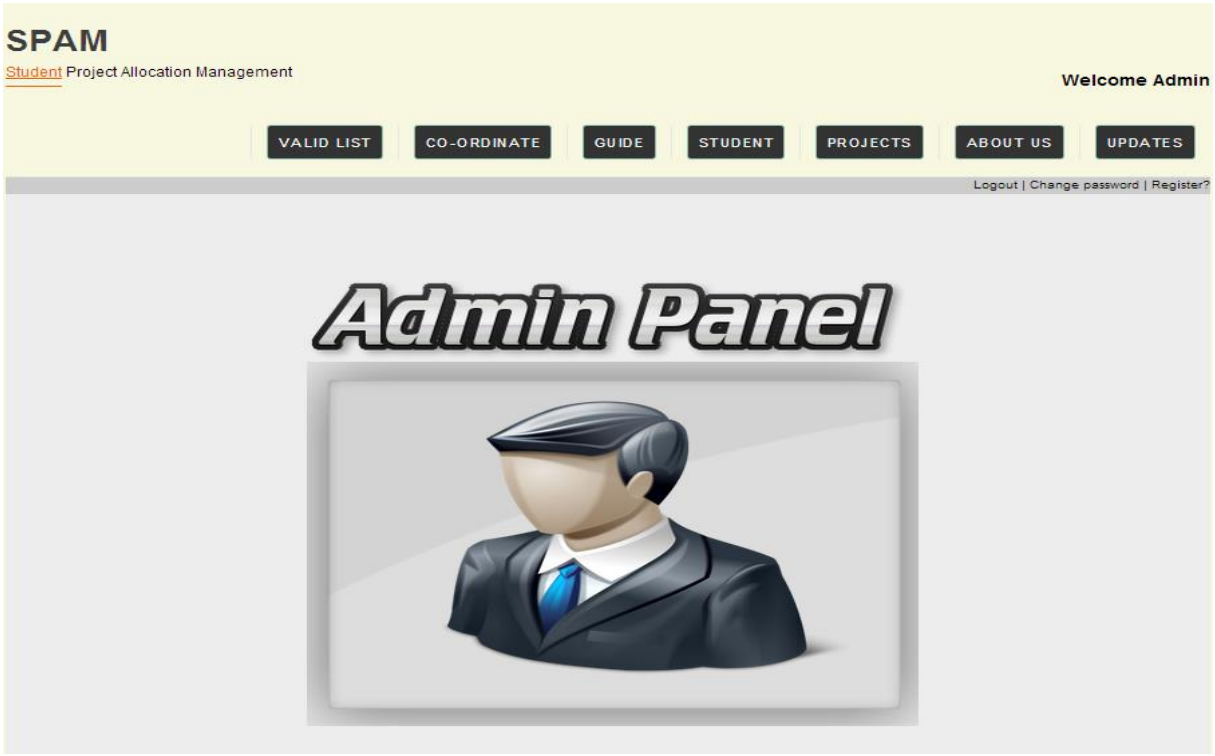
8.5 REPORT DOWNLOAD PAGE



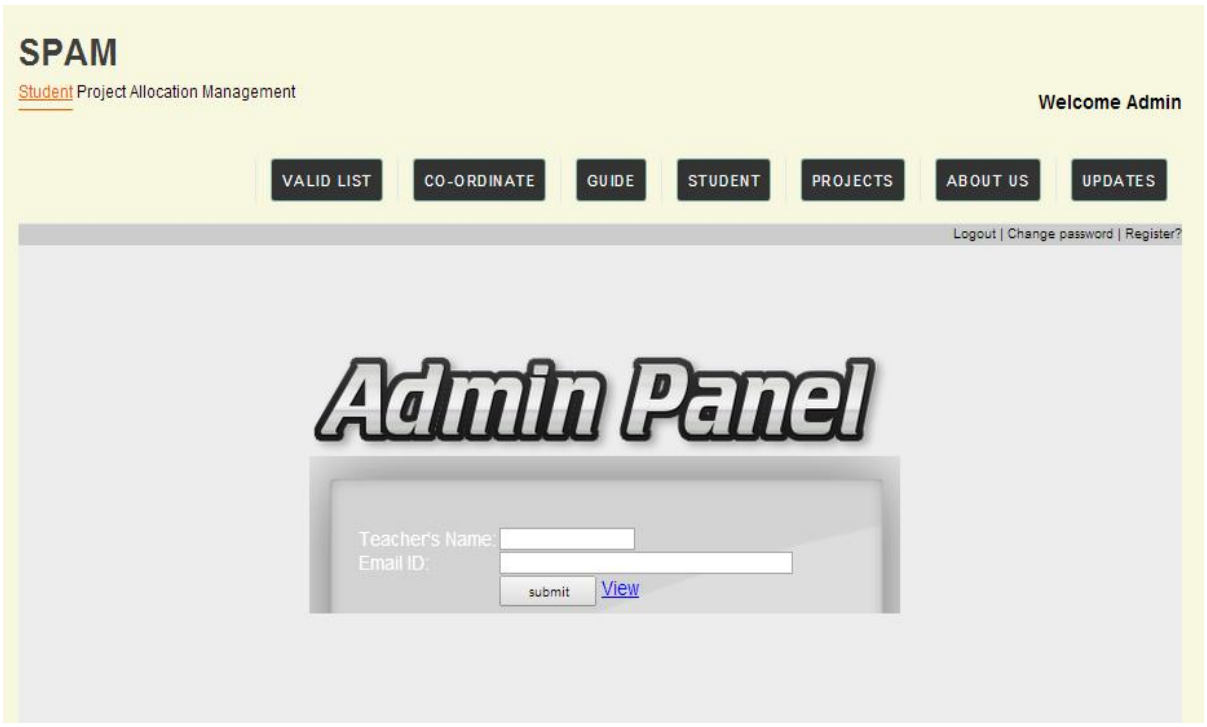
8.6 GUIDE MARKS SUBMISSION



8.7 ADMIN PANEL



8.8 GUIDE REGISTRATION THROUGH ADMIN



CHAPTER 9

9. CONCLUSION AND FUTURE SCOPE

9.1 CONCLUSION

This Online project management website is very useful for both students and university. It reduces many overheads of student and colleges. This website reduces time wastage and traveling cost. Student can perform all the task regarding to Allocating procedure at their desired place with easiness.

CHAPTER 10

10. REFERENCES

- **BOOKS**

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    By: Dave W. Mercer, Allan Kent

- **WEBSITES**

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  - ww.tzag.com
  - www.w3schools.com
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