STREAM ANALYSIS FOR CAREER CHOICE APTITUDE TESTS

Thesis submitted in partial fulfillment of the requirements for the award of the degree of ***Master of COMPUTER Applications*** *of the* ***APJ Abdul KALAM Technological University***

Submitted by

SANA VK
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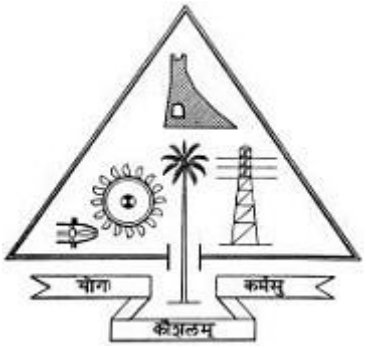

DEPARTMENT OF COMPUTER APPLICATIONS
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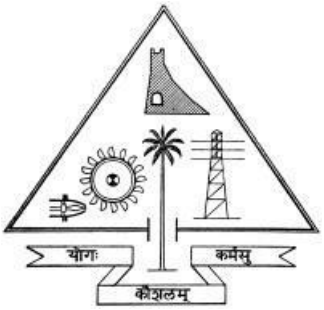

CERTIFICATE

This is to certify that the main project titled **"STREAM ANALYSIS FOR CAREER CHOICE APTITUDE TESTS"** *is a bonafide work done by* **SANA VK (TCR19MCA022)** *under my supervision and guidance, and is submitted in May 2022 in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications from APJ Abdul Kalam Technological University(KTU).*

Soumia Chandran M	Husain Ahamed	Dr.Sminesh C N
Project Coordinator	**Project Guide**	**Head of the Dept.**

Place : THRISSUR
Date : 11/05/2022

DECLARATION

I hereby declare that the main project named, **STREAM ANALYSIS CAREER CHOICE APTITUDE TESTS**, is my own work and that, to the best of my knowledge and belief, it contains no material previously published by another person nor in any material which has been accepted for the award of any other degree or course of the university or any other institute of higher learning, except where due acknowledgement and reference has been made in the text.

Place: THRISSUR
Date: 11/05/2022

Signature
SANA VK (TCR19MCA022)

ACKNOWLEDGEMENT

I would like to thank Computer Application Department of GEC Thrissur, and my friends and faculties there for giving me such an opportunity to pursue this project and successfully complete it.

I am highly indebted to my guide **Prof. Husain Ahamed** for the guidance and constant supervision as well as for providing necessary information regarding the project and also for the support in completing the project.

I also express special thanks to the Head of the Computer Applications Department, **Dr.Sminesh C N**, for his keen support and consistent encouragement in our academic activities.

I express my heart-felt gratitude to project coordinator, **Prof. Soumia Chandran M**, for her committed guidance, valuable suggestions, constructive criticisms and precious time that she invested throughout the work.

I sincerely thank all other faculties of MCA department for guiding through the processes involved in the project.

ABSTRACT

Most of the users are confused while selecting their streams according to their capability. User can select career choice based on their IQ. The main aim of the project is to help user for choosing their career option. System helps the user to select their career choice according to their interest in particular field.

The IQ test brings an easy interesting working environment, more clarity in presenting appropriate information to the user and also it gives faster access and retrieval of information from the database.

This project can be helpful to students, especially to those who are confused in selecting their streams from a list of courses. Users attend exams and the score in these exams are considered to recommend streams. The marking criteria is decided by the admin and stored in the system for reference. Admin can add question based on group, main stream and sub stream. Question can be of level 1 and level 2. If the candidate scores good marks at particular stream, system will suggest the user in which stream their good at. Admin can add or delete questions from the system. The results of each user are stored in the database and can view the result accordingly.

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CHAPTER 1
INTRODUCTION

Stream Analysis using Online Aptitude Test System helps the students/candidate to understand which academic stream or major is most suitable for them. Its mission is to offer a quick and easy way to appear for the test and it also provide the result immediately after the test .It consists of various sections which contain multiple choice type tests, it can provide special advantages to the applicants/students that can't be found anywhere else. Although there are various systems in the form of applications and online modules which provide the students with the opportunity to take a free Online Aptitude test, there is nothing which provides the students with the explicit guidance or advice as to which stream they are supposed to pursue. This system—Stream Analysis using Online Aptitude Test fills into this void. With the help of this website, students can not only appear for an Aptitude Test online, but at the end of the test, along with the marks, the students are also suggested with the stream or academic major which is best suitable for them according to their proficiency. The marks of the students indicate their level of interest, knowledge etc. in that particular stream. This system is uniquely designed with tests for students from different streams—SSC students are provided with tests from science, commerce and arts, whereas HSC students are provided with tests from their pertinent streams. This system would help students to choose which stream is most likely suitable for them in a hassle free manner.

CHAPTER 2
ENVIRONMENTAL STUDY

2.1 System Configuration

System configuration describe the hardware and software requirement of the system for development

2.1.1 Hardware Requirements

- Memory : 8 GB of RAM
- Processor : Intel Core i5 or above
- Speed : 2.4 GHz or above

2.1.2 Software Requirements

- Operating system : Windows
- Front End : HTML, CSS, Javascript
- Backend :Python, MySql
- IDE : Pycharm
- Other softwares : SQLyog, Wampserver

2.2 Software Description

2.2.1 Python

Python is a deciphered high level programming language for general purpose programming. Made by Guido van Rossum and first released in 1991, Python have a

structure theory that accentuates code coherence, outstandingly utilizing critical white space. It is utilized for web development (server side),software development, mathematics, system scripting. Python can interface with database frameworks. It can likewise read and alter documents. Python runs on a mediator framework. Python can be treated in a procedural manner, an object orientated way or a functional way. Python was intended to for readability, and have a few likenesses to the English language with impact from arithmetic. It gives constructs that empower clear programming on both little and enormous scopes. Python includes a dynamic type system and automatic memory management.

2.2.2 HTML

HTML, or Hypertext Markup Language, is a markup language for docu- ments designed to be displayed in a web browser. When used in conjunction with other technologies like CSS and JavaScript, it creates the vast majority of content seen on websites. HTML is used for a huge variety of things on the web, from building complex websites that o*ff*er email and calendar functions to constructing a simple course website or resume.

2.2.3 JAVASCRIPT

JavaScript is a lightweight, interpreted programming language. It is de- signed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross platform. Java script is the most popular programming language in the world and that makes it a programmer's great choice. Once you learnt Java script, it helps you developing great front-end as well as back end software using di*ff*erent Java script based frameworks like j Query, Node.JS etc. Java script helps you create really beautiful and crazy fast websites. You can develop your website with a console like look and feel and give your users the best Graphical User Experience.

2.2.4 PyCharm

PyCharm is an IDE used for computer programming. Though this IDE was created for Python primarily, users who are from team-Java can also use PyCharm. Some features that incline users to it are the fact that it provides code analysis, integration with VCSes (Version Control Systems), a graphical debugger, has development with Django and Data Science with Anaconda. PyCharm comes in versions of Linux, MacOS, and Windows

2.2.5 Flask

System is implemented using Flask which is a web framework for web development. Flask is a web framework. This means flask provides you with tools, libraries and technologies that allow you to build a web application. Flask is part of the categories of the micro framework. Micro-framework are normally framework with little to no dependencies to external libraries. We used Pycharm to build User Interface using Flask and then Integrated to a web Application using it.

2.3 Functional Requirements

A web application that enables us to helpful to students, especially to those who are confused in selecting their streams from a list of courses. Users attend exams and the score in these exams are considered to recommend streams.

2.4 Performance Requirements

The system would need least 8 GB of RAM. Less RAM will result in the poor performance of the system. Python should be pre-installed.

CHAPTER 3
LITERATURE REVIEW

An aptitude is a component of a competency to do a certain kind of work at a certain level. Outstanding aptitude can be considered "talent". Aptitudes may be physical or mental. Aptitude is inborn potential to do certain kinds of work whether developed or undeveloped. Ability is developed knowledge, understanding, learned or acquired abilities (skills) or attitude. The innate nature of aptitude is in contrast to skills and achievement, which represent knowledge or ability that is gained through learning.

In existing system, students learn about various courses from many sources, such as advertisements, internet, friends etc. But they may be confused to choose from this list as it may contain a lot of courses. Students tend to choose courses with less fee structure. In most cases, students do not opt for courses that match their skills.

The main disadvantages of the existing system are:

- Students get confused in choosing their career streams.
- Due to various reasons students choose streams that do not match their skills.

In our proposed system, we conduct tests or exams. Registered candidates can attend these exams. On completion of the exam, their score is updated to the server. Based on their score counsellors can recommend them to agencies. Thus the students get recommendation of courses.

The advantages of our proposed system are:

- Students get recommendation based on their expertise in various areas.
- Due to the recommendation from agencies, students do not have much confusions compared to existing system.

CHAPTER 4
SYSTEM ANALYSIS

System analysis by definition means a deliberate examination process in or- der to collect information, decipher the truth, diagnose the problem and use it to either develop a new framework or prescribe improvements in the cur- rent framework. A good system study involves looking to better strategies and systems to improve a business situation. At the heart of the investigation phase are the needs of the framework and the problems the customer seeks to explain, regardless of how the requirements are implemented.

4.1 Requirement Analysis

Requirements analysis, likewise called requirements engineering, is the way toward deciding client desires for another or changed item. These high- lights, called necessities, must be quantifiable, significant and itemized. In programming designing, such prerequisites are frequently called useful de- terminations. The point of the undertaking is to recognize, see and make profitable grievance management.

4.2 Existing System

In existing system, students learn about various courses from many sources, such as advertisements, internet, friends etc. But they may be confused to choose from this list as it may contain a lot of courses. Students tend to choose courses with less fee structure. In most cases, students do not opt for courses that match their skills.

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4.3 Proposed System

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The advantages of our proposed system are:

- Students get recommendation based on their expertise in various areas.
- Due to the recommendation from agencies, students do not have much confusions compared to existing system.

4.4 Feasibility Study

A feasibility study is an important container form for the entire system review and design process. The study begins by grouping the definition of the problem. Facility is to determine the value of the task. The expert creates a legitimate framework model when a definition of a recognition problem is established. A search for options is carefully dissected. The feasibility study includes 3 sections

4.4.1 Technical Feasibility

Technical feasibility means an analysis of the performance of functions and requirements that can a*ff*ect the ability to achieve adequate conditions. At this stage of the framework progress process, it is always the most di*ffi*cult field to evaluate. The investigator evaluates the specialized benefit of the system idea during a special examination, while at the same time collecting additional information about performance, reliability, viability and reducibility, incorporating the main specific questions generally identified during a review phase. Understand the di*ff*erent developments associated with the proposed framework before the task begins. The framework needs to know clearly what progress is required if the new framework is to be advanced. For the new system, su*ffi*cient current technical resources are available. The system is technically feasible by taking these facts into account.

4.4.2 Operational Feasibility

The project is profitable only if it can be converted into information systems that will satisfy the needs of the organization. In short, this crash test check whether the system will work if it is build and installed. Here are some points to evaluate the project's performance:

- If the existing system is so popular and used to the extent that people are blind to the reasons for change, there can be opposition.
- Timely involvement decreases the likelihood of a program failure and generally improves the chances of a successful system. As the plan proposed was helpful to decrease the di*ffic*ulty.

4.4.3 Economical Feasibility

Cost-benefit-analysis is one of the most important pieces of information in a feasibility study, which is an evaluation of economic justification or a PC- based framework project cost-benefit-analysis investigation depicts costs for project advancement and loads them against the tangible and intangible system. To create a usable system requires financial advantages or, on the other hand, exceeds the expenses or is made equivalent. The inquiries made to evaluate are

- Cost to conduct a full system investigation.
- Cost of hardware and software for the class of application being considered.
- Benefits in the form of reduced costs or few costly errors.

Enterprise Syllogistic Assessment provides results in a secure manner, and the application works very well even with low bandwidth, indicating that the system is economically feasible.

CHAPTER 5

SYSTEM DESIGN

Architecture diagram

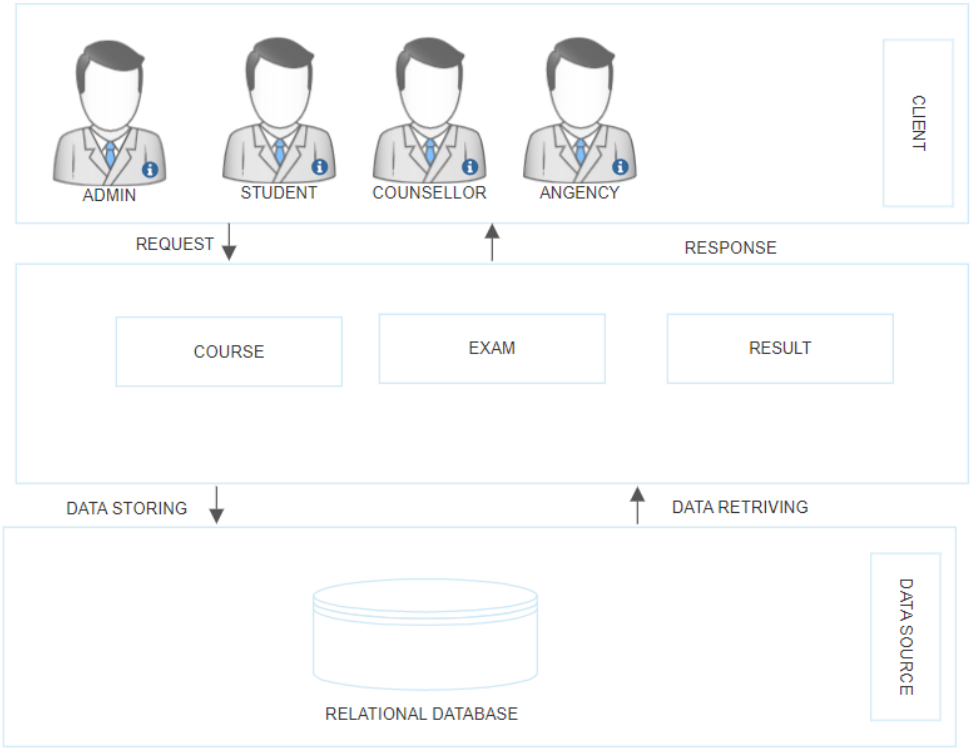

Fig. 5.1: Architecture Flow Diagram

5.2 Input Design

The relationship between the user and the information system is referred to as input design. It determines a set of inputs, validates the data, minimizes data entries, and provides multi-user capabilities. Input design is done in such a way that it provides security and ease of use while maintaining privacy. Input design can be used to control errors entered by data entry operators. In this case, an image from the system is used as input. All input data is validated, and if any data violates any conditions, a message is displayed to the user.

5.3 Output Design

A quality output is one that meets the needs of the user and clearly displays the details. As the output of a system, the processed results are displayed to users or to another system. When designing output, it is decided how this information will be distributed for immediate use as well as hard copies of the output. It is the most dominant and direct information to the user.

5.4 Data Flow Diagram

LEVEL 0

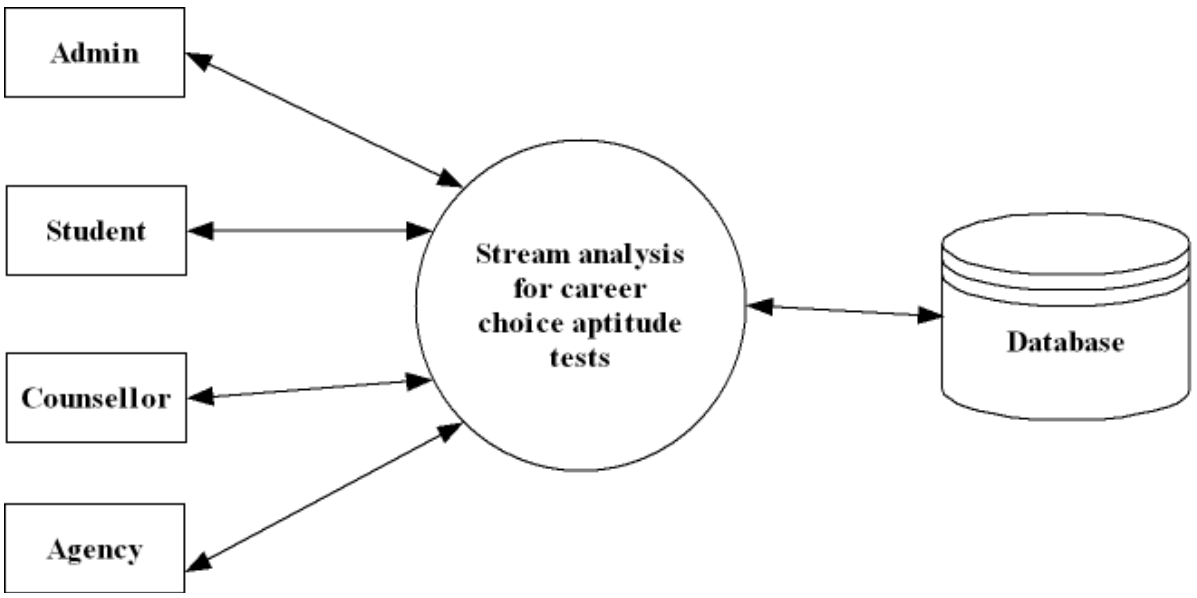

Fig 4.2: Level 0 - Data-Flow Diagram

LEVEL 1

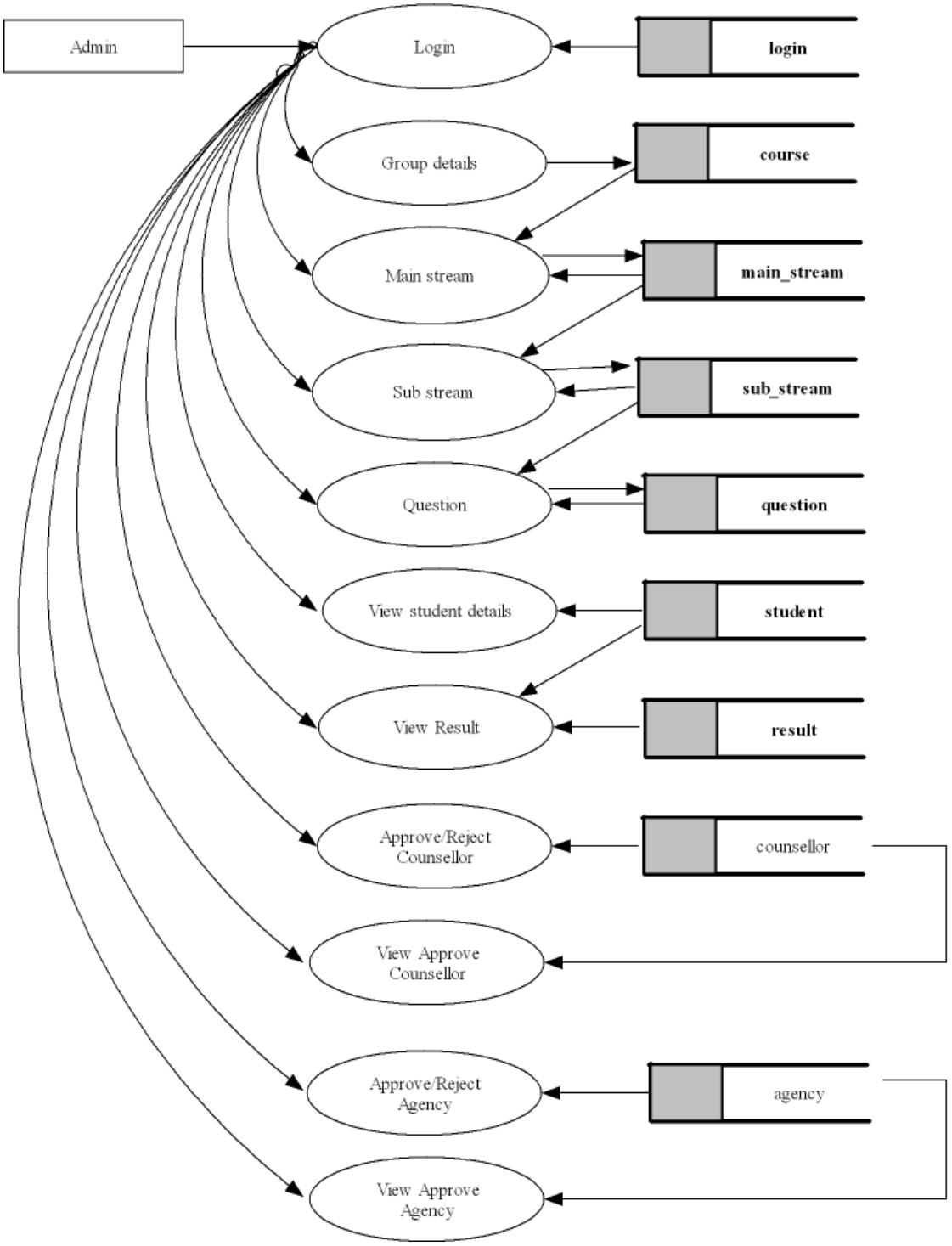

Fig 4.3: Level 1 - Data-Flow Diagram

LEVEL 1

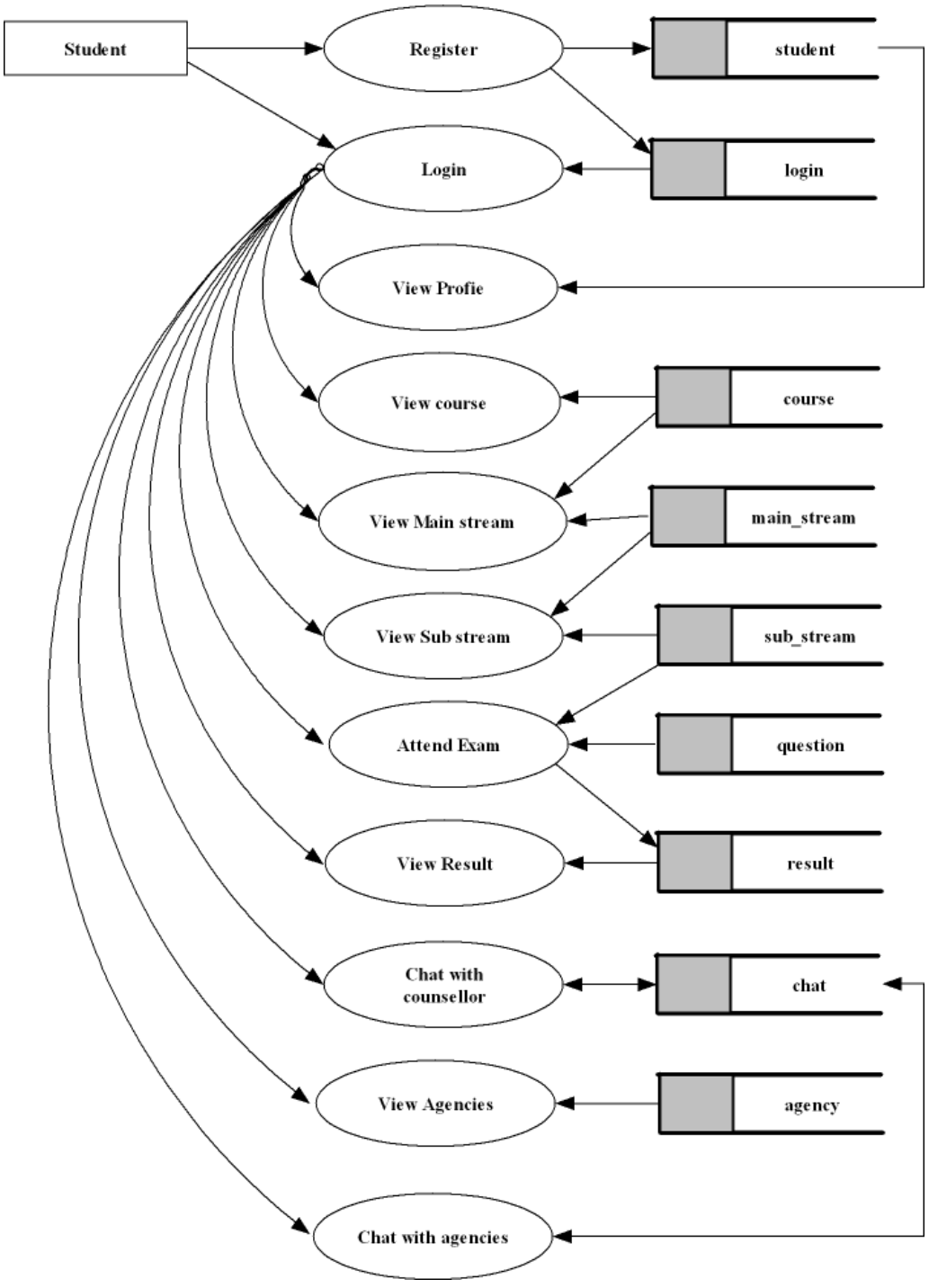

Fig 4.4: Level 1 - Data-Flow Diagram

LEVEL 1

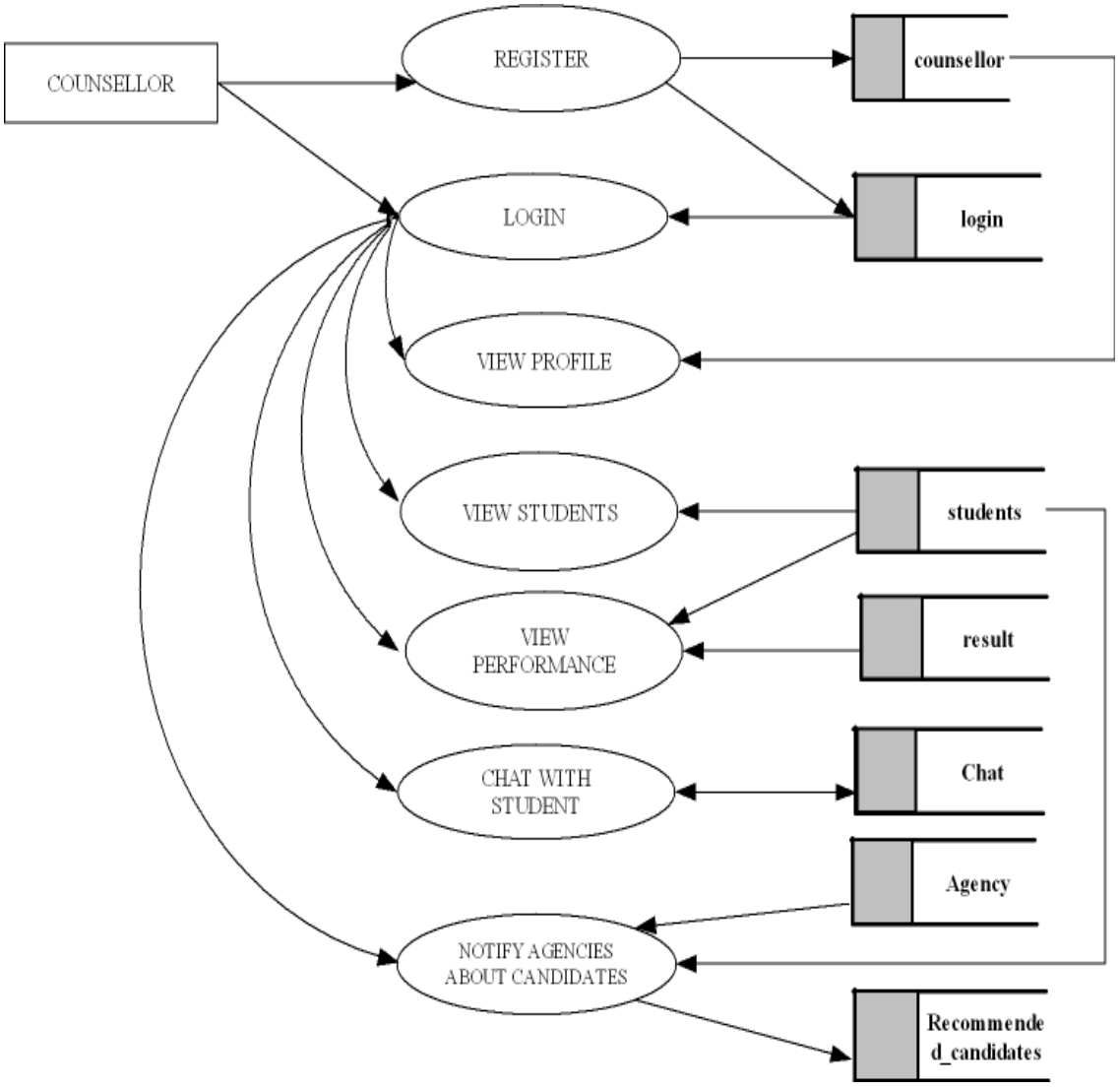

Fig 4.5: Level 1- Data-Flow Diagram

LEVEL 1

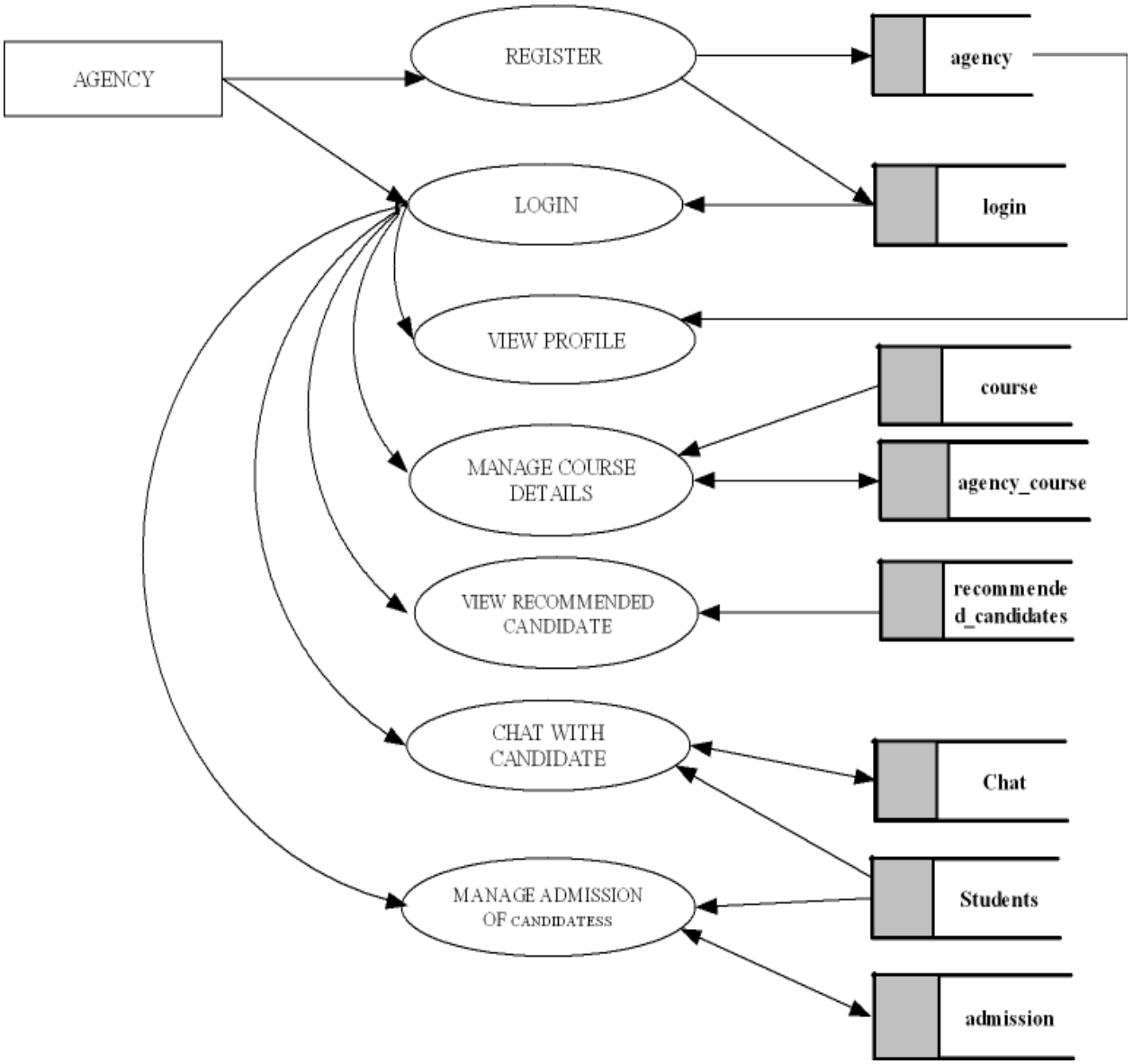

Fig 4.6: Level 1- Data-Flow Diagram

Fig 4.2 shows the level 0 data flow diagram, This shows the various modules

Fig 4.3 shows the level 1 data-flow diagram, This shows the various components like view of course, main stream, sub stream, attend exam, view result, chat with counsellor and view agencies

Fig 4.4 shows the level 1 data-flow diagram, This shows the various components like view of student and chat with student, view student performance.

Fig 4.5 shows the level 1 data-flow diagram, This shows the various components like managing of course, view recommended candidate, and manage admission of candidate

Fig 4.6 shows the level 1 data-flow diagram, This shows the agency managing of course, view recommended candidate, and manage admission of candidate

5.5 List of Modules

This application consists of two modules. They are:

5.5.1 Admin

5.5.2 Student

5.5.3 Counselor

5.5.4 Agency

5.5.1 Admin

Admin logs in via a username and password, and admin can basically do the following features:

- Admin can manage the course, main stream, sub stream, question.
- admin can approve or reject counselor.
- Admin can view student and their result of attending exam.

5.5.2 Student

student can register their details. And logs in via a username and password , and student can basically do the following features:

- student can view course added by the agency,

- view the main , sub stream and question added by the admin

5.5.3 Counselor

Counselor can register their details. And logs in via a username and password , and admin approved counselor can basically do the following features:

- Counselor can view the student and their performance in the attended exams.
- Notify agencies about candidate

5.5.4 Agency

Agency can register their details. And logs in via a username and password , agency can basically do the following features:

- Agency can manage the course.
- Agency can view re commented candidate
- Chat with student
- Manage admission of the student.

CHAPTER 6
SYSTEM IMPLEMENTATION

6 System Implementation

Implementation is the process of turning a newly formed or formulated framework into an operational one. It is the functional activity of attempting a fictitious structure. The new framework and its components will be tested in a systematic and orderly manner. The usage phase of a project is frequently mind-boggling and tedious, with far more people involved in the previous stages. This includes careful planning, an examination of the cur- rent framework and its limitations, making good, introducing equipment, preparing the working stages in the changeover methods before the frame- work is the arrangement, and running the framework. A key factor in the change is that it does not disrupt the organization's operations. A usage in software engineering is the recognition of a specialised determination or calculation as a program, programming part, or other PC framework via PC programming and sending. The usage period of a task encompasses the time between the acceptance of the tried plan and its acceptable activities, as supported by the appropriate client and administrator's manual. It is a significant activity that spans the entire hierarchical structure and necessitates extensive planning.

6.1 Process

Stream Analysis using Online Aptitude Test System helps the students/candidate to understand which academic stream or major is most suitable for them. Its mission is to offer a quick and easy way to appear for the test and it also provide the result immediately after the test[4] .It consists of various sections which contain multiple choice type tests, it can provide special advantages to the applicants/students that can't be found anywhere else.

6.2 Testing

Software testing is the process of comparing the application to the user's preferences or requirements and determining whether or not the requirements are met. It is carried out in tandem with the stages of development, as each change introduced is tested multiple times to ensure that the desired output is produced. Software is tested at several levels:

6.2.1 Unit testing

Unit testing refers to the process of testing each individual unit of a module. It is used to ensure that the application runs smoothly and without errors after it has been deployed. The current system has successfully passed unit testing.

6.2.2 Integration testing

Integration testing ensures that each of the individual units tested during unit testing functions correctly when combined with other modules. It ex- amines the combined performance result and evaluates based on expected value. If the requirement is not met, the system is adjusted. Successful Integration testing has been implemented in the current system.

6.2.3 Functionality testing

The purpose of functional testing is to determine how e*ffi*cient the software is. It examines the performance in terms of time taken in order to assess the accuracy of the desired output. This is accomplished naturally through Load Testing and Stress Testing, which primarily account for the time required to complete specific tasks. The current system has passed functionality testing successfully.

6.3 Validation

Validation is the procedure of inspecting whether the product fulfils the client prerequisites. It is completed toward the end of the Software development life cycle. If the software matches the prerequisites, it is validated. Validation of user inputted responses is done. It checks whether an image is given in correct format. If no input is given, then it is warned by a message to add a response.

6.4 Verification

Verification is the process of confirming whether or not the software meets the requirements and was developed in accordance with the proper specifi- cations and methodologies. The authentication mechanism was tested using all possible test cases.

CHAPTER 7

RESULTS AND DISCUSSION

WEB APPLICATION

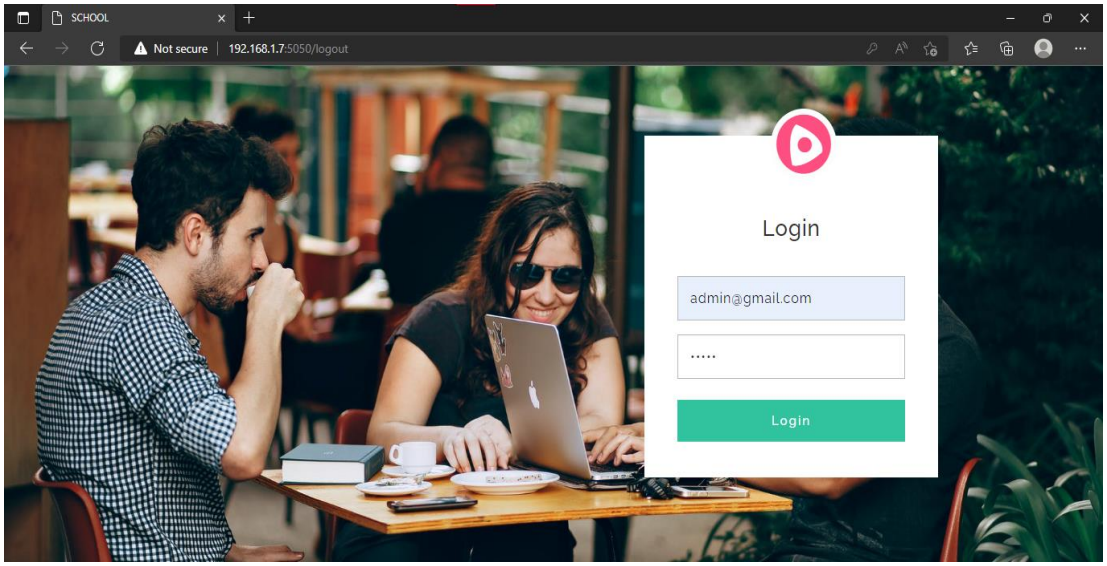

Fig 7.1 Login Page

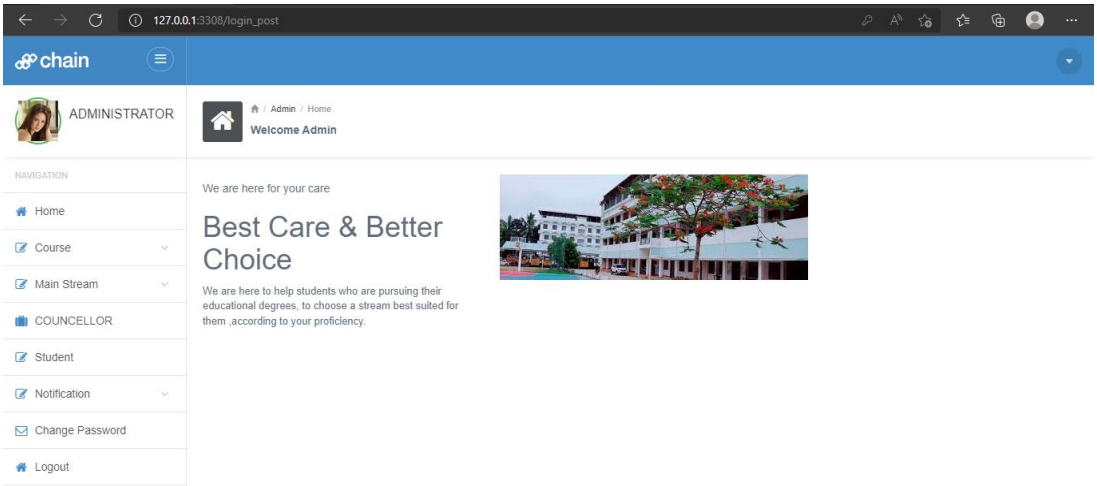

Fig 7.2 Dashboard

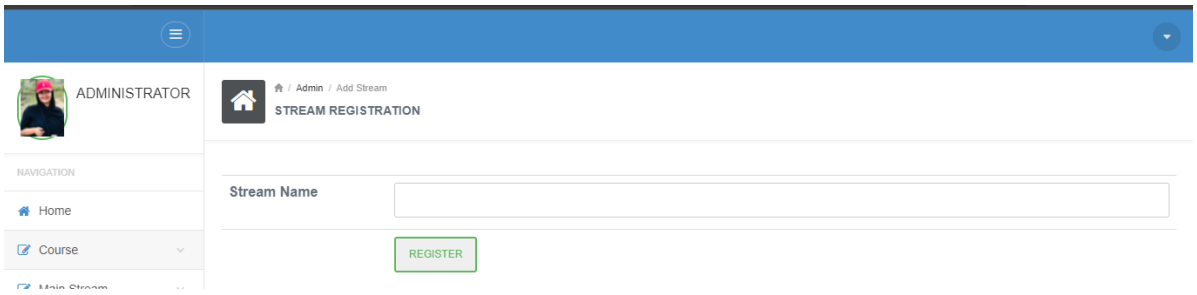

Fig 7.3 Insert Stream(Course)

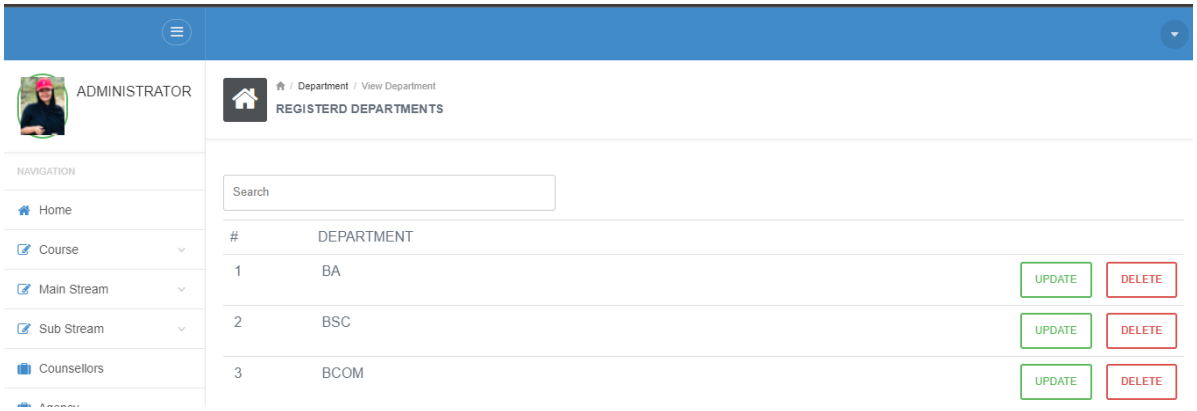

Fig 7.4 Course Listed

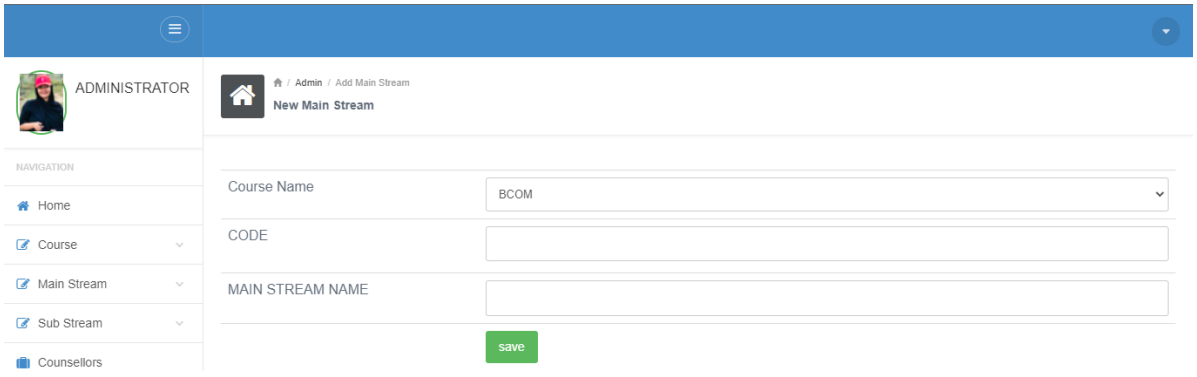

Fig 7.5 Add Main Stream

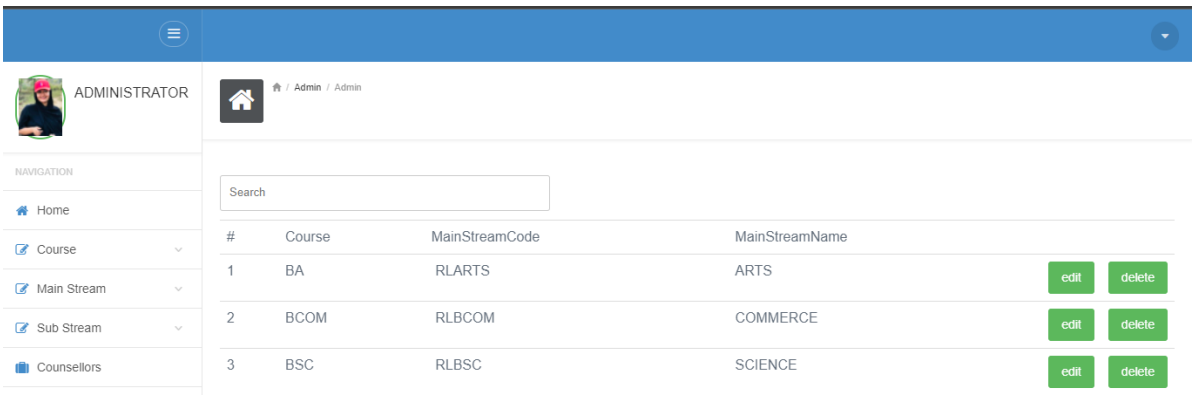

Fig 7.6 Main Stream Listed

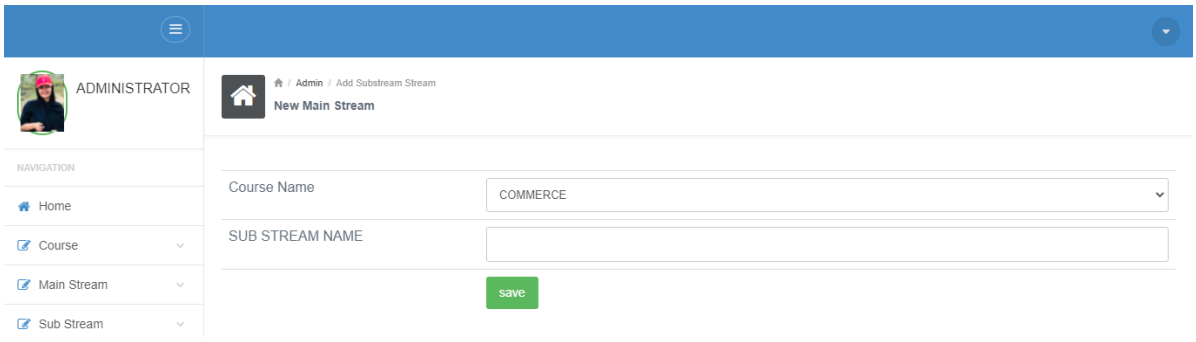

Fig 7.7 Add Sub Streams

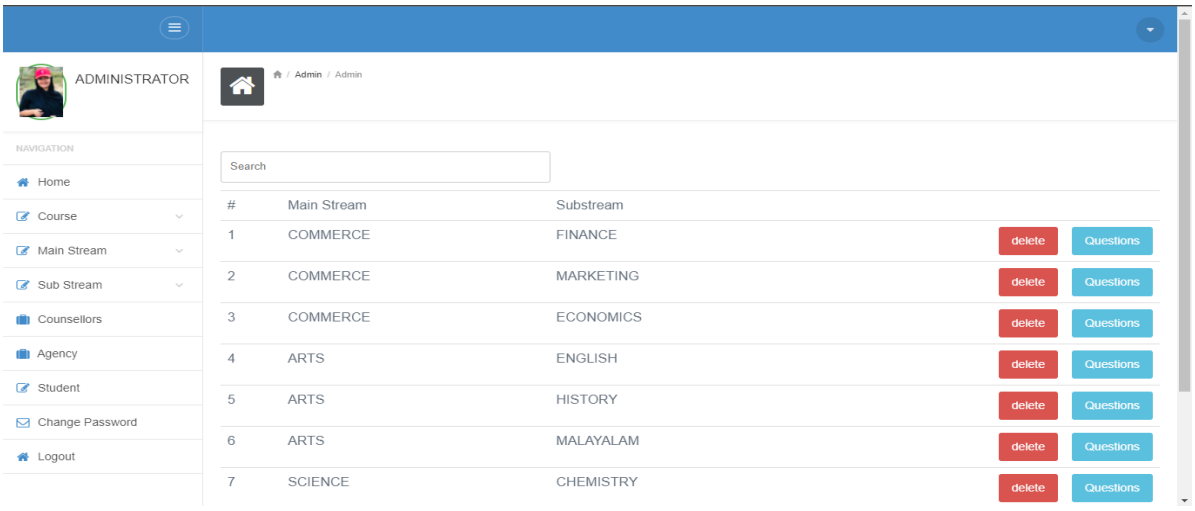

Fig 7.8 Substream Listed & Add corresponding questions

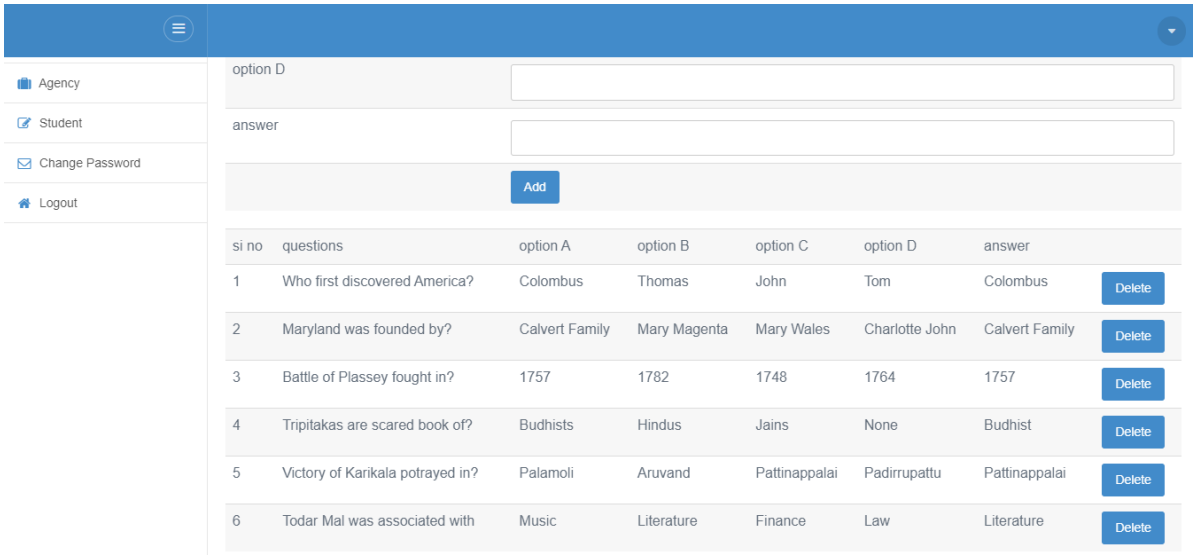

Fig 7.8 Questions Added

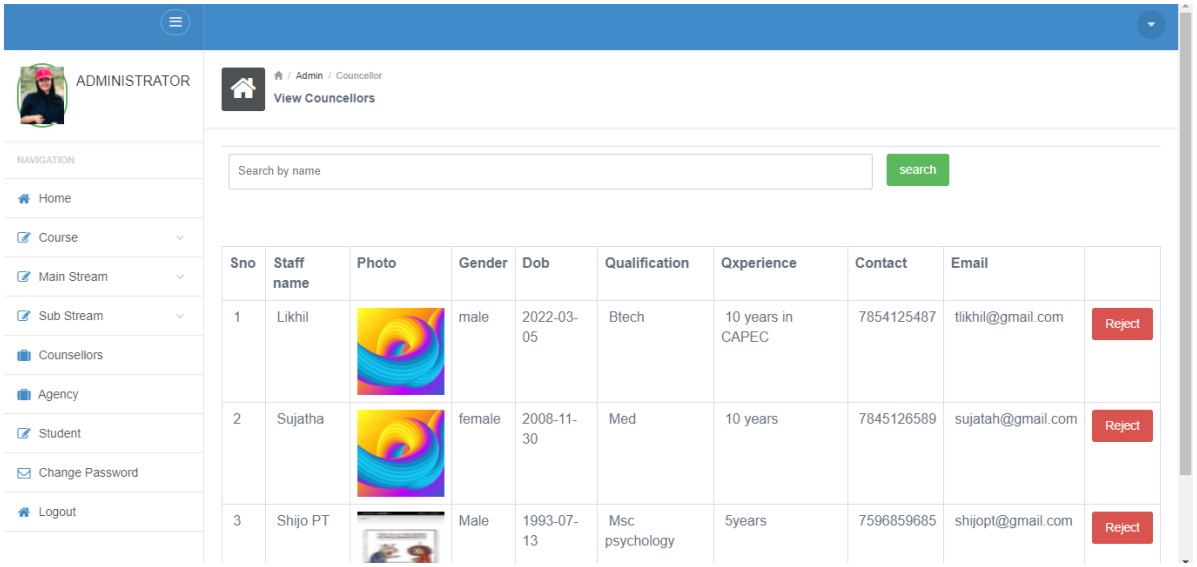

Fig 7.9 Counselor List

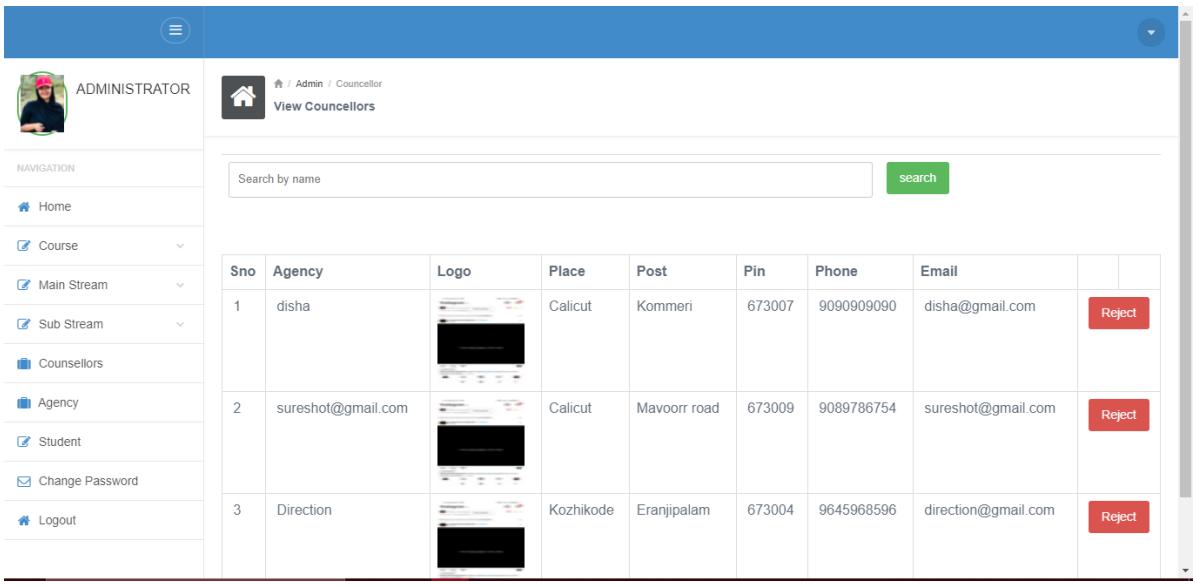

Fig 7.10 Agency List

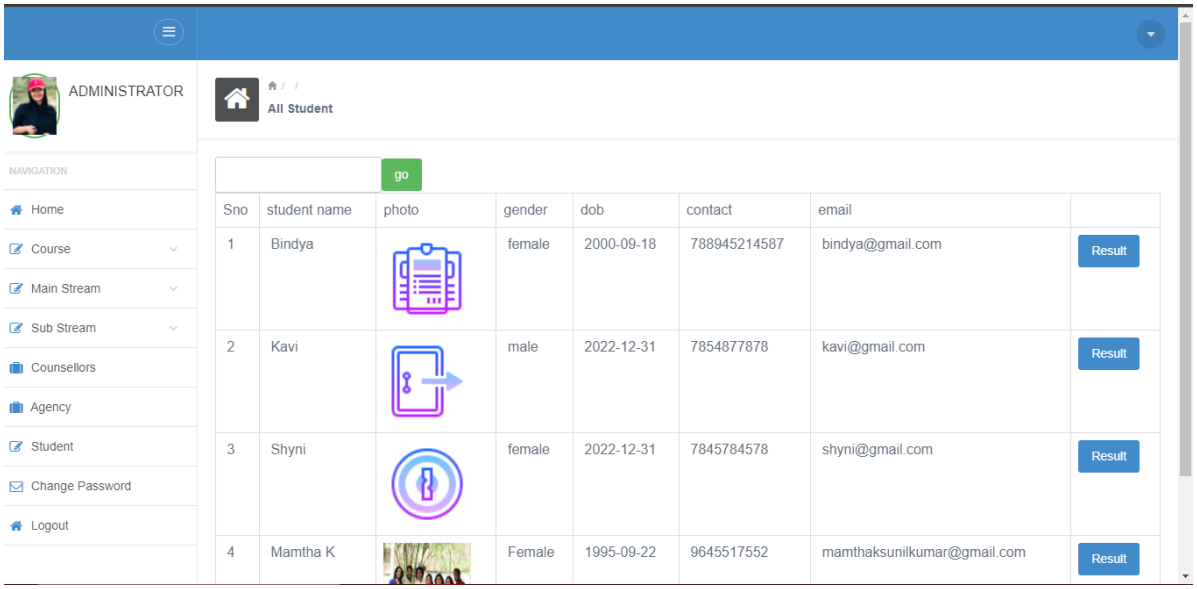

Fig 7.11 Students List

ANDROID

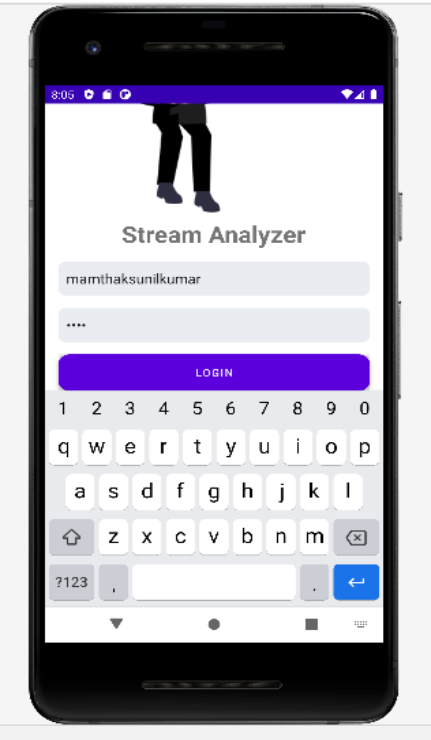

Fig 8 Login Page

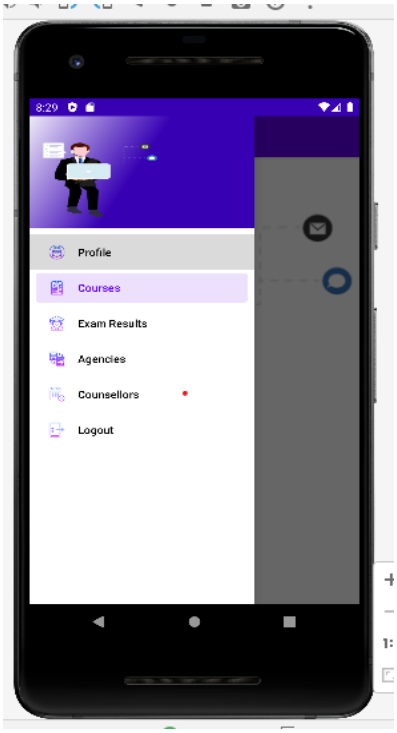

Fig 8.1 Dashboard

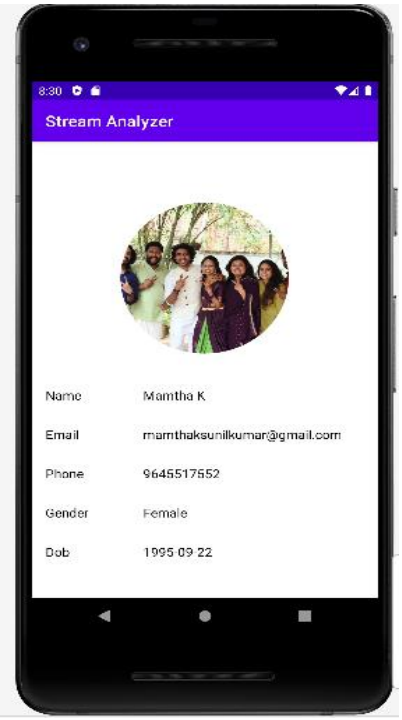

Fig 8.2 Student Detail

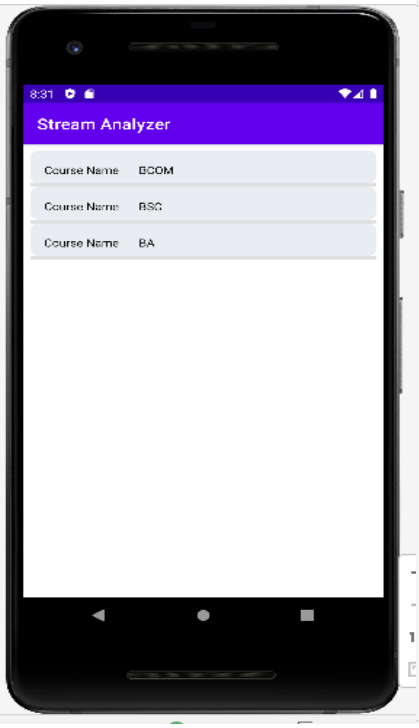

Fig 8.3 Choose Course

Fig 8.4 Choose Sub Stream

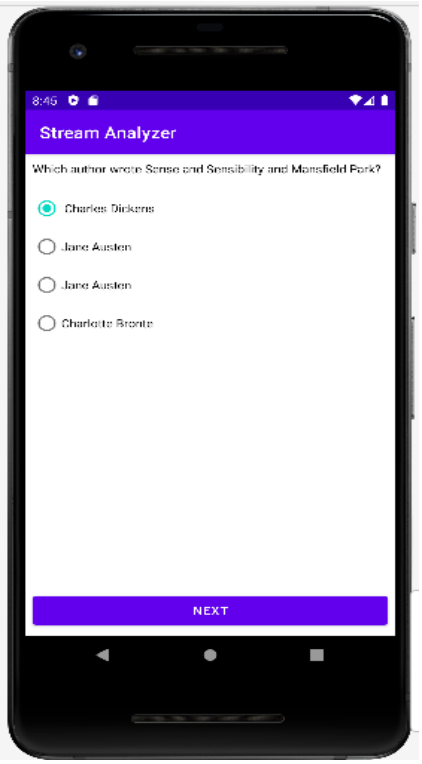

Fig 8.5 Answer Questions

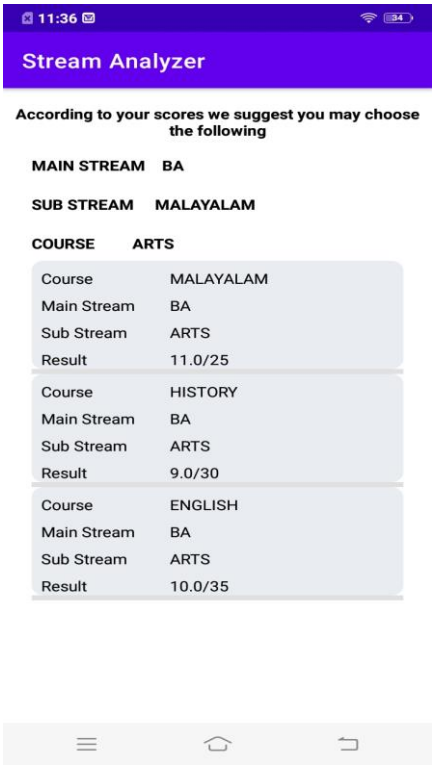

Fig 8.6 Result

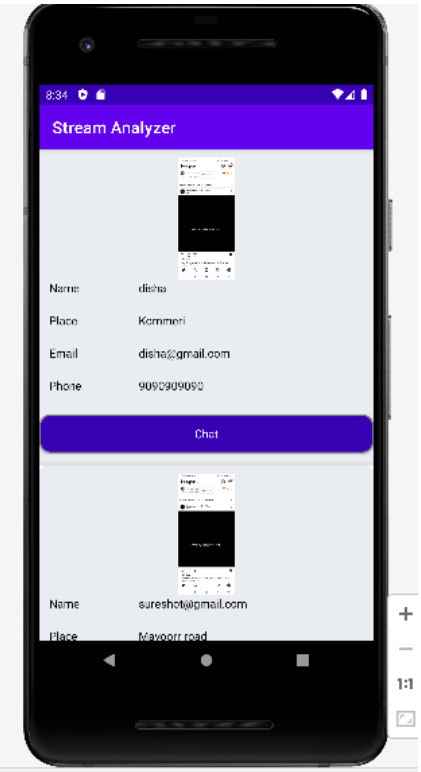

Fig 8.7 Agency Details

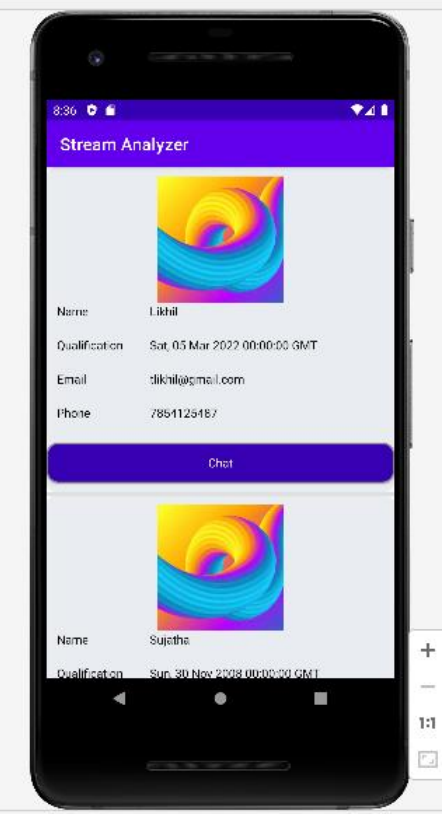

Fig 8.8 Counselor

CHAPTER 8

CONCLUSION

The advantage of the system over existing system was the lack of confusion in choosing courses from given set. In existing system, students get confused while choosing from a lot of courses, which may result in choosing courses that do not match their skills. The proposed system proves to be very helpful for students in choosing courses that suit their skills. The important thing is that this system can be used in schools, colleges, coaching and institutes, can also be implemented in different organizations that conduct regular exams. Also provision is provided for future developments in the system i.e., more modules could be added to the system. This online system will be approved and implemented soon.

CHAPTER 9

SCOPE FOR THE FUTURE ENHANCEMENT

The proposed system, we conduct tests or exams. Registered candidates can attend these exams. On completion of the exam, their score is updated to the server. Based on their score counsellors can recommend them to agencies. Thus the students get recommendation of courses.

Since the proposed project is targeted only for the HSC and SSC students, there still remains a wide scope for growth. In the future more functionality can be added which will facilitate the stream analysis of students from various different streams and majors. Some of the streams which can be added in the future are Engineering, medical, MBA etc. For example an engineering student can give an online aptitude test to determine which specialization he\she should pursue his BE degree in example Civil Mechanical, CSE etc.

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