Project Report

for

VIT Team Registration Portal

Version 1.0 Approved

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Software Requirements Specification

1 Introduction

The following subsections of the Software Requirements Specifications (SRS) document provide an overview of the entire SRS.

1.1 Purpose

The Software Requirements Specification (SRS) will provide a detailed description of the requirements for the VIT Team Registration Portal (VTRP). This SRS will allow for a complete understanding of what is to be expected of the portal to be constructed. The clear understanding of the project and its functionality will allow for the correct software and hardware to be developed for the end user and will be used for the development of the future stages of the project. This SRS will provide the foundation for the project. From this SRS, the registration portal can be designed, constructed, and finally tested.

This SRS will be used by the engineers constructing the portal and the end users. The software engineers will use the SRS to fully understand the expectations of this particular project to construct the appropriate software and hardware. The end users will be able to use this SRS as a "test" to see if the engineers will be constructing the system to their expectations.

1.2 Scope

VTRP is a project that mainly aims at providing an interface to make the team registrations during Gravitas and Riviera easier and less cumbersome. This system is highly reliable, cost effective and extensive within the area of deployment. This platform will be available for every user interface. This will reduce the work load of the organisers and coordinators by providing them the final list of the teams with all their details instead of giving them the list of each and every participant.

1.3 Document Conventions

The following documentation conventions are followed in preparing the SRS:

- All the text in the SRS uses the Times New Roman font.
- All the headings are formatted in bold.

1.4 Intended Audience and Reading Suggestions

The document is created for:

- The intructors of the course 'Software Engineering' for their review and monitoring progress of the project.
- The software development team for their use in analyzing the requirements.

1.5 References

- Object Oriented Modeling and Design with UML-Michael Blaha, James Rambaugh
- Software Engineering, Seventh Edition, Ian Sommerville
- Database Management Systems – Navathe
- Complete Reference - J2EE – Keogh
- R. S. Pressman, Software Engineering, a practitioner's approach, 7th edition, McGraw Hill, 2010
- Watts Humphrey, Managing the Software Process, 1989
- Fundamental of Database Systems by Ramez Elmarsi and Shamkant B.Navathe

The SRS is organized into two main sections. The first is The Overall Description and the second is the Specific Requirements. The Overall Description will describe the requirements of the VTRP from a general high level perspective. The Specific Requirements section will describe in detail the requirements of the system.

2 The Overall Description

Describes the general factors that affect the product and its requirements. This section does not state specific requirements. Instead it provides a background for those requirements, which are defined in section 3, and makes them easier to understand.

2.1 Product Perspective

The VTRP is an independent stand–alone system. It is totally self-contained.

2.1.1 Hardware Interfaces

The portal can be used wherever there is a working modem having access to the internet and connected to the respective databases.

2.1.2 Software Interfaces

The database contains all the information about any details the participants have to give and the event details. There are three types of log-ins: Student Login, Club/Chapter Login and Admin Login. All these information is present in the database and can be accessed only by the admin. In order to access the database, the user has to enter their registration number and their registered mobile number as their password. All these details are received from the Riviera or Gravitas teams. The clubs can view all the teams registered for their event.

2.2 Product Functions

User Access

- Allows for typing in user information
- This software can be accessed after registering for an event
- When a user logs in to the database, the information recorded till that date will be shown in the database.
- The user can view all the teams created till date and join it if there is a vacancy.
- The request has to be approved by the group captain.
- The user can become a group captain by creating a new group.

Club/Chapter Access

- Allows the respective club and chapters to view the final list of teams taking part in their event.

Admin Access

- Can make needed changes to the database.

2.3 Operating Environment

OE-1: The VTRP shall operate on a machine on which Java is installed.
OE-2: The VTRP shall operate on a system with:
Windows 7 & above/ Unix / IOS 7 & above.

2.4 Design and Implementation Constraints

- The VIT Team Registration Portal should be small in size but productive. It should be fast and should decrease the work of the coordinators.
- The VTRP will be available only in the English language.
- All HTML code shall conform to HTML 4.0 standard.
- All scripts shall be written in PHP.

2.5 User Documentation

The VIT Team Registration Portal shall provide an online tutorial, the first time a new user accesses the system and on user demand thereafter.

2.6 Assumptions and Dependencies

- The registerations for Gravitas and Riviera are stored in an online database which we are given access to.
- The operation of VTRP deoends on changes being made in the event lists or registrations by the clubs and chapters.

This section contains all the software and hardware requirements at a level of detail, that when combined with the system context diagram, use cases, and use case descriptions, is

sufficient to enable designers to design a system to satisfy those requirements, and testers to test that the system satisfies those requirements.

3 External Interface Requirements

The VIT Team Registration Portal will use only simple input/output devices. This includes the following:

- Mouse
- Keyboard
- Internet connection

3.1.1 User Interfaces

The User Interface Screens are described in table 1.

Table 1: User Registration Screens

Screen Name	Description
Username	Registration number
Password	Registered mobile number

Table 2: App Interface Screen

Screen Name	Description
Admin Login	Administrative access to databases
Club/Chapter Login	Access to list of teams
Student Login	Can register under a particular team or create a new one.

3.1.2 Software Interfaces

- The system shall interface with an SQL Server database
- Windows 7 & above/ Unix / IOS 7 & above (Java Virtual Machine installed)

3.1.3 Hardware Interfaces

Following are the hardware requirements:

- 512 MB RAM
- Pentium 4 and above
- 200 MB of hard disk spaceCommunication Interfaces

The system should have a working internet connection.

4 Functional Requirements

Functional requirements define the fundamental actions that system must perform. The functional requirements describe the core functionality of the application. This section includes the data and functional process requirements.

The security Section describes the need to control access to the data. This includes controlling who may view data.

- VIT Team Registration Portal shall be able to work properly and accurately at all times and multiple circumstances and environments.
- The app should send information regarding any new group registrations so that they can be saved in the database.
- The information should include registration number, registered mobile number and the team name.
- The system shall be reliable, smart, secure, fast and easy to use.
- The password encryption algorithm shall be advanced enough to tackle the everyday problems and shouldn't be easy to break.

The app which shall be running on a system should work properly without any failure or not responding statuses.

5 Nonfunctional Requirements

Functional requirements define the needs in terms of performance, logical database requirements, design constraints, standards compliance, reliability, availability, security, maintainability, and portability.

5.1 Performance Requirements

Performance requirements define acceptable response times for system functionality.

- The load time for user interface screens should be fast.
- The log in information shall be verified within five seconds.
- Queries shall return results within five seconds.

5.2 Logical Database Requirements

The logical database requirements include the retention of the following data elements. This list is not a complete list and is designed as a starting point for development.

User Registration System

- User first name
- User last name
- User phone number

App Interface

- Admin Login
- Club/Chapter Login
    - View the events
    - Download the team details
- Student Login
    - Login

- Team Registration
- Team Creation

Database Interface

- College database: Name, Registration No, Mobile No, Event Name, Club Name
- App database:
  - Table 1: Event name, Club/Chapter name, Min. members in a team, Max. members in a team
  - Table 2: Reg No, Name, Team Name, Captain (y/n), Event Name.

5.3 Safety Requirements

The personal data including the name, mobile number and registration number might be compromised due to unauthorized access to th database.

5.4 Software Quality Attributes

5.4.1 Reliability

Specify the factors required to establish the required reliability of the software and hardware system at time of delivery.

5.4.2 Availability

The system shall be available during all the times.

5.4.3 Security

Access to the various subsystems will be protected by a user log in screen that requires a user name and password.

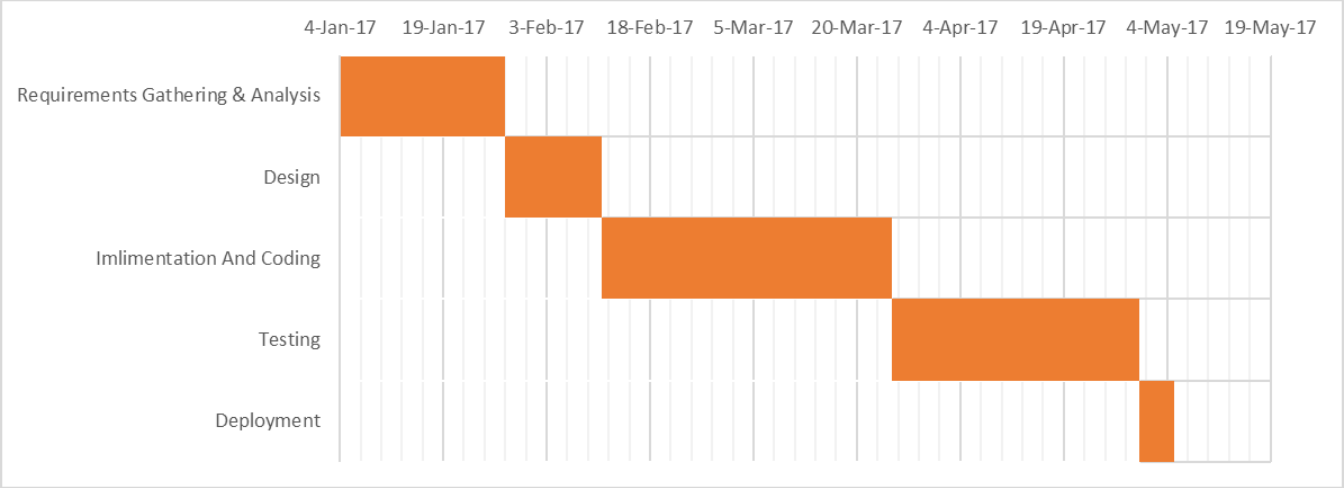
5.4.4 Maintainability

VIT Team Registration Portal is a software. Existing computer hardware is used. The app is developed and a database is maintained.

5.4.5 Portability

VIT Team Registration Portal will be smart, precise and accurate. It will be easy to install and small in size. The device will be compatible with most of the PCs in today's market.

6. Gantt Chart



7. Conclusion

The VIT Team Registration Portal will provide an interface to make the team registrations during Gravitas and Riviera easier and less cumbersome. This system will be highly reliable, cost effective and extensive within the area of deployment. This platform will be available for every user interface. This will greatly reduce the work load of the organisers and coordinators. This SRS will help the software engineers to fulfill the basic requirements of the project.

Appendix A: Glossary

SRS – Software Requirements Specification
VTRP – VIT Team Registration Portal
Subjective satisfaction – The overall satisfaction of the system
End users – The people who will be actually using the product

Software Design Specification

1. Introduction

1.1 Purpose

This document will outline in detail the software architecture and design for the VIT Team Registration Portal (VTRP). This document will provide several views of the system's design in order to facilitate communication and understanding of the system. It intends to capture and convey the significant architectural and design decisions that have been made for the VTRP.

1.2 Intended Audience

The document is created for:

- The instructors of the course 'Software Engineering' for their review and monitoring progress of the project.
- The software development team for their use in analyzing the requirements.

1.3 References

- VDK-RIT Software Requirements Specification (SRS) Revision 1.2
- VDK-RIT Use Case Document (UCD) Revision 1.1
- VDK-RIT Vision and Scope Document Revision 1.0

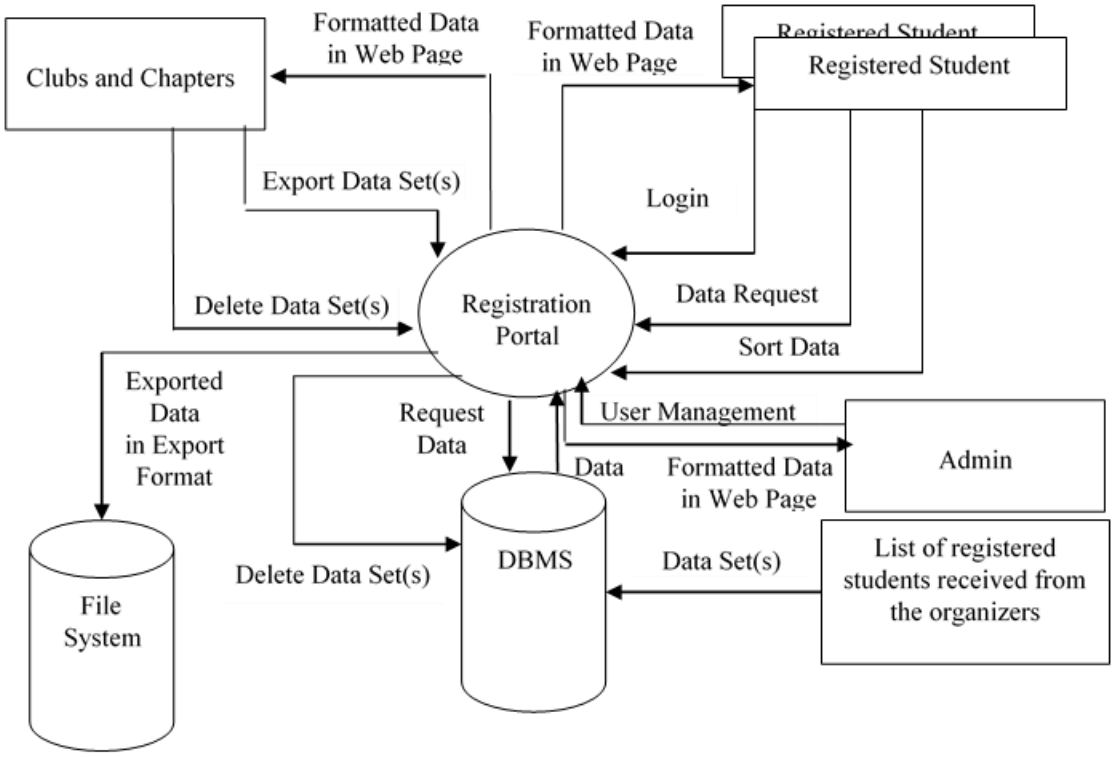
1.4 Definitions, Acronyms, and Abbreviations

- DBMS – Database Management System. A programmable interface which provides a common layer of abstraction between a physical database and a user or external program.
- HTML – Hypertext Markup Language. Set of markup symbols or codes intended for display on a World Wide Web browser page. The markup instructs a web browser on how to display words and images for a web page.
- VTRP – VIT Team Registration Portal
- PHP – Hypertext Preprocessor. An extensible scripting language, suited for web-based development, typically embedded in HTML.

2. System Overview

The project is a registration portal accessible by a network of students and event organizers to be built for VIT, a renowned college in India. The VTRP will provide an interface to make the team registration during Gravitas and Riviera much easier and less cumbersome. This system will be highly reliable, cost effective and extensive within the area of deployment. This platform will be available for every user interface. This will greatly reduce the work load of the organizers and coordinators.
The scope of the project is to make a client-server architecture for all the students of the college who can register in a team for an event they have signed up for. We will develop and provide the interface for populating the VTRP's Database Management System (DBMS) from the list of students registered for any events.

System Context Diagram



3. Detailed Description of Components

3.1 Database

We will be using Amazon Web Services as our database. It will contain tables to represent the data that will be used in the project. It is divided into two parts:

- Received Database: This contains all the entries/registrations for all events received from the club coordinators.
- Main Database: This will be the database that we create by manipulating the data from the received database.

  Received Database:

  TABLE 1: `Registered_Student`

  (Student_name,Student_regno,Student_mobileno,Event_name)

  Main Database:

  TABLE 2: `Event_details`

  (Event_name,Club_name,min_participants,max_participants)

  TABLE 3: `Team_details`

  (Student_regno,Event_name,Team_name)

  TABLE 4: `Captain_details`

  (Captain_regno,Event_name,Team_name)

  TABLE 5: `Clublogin_details`

  (Club_id,password)

  TABLE 6: `Team_approval`

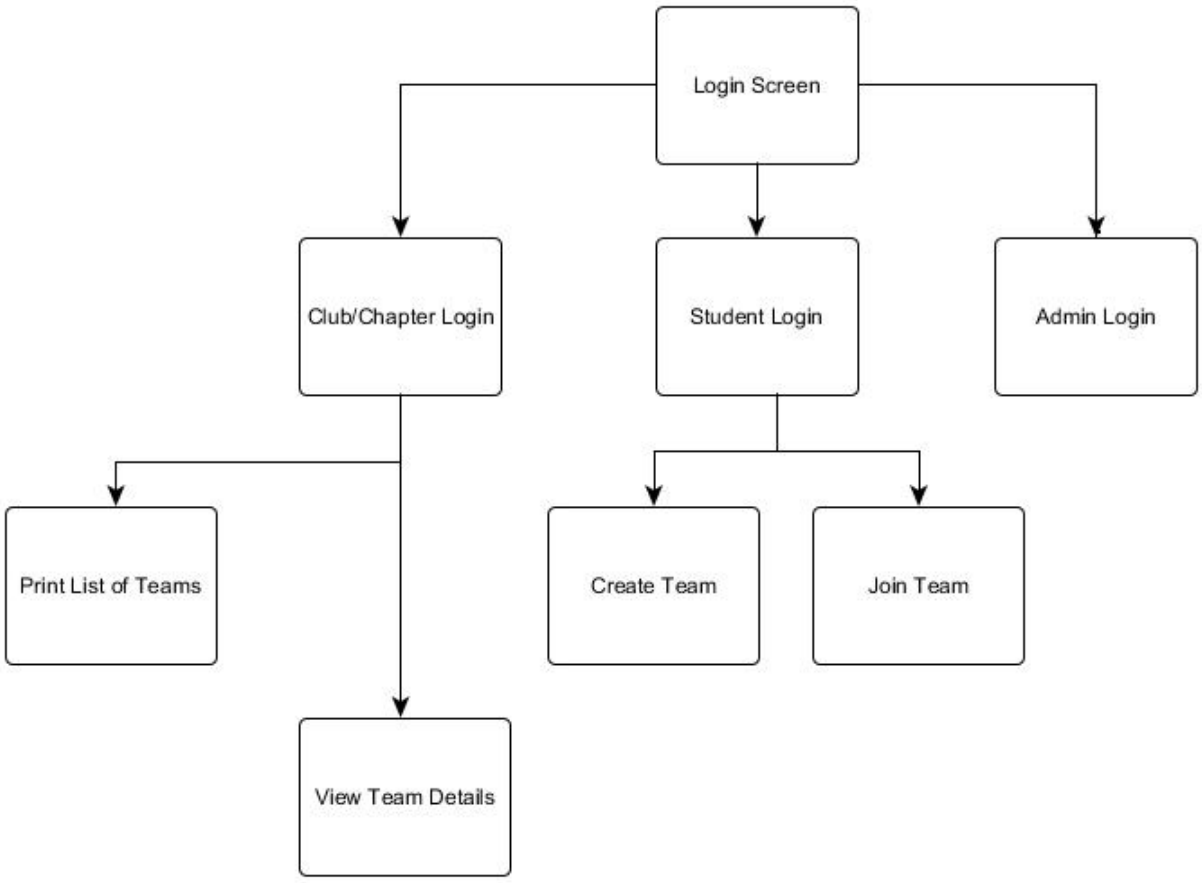
  (Student_regno,Event_name,Team_name,Approval_status)

3.2 Client Software (Registration Portal)

The client software will reside on the user's PC. Its purpose is to present data to the user as requested, and provide an interface so that the user can easily update project

information. It will handle conflict resolution automatically when possible, and otherwise allow the user to choose which version of an item to keep.
The various screens used in the portal are as follows:

- Login Screen: This screen asks the login type from the user: Student, Club or Admin.
- Student Login Screen: This asks the user for his/her registration number and password.
- Club Login Screen: This asks the user for their login id and password.
- Admin Login Screen: This asks the user for their login id and password.
- Student Screen: This allows the participants to view the events they have registered in, create and join teams, view the team details.
- Club Screen: This allows the clubs to view the list of teams under their events and the team details.
- Admin Screen: This allows the admin to make required updates in the database.



4 Reuse and relationship to other products

4.1 Java and Java tools

From the beginning, we set a goal to make use of any existing code to avoid wasting time duplicating other's work. We also decided to use open source or freeware solutions wherever possible. Because we are creating software for a defined application, it is possible to use open source technologies in each area. First, we decided to implement our code in Java because it is free and allows us to run on a wide range of operating systems. Next, we chose a development environment that would allow us to edit our Java code. NetBeans was chosen because it is free and has many plug-ins which allow us to use already existing applications. It also helped us create the GUI because it allows us to drag and drop frames and edit the generated code all within the same environment.

4.2 Database and Reporting

With these decisions in place, we needed a database on which to store our records. We chose Amazon Web Services, because it is having many management tools, and includes a visual interface that is very appealing.

5. Design Decisions and Tradeoffs

5.1 Assumptions and Dependencies

- The registrations for Gravitas and Riviera are stored in an online database which we are given access to.
- The operation of VTRP depends on changes being made in the event lists or registrations by the clubs and chapters.

5.2 General Constraints

- The VIT Team Registration Portal should be small in size but productive. It should be fast and should decrease the work of the coordinators.
- The VTRP will be available only in the English language.
- All HTML code shall conform to HTML 4.0 standard.
- All scripts shall be written in PHP.

5.3 Goals and Guidelines

- Emphasis shall be placed on Usability as the User Interface will be used by users without much training.

- The system must be fully functional, tested and deployable within the scheduled time frame.
- The system must be able to be modified by the user to display the target data in various reports for various purposes.

5.4 Development Methods

This project is being constructed using an evolutionary prototyping approach.

5.5 Three Tier Design

Deciding how to judiciously divide the project between all team members was another design issue. We finally decided on a 3 tier design, which is an application program organized into three major parts, each of which is distributed to different places in a network.

The three parts are:

1. The client application
2. The server application
3. The database and programming related to managing it

A 3-tier application uses the client/server computing model. With three tiers or parts, each part can be developed concurrently by a different team of programmers. Because the programming for a tier can be changed or relocated without affecting the other tiers, the 3-tier model makes it easier for an enterprise or software packager to continually evolve an application as new needs and opportunities arise. Existing applications or critical parts can be permanently or temporarily retained and encapsulated within the new tier of which it becomes a component. This design idea was very appealing to our team, especially for portability purposes.

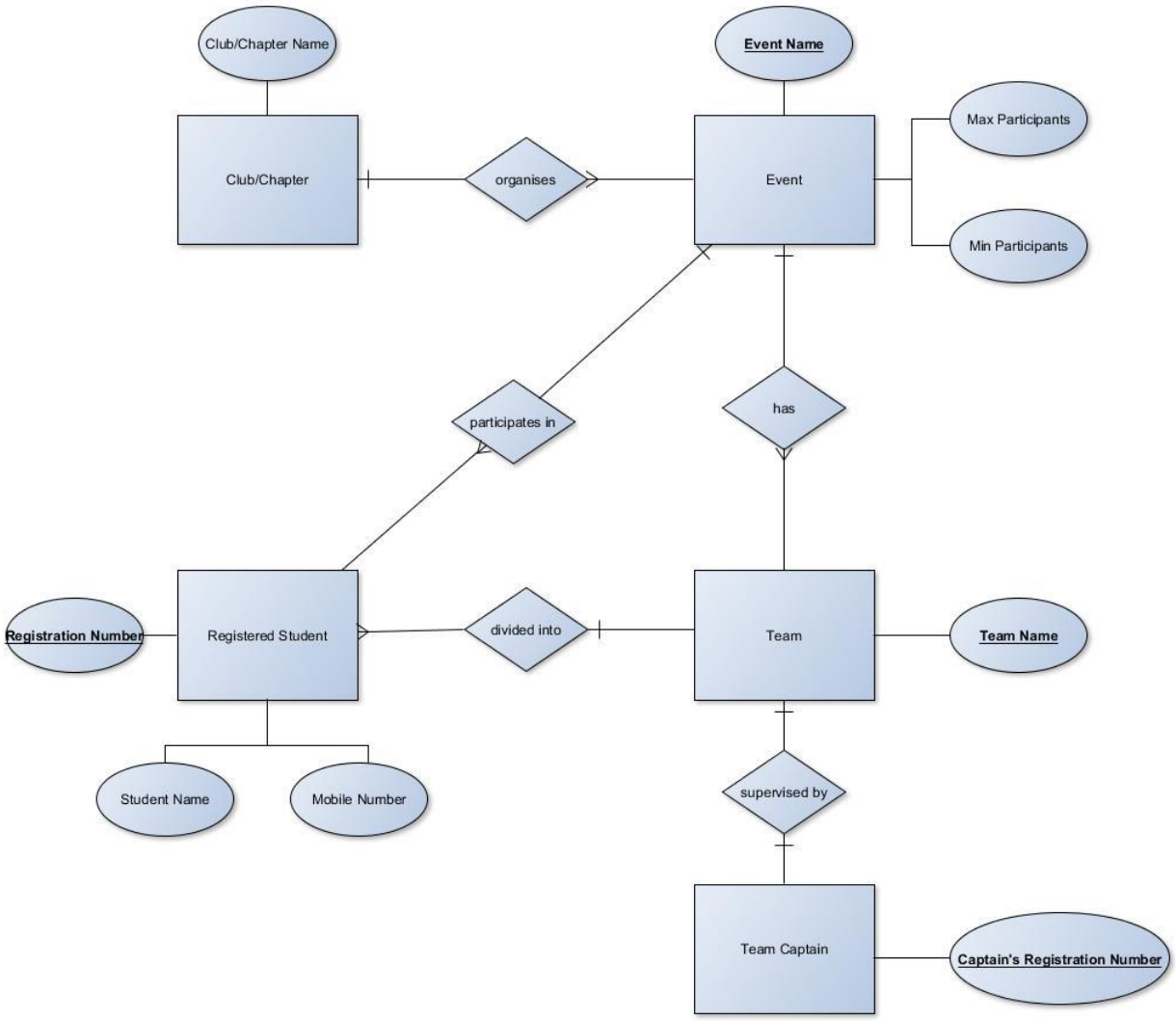
5.6 Java/Android Debate

The first issue we dealt with as a group was whether to develop in Java or .NET. Two of our members wanted to develop in .NET because they are familiar with it and enjoy working with it more. Also, PDA development is easier with .NET. However, while some members of the group do not have .NET experience, all have some Java coding experience. Another important issue we considered in selecting a code was the fact that .NET does not work in all standard operating environments. The range of operating systems that support Java is much larger. Operating systems of interest were: Windows, Unix, Linux, and Pocket PC, all of which are supported by Java and not by .NET.

5.7 Project/Project Items

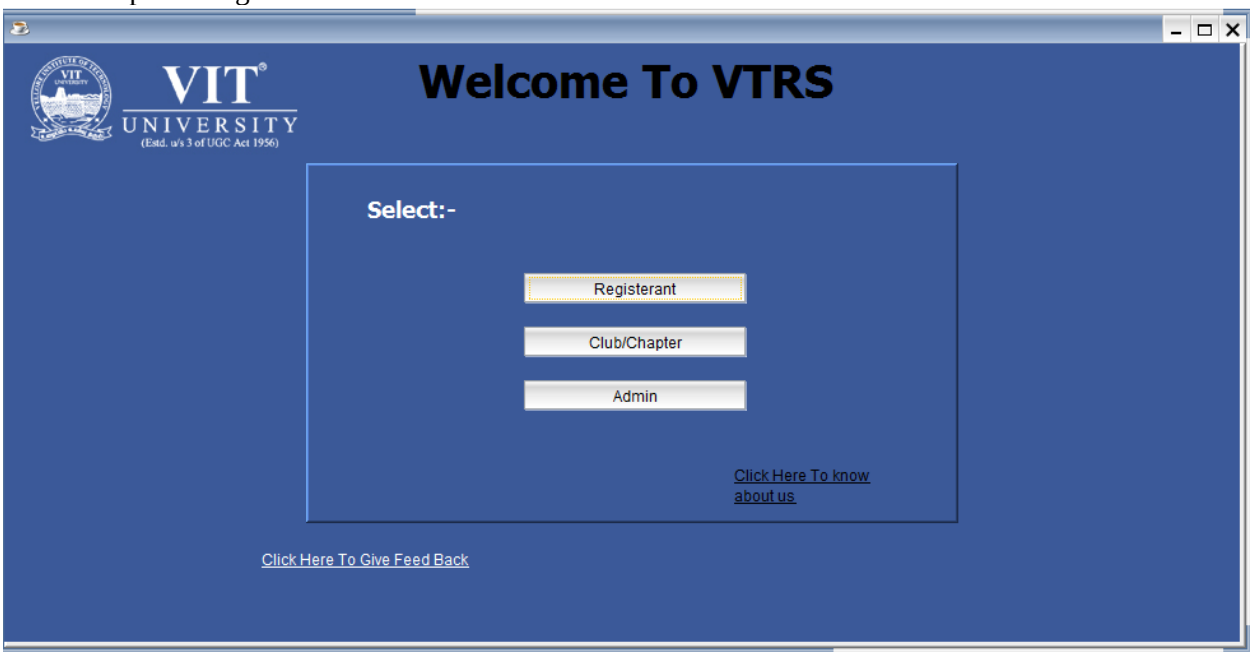
We also considered using one class for both projects and sub-tasks. This would allow the user to easily upgrade a sub-task to project status, or to assign the sub-task to another user. The only difference between the two would be the amount of information that the user provided. However, after examining the options, we decided that it will be easier to create two different tasks and provide a means by which the user can "upgrade" a sub-task to project status, at which point they can reassign it if they so desire.

6. Entity Relationship Diagram (ERD):

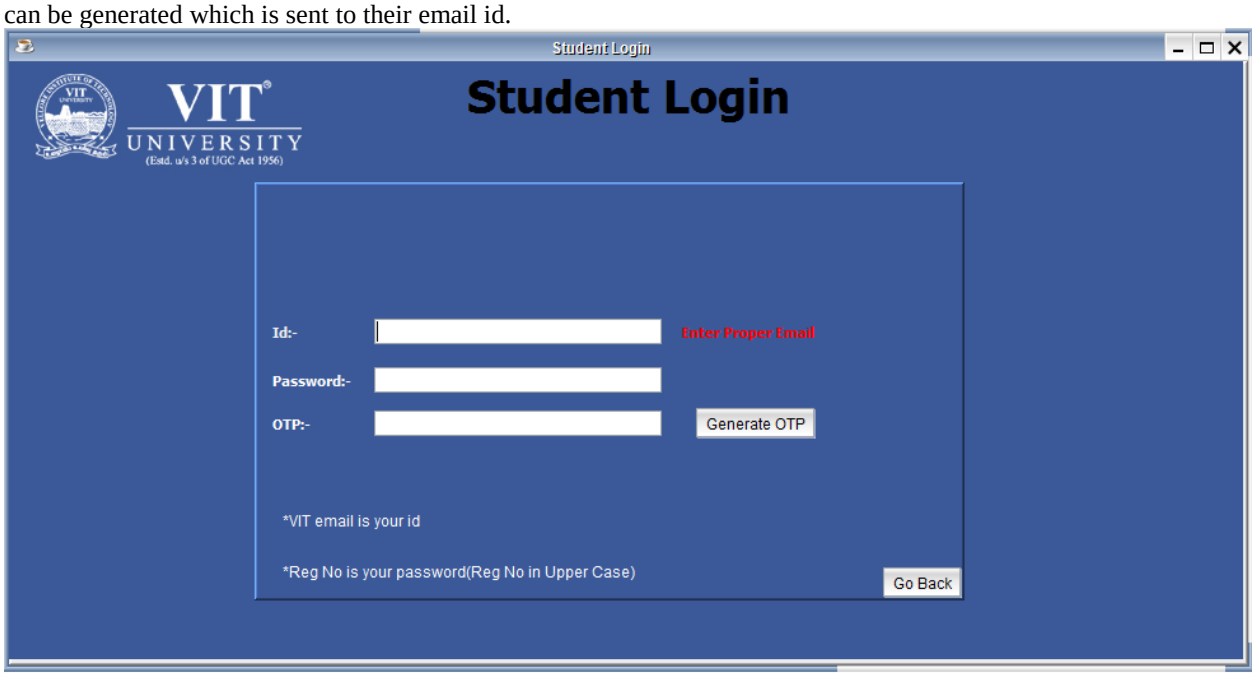


Screenshots:

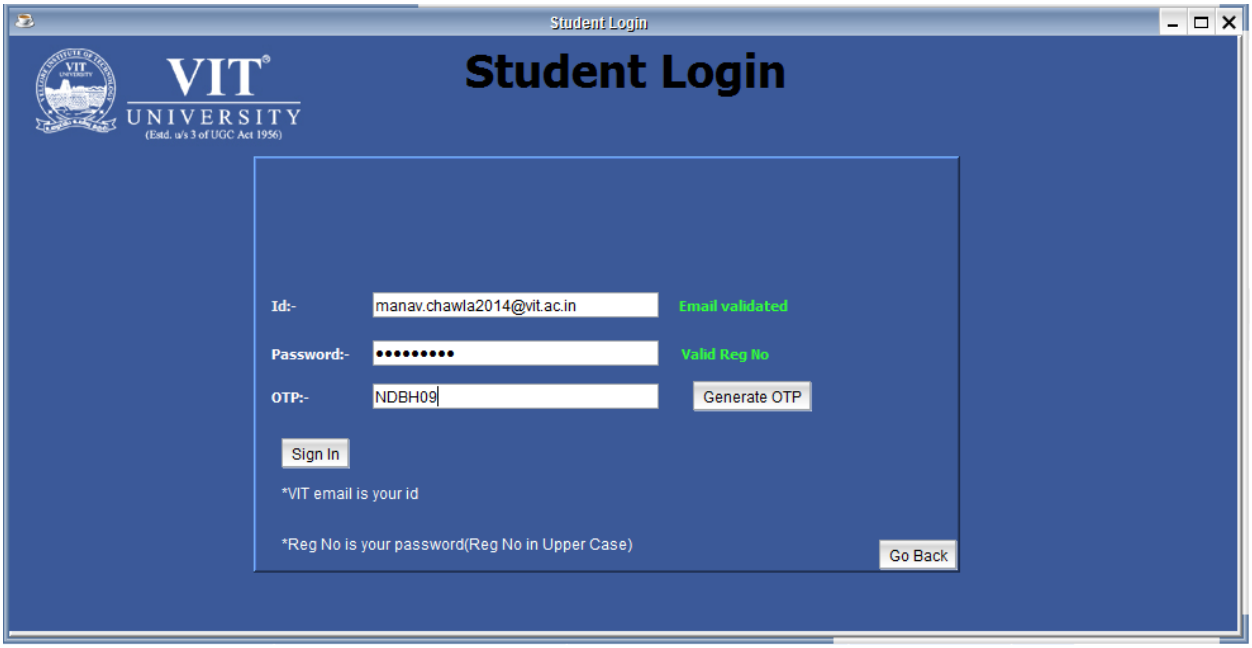
1. Startup screen: Choose between registerant, club/chapter and admin. You can also know about the developers and give feedback as well.



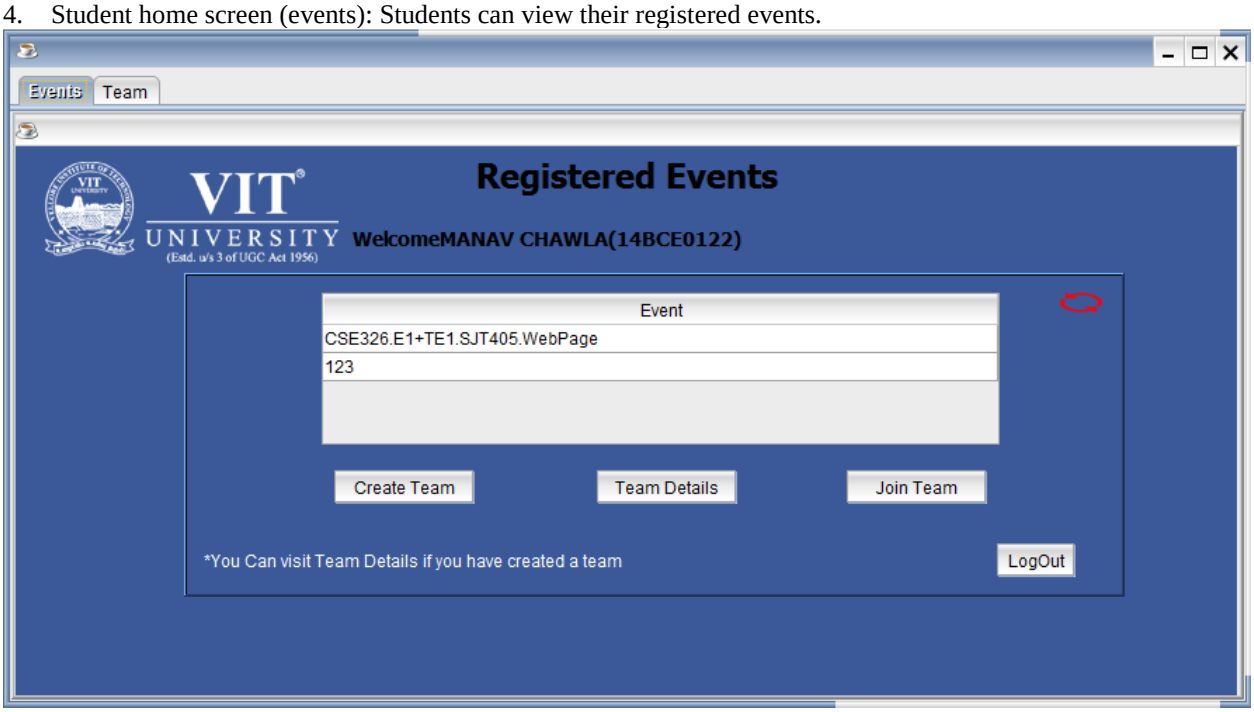
2. Student Login screen: The registered student enters his/her user ID and password. If they both are valid, an OTP can be generated which is sent to their email id.



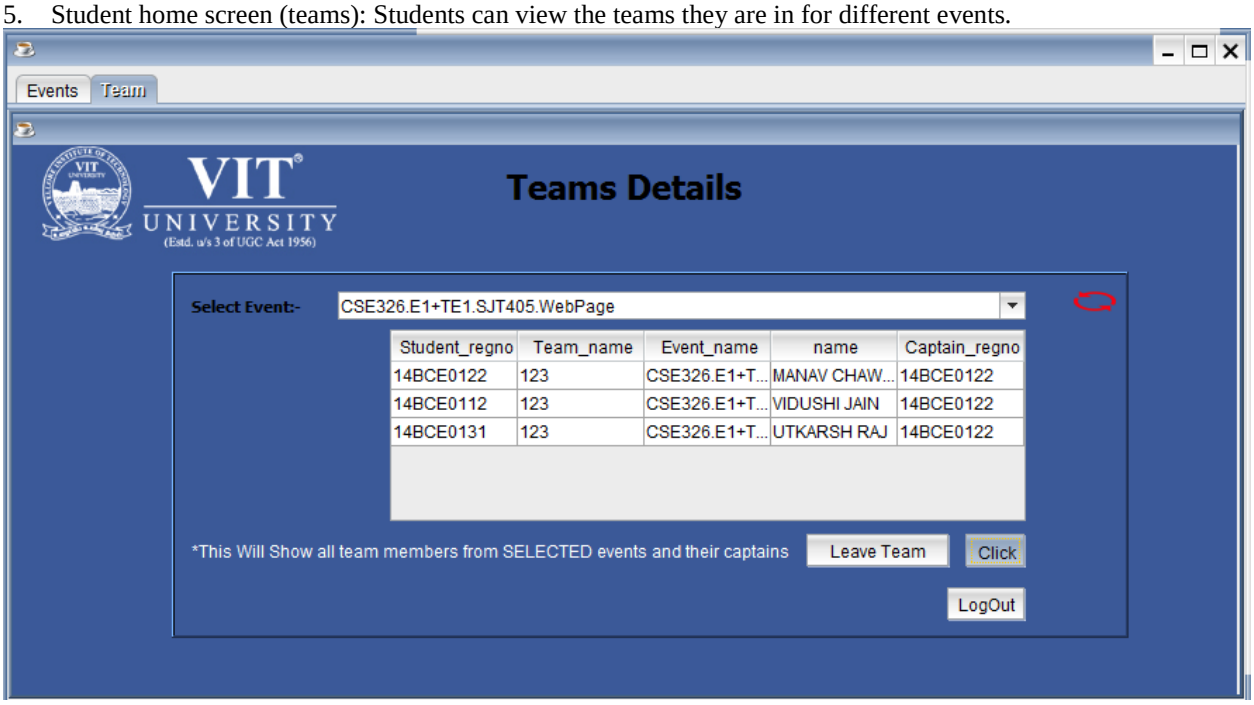
3. Student Login Screen: After the given details have been validated, the student gets the option of signing in.



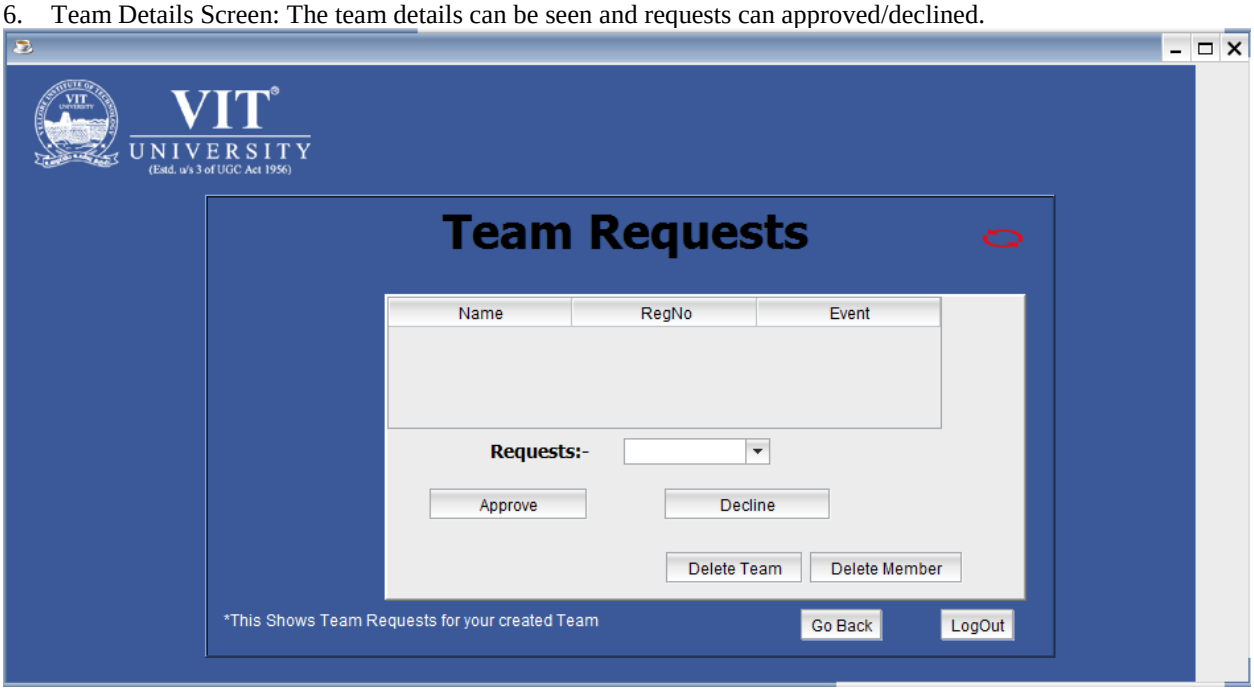
4. Student home screen (events): Students can view their registered events.



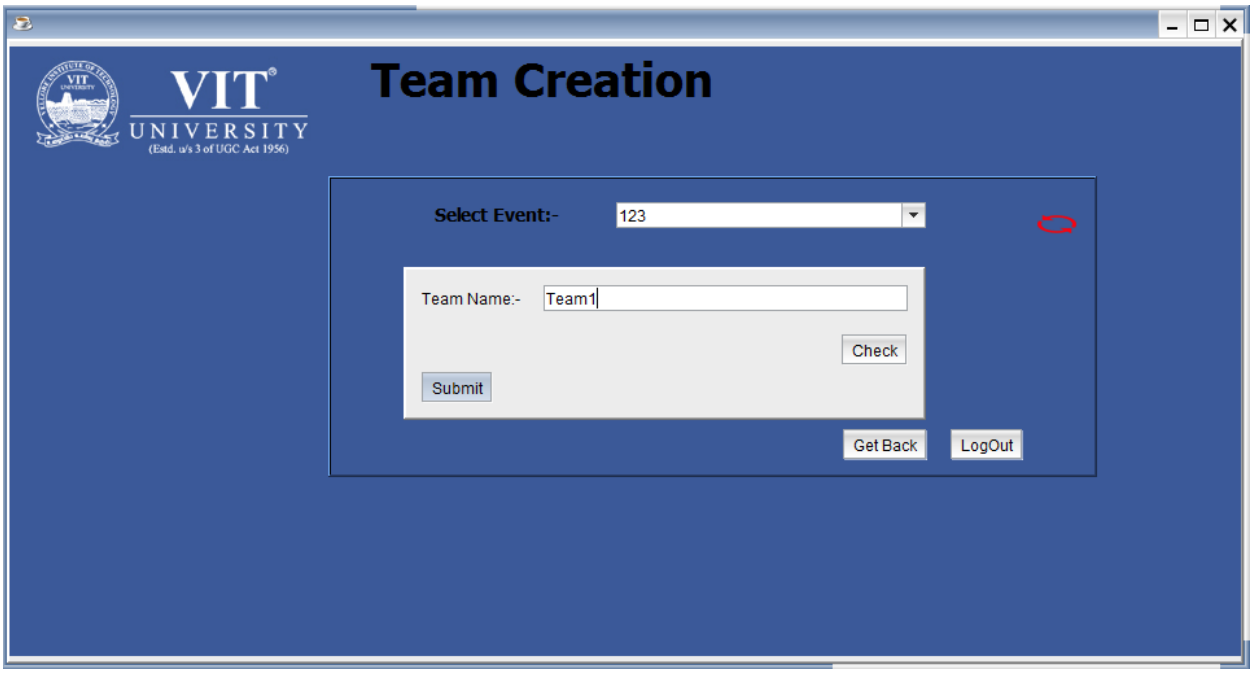
5. Student home screen (teams): Students can view the teams they are in for different events.



6. Team Details Screen: The team details can be seen and requests can approved/declined.

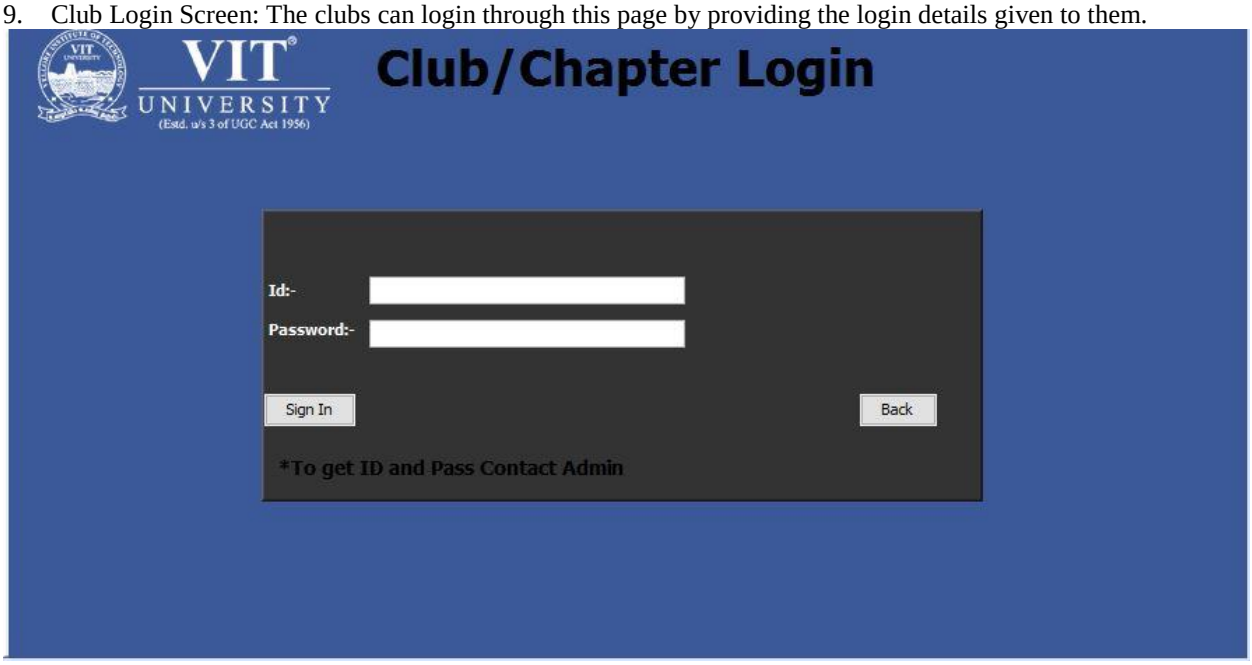


7. Create Team Screen: A new team can be created from this screen.

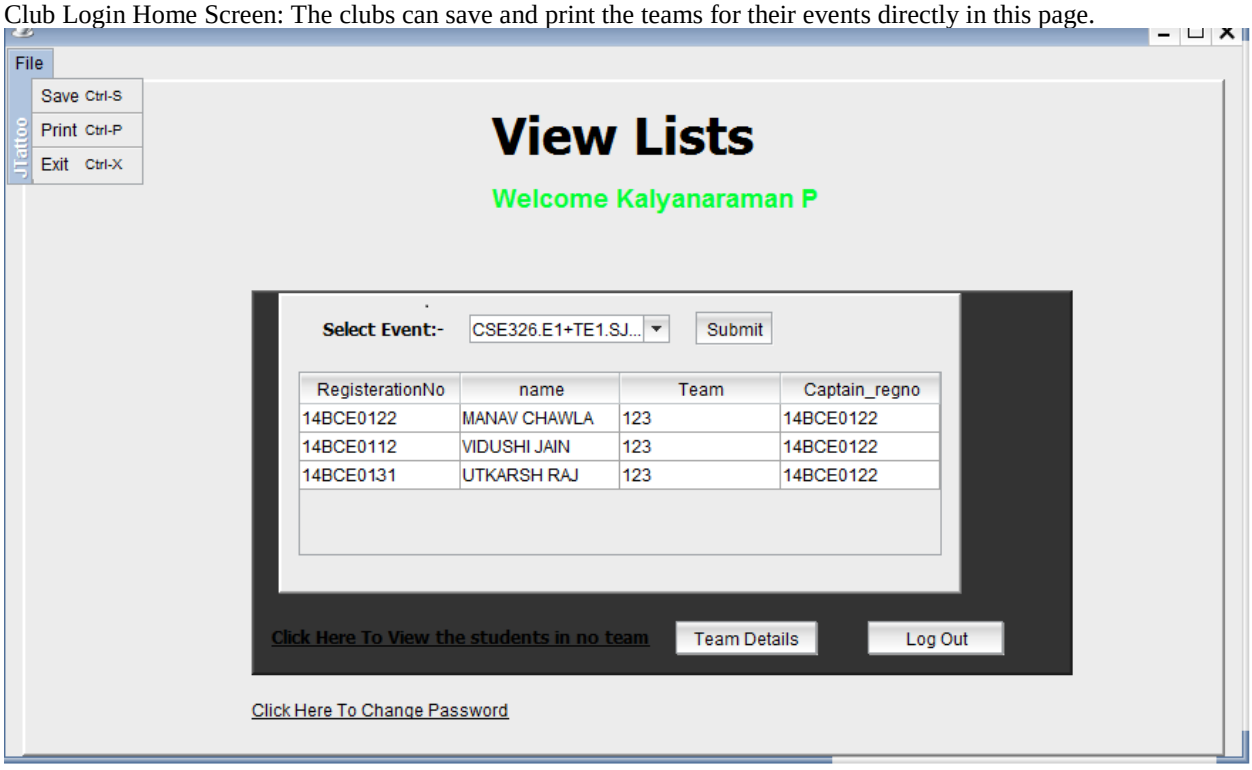


8. Join Team Screen: The student can send a request to a team to join the team which will be approved/declined by the team captain.

9. Club Login Screen: The clubs can login through this page by providing the login details given to them.



10. Club Login Home Screen: The clubs can save and print the teams for their events directly in this page.



11. About us screen: Through this screen, the users of the app can view the details of the developers.

12. Online Feedback Screen: Through this screen, the users can give useful feeback to the developers on how to improve the app. The changes will be incorporated in later builds.