THE MODERN WEB FOR EDUCATIONAL ASTRONOMY

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CHAPTER 1 – INTRODUCTION

1.1 Background of the Study

Astronomy is a scientific field that, through both the allure of the sky and popular culture, enjoys significant penetration into the public and especially the young. This fact along with the interdisciplinary character of the field makes astronomy an ideal avenue for teaching basic scientific principles in a context that is both relevant to the subject and interesting to the learners. [1]

In the normal classroom, provides a useful alternative to the experimental mode in the scientific method namely, the observational mode. but using a modern web for astronomy studies gives more energy to explore further details about astronomy for students. Normally astronomers understand the universe by comparing its observed appearance with the predictions of theories or models. So, with help of a well-organized website, student-level users can get huge knowledge about astronomy subjects within a short period.

Using web-based education is much easy than normal classroom education. because finding knowledge in the manual method can be unexpectedly time-consuming. This is the ultimate go to site for everything from the "Solar system exploration", articles about missions, discoveries, and space technology, to videos, image galleries, Aliens, etc.

When you try the find the details about astronomy topics alone you can clearly see the importance of a web-based system where you can gather all the knowledge in one place.

1.2 Problem Statement

Google has made its astronomy application, Sky, available for viewing on a Web browser, but most of the others need to be downloaded and installed, requiring open disk space and memory. [2] Some websites are for astronomy professionals. So, the student can't understand the simple theories and activities. So, this Web-Based Learning Support System build for students.

This web-based system builds on concepts of active learning, defined as the process of having students engage in some activity that makes them improve their astronomy knowledge from the website. Such a new educational approach can improve their skills and knowledge. This concept includes Student-centered, user-friendly, includes main astronomy theories base and discovery-base.

Hence, With the help of a well-organized web base system gives the full benefit to the student.

1.3 Motivation and Significance of the Project

As an astronomy student, it is very difficult to discover knowledge in one place. In fact, astronomy is a particularly popular science among young students, hence televisions, websites, and newspapers regularly inform people about discover new plants, Mars's rover results, Space Experiments, missions, spectacular nebulae images, and much more.

But what happens when the students try to increase their own knowledge or deepen this information through the Internet for homework, for exams (Olympiad), or simply for personal interest? Except for some cases, they probably land on old-style sites or professional websites and some are completely outdated with respect to their expectations. The main issue is there is no common platform for Student-centered to integrate all student level topics cover system or application. Therefore, it is an essential need of establishing a common platform to integrate astronomy studies.

1.4 Aim of the Project

The aim of the project is to implement an intelligent web-based astronomy learning system for students.

1.5 Objectives of the Project

- To provide questionnaires for gather requirements from students.
- To identify similar type of system and their processes through the literature survey.
- To catalogues observation fields and main topics.
- To critically evaluate software development methodologies & to select the best methodology to develop the proposed website.
- To design the system using UML diagrams for front end & ERD diagrams for back end.
- To design & code the front end of the website.
- To develop the back end of the website.
- To test the website & deploy in the cloud environment

1.6 Limitations of the Project

1.6.1 Legal acceptance

One of my target audiences for this web-based system is the student who studying astronomy
As a limitation of my project development, I can mention this limitation. Because creating API is a very time-consuming process.

1.6.2 Usage limitation

I am developing this app for web-based users. As a limitation of project development, I can mention without the internet can't access this website.

1.7 Chapter Outline

CHAPTER 1 – INTRODUCTION

The beginning of this chapter described the background of the study, problem statement and motivation, and significance of the study. Then it gives a proper description of the aims and objectives of the solution. At the end of the chapter mention the limitation of the project.

CHAPTER 2 – LITERATURE REVIEW

This chapter indicates critically evaluated a similar kind of system details.

CHAPTER 3 – ANALYSIS

The beginning of this chapter described the feasibility of the project, fact-finding techniques, requirement analysis, functional requirements, non-functional requirements. The end of the chapter indicates the methodology for the system.

CHAPTER 4 – DESIGN

The beginning of this chapter indicates the system design process, interface design, database design. The end of the chapter indicates the hardware components need to develop an android app.

1.7.1 Unique features on proposed web base system

The main unique features are in my project is create a unique interface by using 3-D animation technology. basically, with psychological way. It is because psychology says students can get more understand the Astronomy theories clearly. To develop the proposed web-based system, I will use these unique features.

3D solar system

- 3D Solar System is a full-motion 3D model of the entire Solar System. The display above is a WebGL simplification of the Earth rendered by this application to show some of the potentials. A single planet can be focused on with the Zoom on Planets, measure speed, and Distance.

NASA API

- NASA API portal provides specific facilities to my proposed system. It's an Open free API.
- Astronomy API
- This is a data retrieval interface for the skies.
- Astronomical Calculation
- Here provides real-time information according to the solar system.
- Harvard spectral star generator
- Stellar spectra allow us to divide stars into several spectral. here will provide some details about Galaxy.
- Measure the student progress
- Tracking student progress on a lesson or module basis might not be the most important metric on its own. However, it will give you valuable data to work with as you start diving deeper into your data

CHAPTER 2 – LITERATURE REVIEW

There are different strategies for the creation of teaching Astronomy. But the web-based system is the best system for astronomy studies. It because can get the overall idea within a small time.

This chapter provides an overview of technical research regarding the application and effectiveness of various types of modern webs in astronomy study. Hence various researchers have tried to develop different apps, websites, software and etc. below I mention 8 collections of researches and software similar to the modern web for astronomy studies.

1) Astronomy education for the public via emerging internet technologies

Specifically, in this paper presents the educational activities at a regional Amateur Astronomy Club that aims to disseminate astronomy basics and related physics to the public and especially the young generation. Further Communicating astronomy to the people is so hard. This research paper mentions few challenges about this topic.

- Highly specialized scientific knowledge is disseminated to an audience of a dispersed scientific background, often without extended and/or uniform scientific education and skills; [1]
- The audience is of a wide age range, preferences, and goals regarding their pursuit of astronomy knowledge; an [1]
- The audience has a diverse daily schedule while scattered over a region considerably larger than a university campus. Most importantly, considering the amateur, sideline nature of public astronomy education, the whole educational procedure should be more of a leisure activity than formal learning. [1]

Key Findings of the research paper:

- With the help of astronomy professionals build the system for astronomy problems in order to devise, develop and deploy.
- Deploy problem-based sessions in virtual for students and instructors.
- providing some tools for student’s problems.
- monitoring students' continuous evaluation and providing reports.
- Few recommendations are including with the system.
- Does not provide faced to students take out quiz.

2) Modern web 2.0 tools for educational astronomy

This research article mainly focuses on the framework of GLORIA (Global Robotic-telescopes Intelligent Array) in these researchers believe this is the best build browsers-based educational tool. Further, this article provides to readers the latest standards and concepts insight of these new technologies and to understand their great potential.

Modern web technologies can help non-professional web designers, like astronomers, achieve the goal of effectively explaining their complex work to students and the general public and spreading the news about their discoveries via educational sites. Moreover, web-based citizen science projects have proven particularly successful when clear and intuitive user interfaces are implemented. [3]

Key Findings of the research paper:

- providing free and open access to the network GLORIA.
- allow users to do research in astronomy by observing with such telescopes and/or by analyzing data that other users have acquired.
- Protect and manage user's images and data collected by users.
- Providing sky chart of the bright star’s catalogs.
- Few recommendations are including with the system.
- Provide faced to students take out quiz.
- Lack of information-related subject.

3) A desktop virtual reality earth motion system in astronomy education

This research article mainly focuses on desktop virtual reality motion systems for astronomy students in the classroom. Because of many children can't understand the basic concepts of astronomy.

In this study, a desktop virtual reality earth motion system (DVREMS) is designed and developed to be applied in the classroom. The system is implemented to assist elementary school students to clarify earth motion concepts using virtual reality principles. A study was conducted to observe the influences of the proposed system in learning. [4]

Key Findings of the research paper:

- providing free and open access to the network GLORIA.
- allow users to do research in astronomy by observing with such telescopes and/or by analyzing data that other users have acquired.
- Protect and manage user's images and data collected by users.
- Providing sky chart of the bright star's catalogs.
- Does not provide quizzes.
- Only focused on one main go.

4) Astro physique sur measure", e-learning in astronomy and astrophysics

The programs are presented on two different platforms. The first one offers the content of all the lectures in free access. A second platform with restricted access is provided to registered students taking part in the e-learning program and benefiting from the help of tutors. [1]

This research paper mainly focused on the astronomy student or learners and his/her tutor. This System implements on the web on two different platforms. The first plat-form offers the content of all the lectures in free access to all internet users.it completely free for lectures and free for registered students.

In this system, courses are delivered to students (primarily level to graduate students). This Well-organized website is for only e-learning. Lecture and student-based system in this platform use their no observation unit in this project

Key Findings of the research paper

- Only one side recommendation is including with the system.
- Provide faced to students take out quiz.
- Provide facility to Manage courses.
- No various sub-topics in this system.
- Does not provide a wide range of information related to the search.
- well categorized courses student-based.

5) Online Astronomy for Formal and Informal Learners

An important context for teaching astronomy is the public understanding of science. In the United States, most of the 22 million college students who are not science majors have to take science as part of the breadth of General Education requirement. Astronomy is one of the most popular options for satisfying the requirement. [5]

This research paper mainly focused on normal and informal teaching of astronomy is a free, open-access website designed for formal and informal learners of astronomy.
According to the project details they were going to develop a website using an online textbook of 450000 words, with 2000 quiz questions .it based on a learning system (video, Audio) this lesson can carry over to instructional design in face-to-face classrooms for anyone can learn.

Key Findings of the research paper:

- Only one side recommendation is including with the system.
- Provide faced to face classroom design to learn
- Provide facility to manage courses.
- Does not provide a wide range of information related to the search.
- It has a clustering tool based on keyword overlap of text-based content.

6) NASA Web System

NASA is a (National Aeronautics and Space Administration) America's civil space program and the global leader in space exploration. [This website explores NASA's Missions and astronomy latest news and further expands knowledge for the benefit of humanity. [6]
The case study of this website utilized a centralized major topic in the system, meaning that they are using both professional and student-level systems but when understanding some basic points student, it is very hard to manage their knowledge in this type of website. This website is not based specializing in student-level learning.

Key Findings of the website:

- The system is responsive.
- Recommendations are including with the system.
- Does not provide faced to students take out quiz.
- Does not provide facility to Manage courses.
- Provide various sub-topics in the system.
- Provide a wide range of information related to the search.

7) Astronomy online org

This is an educational website. It's never too late to learn astronomy, even for those who have not completed their primary (High School) education. A GED can get you in the door to college- level courses. [6]

Another project introduced an Astronomy practical-based system. there are a lot of topics in the system but it's not user-friendly. this website has strong content and a well-finalized topic step by step.

Key Findings of the website:

- providing free and open access to the various network
- The system is responsive.
- Providing sky charts and images of observation.
- Recommendations are including with the system
- Does not providing any student profile.
- does not provide quizzes and courses

CHAPTER 3 – ANALYSIS

3.1 Introduction

Definition of Project analysis. Project analysis means work done before the legislative appropriation for a project to develop a reliable estimate of the cost of the project to be used in the appropriations request.

3.2 Feasibility Study

A feasibility study is an analysis of the viability of an idea. With the help of a feasibility study can answer the additional questions in the project, “should we proceed with the proposed idea?”
An example of such a feasibility study would analyze the suitability of eLearning tools, their adaptation, and customization to organizational needs, and the most efficient implementation. the software has conducted studies of this nature for student-based education program.

There are four types of feasibility study separate areas that a feasibility study examines Technical feasibility Legal feasibility

3.2.1 Legal feasibility

Concerning the legal aspect of the project, I would have to make sure not to use anything that is copyrighted without the permission of the owner, nor should I use a name that is already used by another application because that would also be copyrighted.

3.2.2 Financial feasibility

When it comes to the cost of the project, the development platform what does it cost to get your website on Google?" It's free! It doesn't cost anything. Google will put you on their website at no charge. There are some prices for if someone builds the website and designing and maintenance. So, I am the one who builds designing and maintenance. Because of that doesn't have a price for that? Bu have some costs for API and extra services. I have to buy the database part, if I choose to use an open-source database management system such as MySQL then it would be cost-free, on the other hand, if I choose to use google databases then the cost would depend on my capacity needs. Other costs will depend on the use of other technologies. Once deployed, the application will be available for free for the public.

Table 1:Financial Report

Financial Facts	**Amounts**
Accessories cost (including printing of final report)	Rs:1500
Domain Name	Rs:2500
API	25$

3.2.3 Economic feasibility

There are mainly 3 factors to concentrate on.

3.2.3.1 Time

we have one year time period to complete this project. It will feasible enough to complete this project. According to the Gantt chart, it proved that the proposed project is feasible enough thought the one-year time period.

3.2.3.2 Quality

The quality of the project's feasibility was evaluated by using a literature review panel. According to the several research papers findings and similar project research, it proved that the quality of the proposed project.

3.2.3.3 Cost

Table 2:Estimate Cost for project

Financial Facts	**Amounts**
Accessories cost (including printing of final report)	Rs:1500
Domain Name	Rs:2500
API	25$

3.4 Fact-Finding Technique

Fact-finding techniques are a process of collection of data and information based on techniques that contain a sampling of existing documents, research, observation, questionnaires, interviews, prototyping, and joint requirements planning. System analyst uses suitable fact-finding techniques to develop and implement the current existing system. Collecting required facts are very important to apply tools in System Development Life Cycle because tools cannot be used efficiently and effectively without proper extracting from facts. [1]
For this proposed web-based system I have used questionnaires and interviews to find the requirements of users. For that, I used Google Forms. The provided questionnaire and interview questions are mentioned below.

3.4.1 Interview Questions for School students

I. Are you Astronomy Student?
II. What are the main topics would you have to cover?
III. Did you face the astronomy Olympiad?
IV. What practical theories do you have to cover in your school?
V. Is it easy to cover astronomy concepts using the web?
VI. What is your favorite web base system in astronomy?
VII. Are you aware of astronomy calculations?
VIII. Are you aware of the spectral Harvard star generator?
IX. What is your idea about e-learning with multiple benefits?
X. If you have any suggestions about my proposed project?

3.4.2 Google form Questions and Respond

I. Do you have enough knowledge about Astronomy?
II. What are the difficulties when you learning Astronomy?
III. Do you like 3D explanation or 2D explanation, is there any reason for that?
IV. This system provided view lessons and measure yourself on one platform. So, what do you think, is it effective?
V. Astronomy education in the classroom uses research-based methods to study. Is it enough to learn Astronomy subjects or are you get any help from the internet?
VI. Are you aware of astronomy calculations?
VII. Are you aware of the spectral Harvard star generator?
VIII. Astronomers study just about everything out of this world: other planets, stars, galaxies, black holes, comets, asteroids, and planetoids. So as an Astronomer how about your astronomy knowledge?

I. If you have any suggestions about my project?

Figure 1:Google form Questions

What are the difficulties when you learning Astronomy?

15 responses

Not enough details

Astronomy as a hobby can be expensive.

Haven't got a good path to get knowledge

Cant find real details and true details

There are very few and limited ways exist (resources: books, websites)to learn about it.

Shortage of necessary equipment

No idea

No

Not enough facts

Figure 2:Google Form Questions

Do you like 3D explanation or 2D explanation, is there any reason for that?

15 responses

3D

Yes

-

3D expaltation. Can be seen as real experience.

Figure 3:Google Form Questions

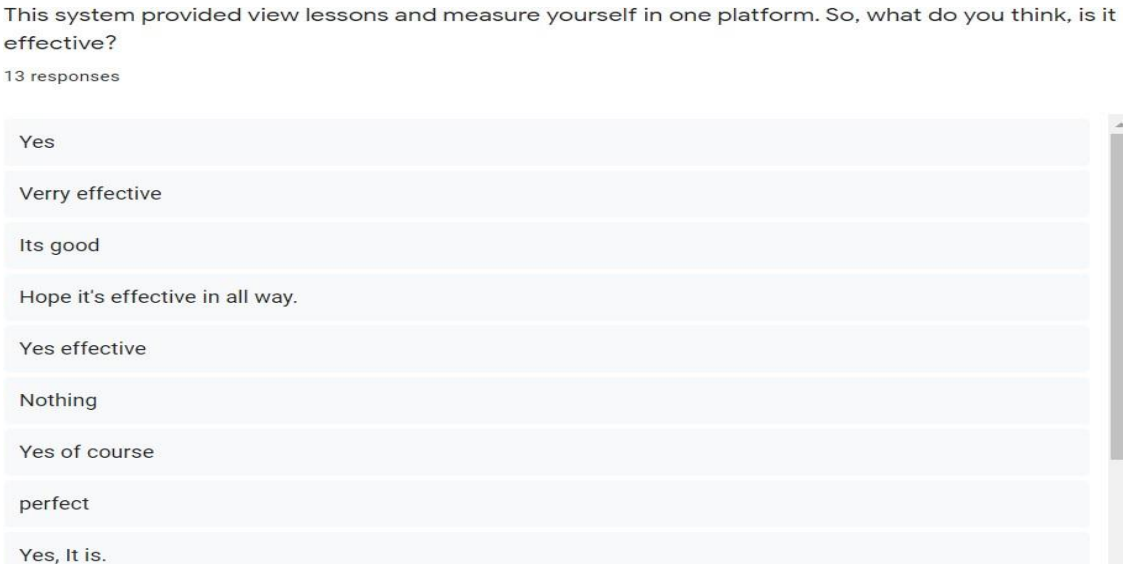


Figure 4:Google Form Questions

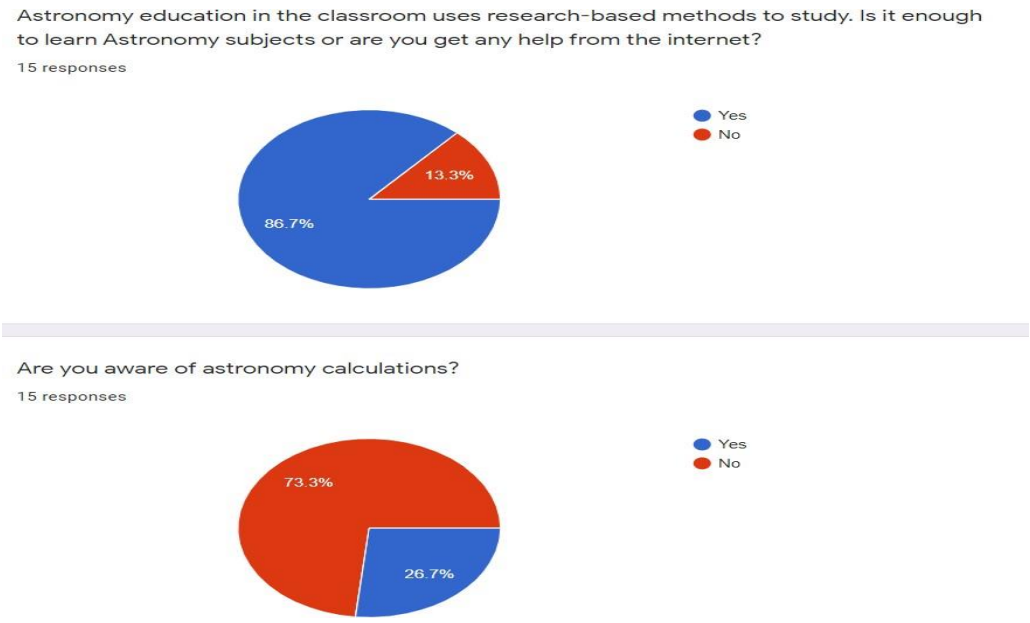
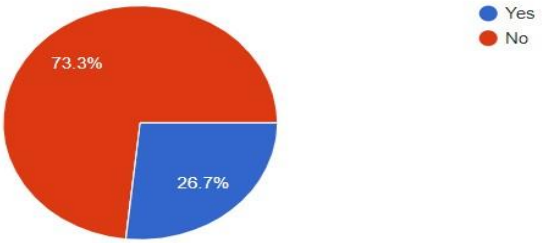


Figure 5:Google form Questions

Are you aware of the spectral Harvard star generator?

15 responses



Astronomers study just about everything out of this world: other planets, stars, galaxies, black holes, comets, asteroids, and planetoids. So as an Astronomer how about your astronomy knowledge?

15 responses

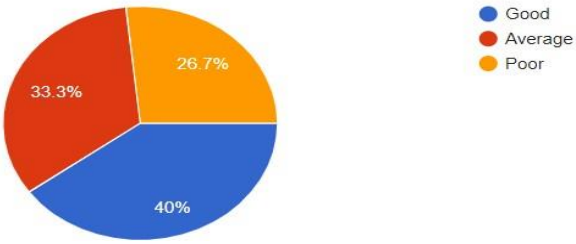


Figure 6:Google Form Questions

If you have any suggestions about my project?

15 responses

No
Very good project. Add more facts.
No suggestions. Good content. waiting to learn more about astronomy😉
Nothing special
If you can add some important information about all the planet i think it would be perfect, in order to learn about new things about the planets
A good project
No..it is good project
An I like you would add some features about stars in you system

Figure 7:Google Form Questions

3.5 Requirement Gathering Process

To develop proposed Web based system, I will use three (3) fact finding methods to gather requirement,

3.5.1 Data Collection Techniques

The purpose of data gathering is to collect sufficient, relevant, and appropriate data so that a set of stable requirements can be produced. So, in this part, I collect sufficient data about astronomy teaching techniques and further more.

3.5.2 Questionnaires

I will create a google form to identify school-level needs in astronomy subject. Studying Documentation and Observation
I will study related, applicable documentation and observe practices and features of existing educational digital resource sharing systems critically in order to get additional information to inform the design of the system.

3.5.3 Functional Requirements

It characterizes the usefulness of a System or one of its subsystems. It likewise relies on the type of software, expected users, and the kind of system where the software is use.
The definition of a functional requirement is: “Any requirement which specifies what the system should do.” In other words, a functional requirement will describe a particular behavior of function of the system when certain conditions are met. [1]
According to the proposed web-based system following are the functional requirements based on literature review, interview, and questionnaire.

I. Register with the web site
II. Login to the Web site
III. View 3D Solar System
IV. NASA's Open Data Portal
V. Able to calculate with help of astronomy calculation
VI. Search Star with help of Harvard Star Generator
VII. View member platform
VIII. View lessons
IX. Tracking member Improvement
X. Manage and maintain records
XI. Feed Back/ Rating Engine
XII. Generate member grades

3.6 Non – Functional Requirements

Non-functional requirements cover all the remaining requirements which are not covered by the functional requirements. They specify criteria that judge the operation of a system, rather than specific behavioristic are the functions cover the all the requirements. [1]
In the proposed system following are the non-functional requirements that may have in the final system.

1) Security

- Members personal information should be protected

2) Performance

- User should be able to quickly access the app without time-wasting.
- System should be work without lagging

3) Availability

- System should be updated recently

4) Usability

- The users of the system can easily interact with the user.
- interfaces and can easily understand the functionalities of the sys

3.7 Methodology for the Proposed Solution

To develop the proposed web-based system, I will use a modified waterfall model it means the Iterative Waterfall method. In order to address the research problem, this study will have multiple research methods expanding literature reviews, observation methods, and questionnaires. This study is based on discovering a solution for how astronomy studies in a modern way.

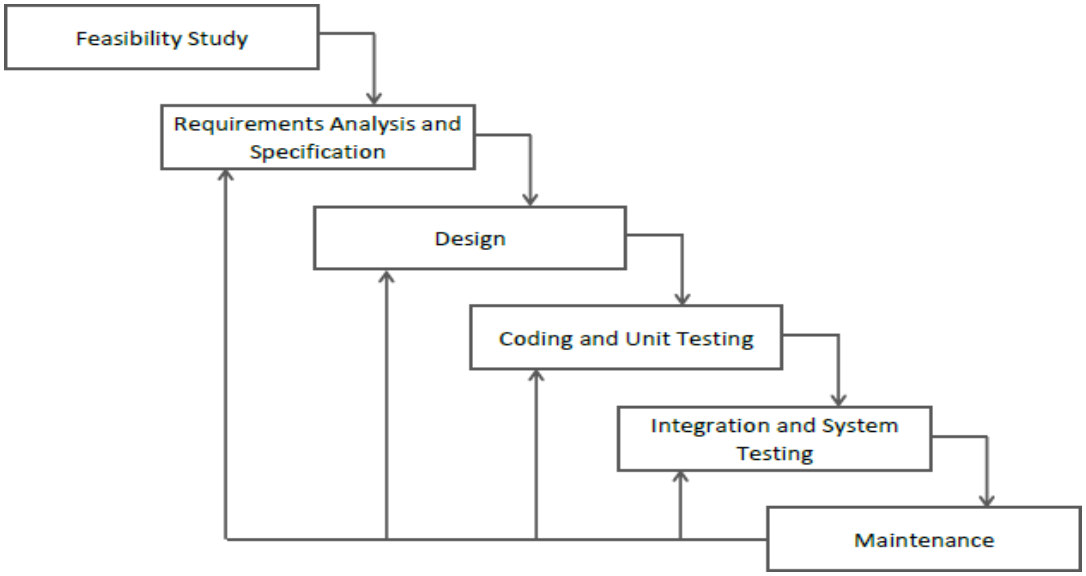


Figure 8:Iterative Waterfall model

3.7.1 Advantages of Iterative Waterfall Model: -

- The iterative waterfall model is very easy to understand and implement.
- The iterative waterfall model feedback path from one phase to its preceding phase allows correcting the errors that are committed and these changes are reflected in the later phases.
- The phases do not overlap. They are processed and completed one at a time.
- It is very simple and easy to make changes or any modifications at any phase.
- By using this model developer can manage the project properly.
- Not necessary for customer involvement.
- This model is can used for large and complex projects.

3.7.2 System Overview

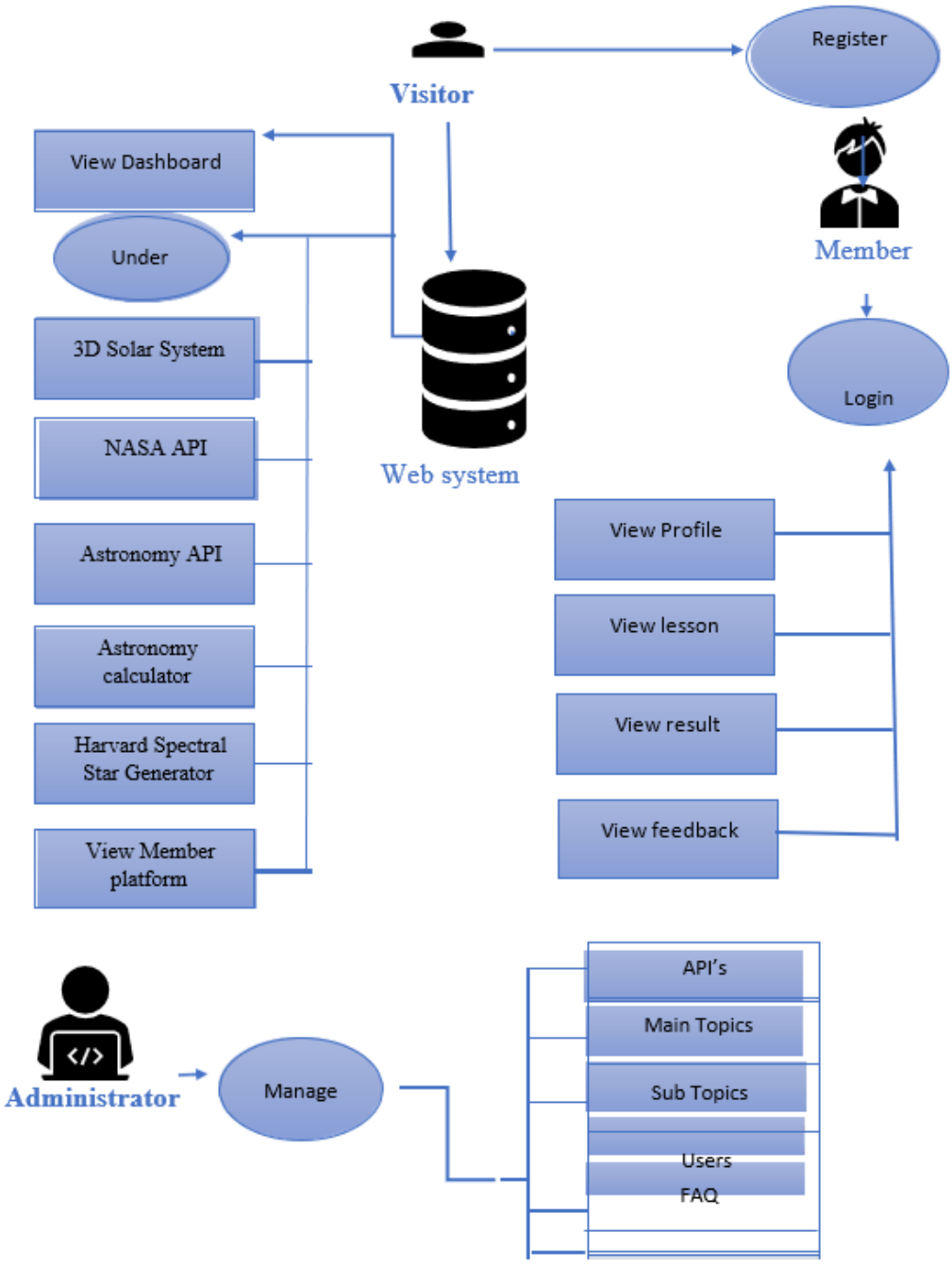


Figure 9:System Overview

CHAPTER 4 – DESIGN

4.1 Introduction

The process by which an agent creates a specification of a software artifact intended to accomplish goals, using a set of primitive components and subject to constraints. Software design may refer to either "all the activity involved in conceptualizing, framing, implementing, commissioning, and ultimately modifying complex systems" or "the activity following requirements specification and before programming, as ... [in] a stylized software engineering process. [8]

4.2 System Design Process

Systems design is the process of defining elements of a system like modules, architecture, components and their interfaces and data for a system based on the specified requirements.

4.2.1 Use case diagram

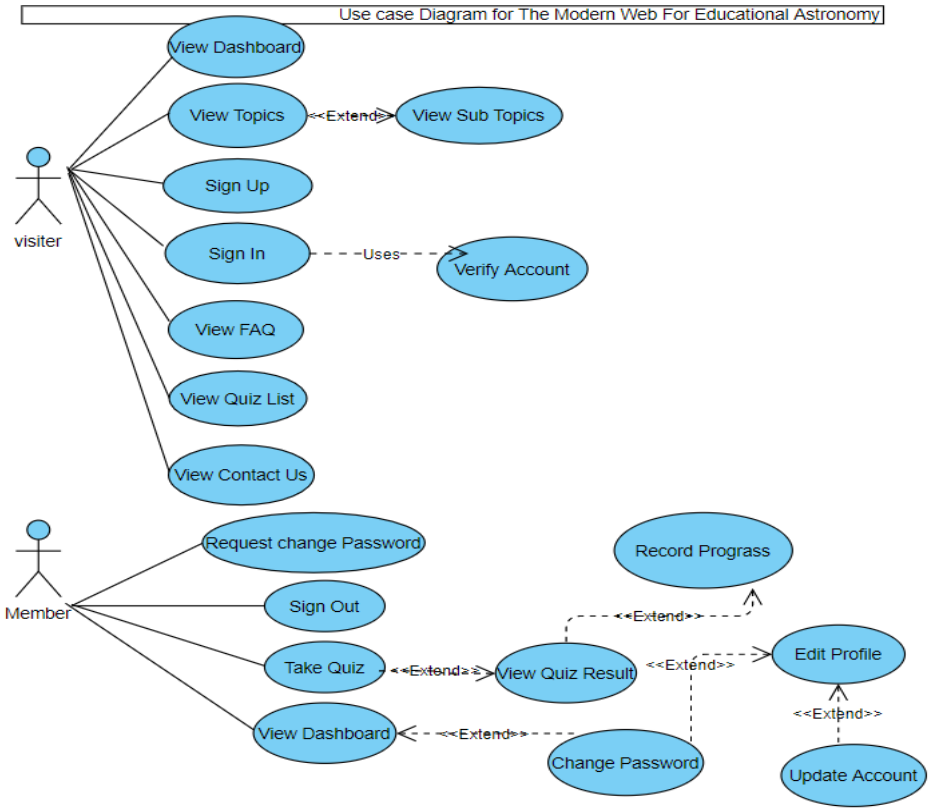


Figure 10:Use case Diagram-Visitor & Member

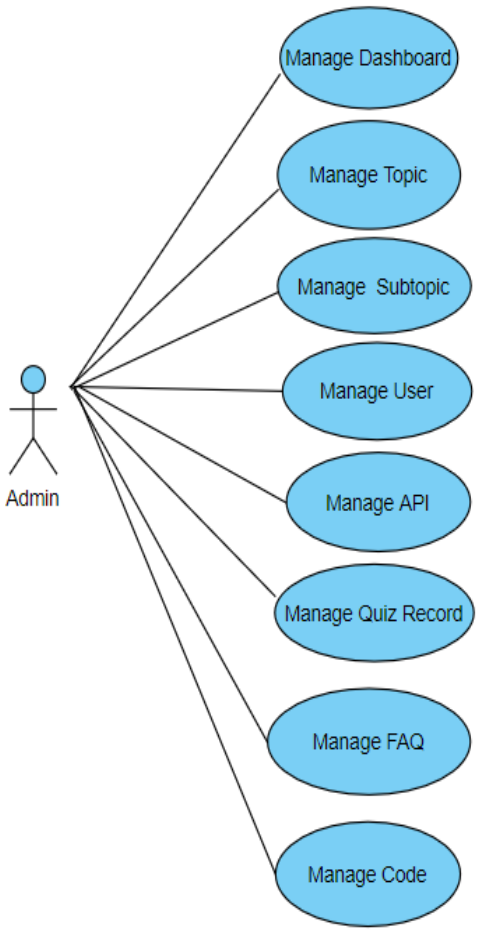


Figure 11:Use Case Diagram-Admin

4.2.2 Class Diagram

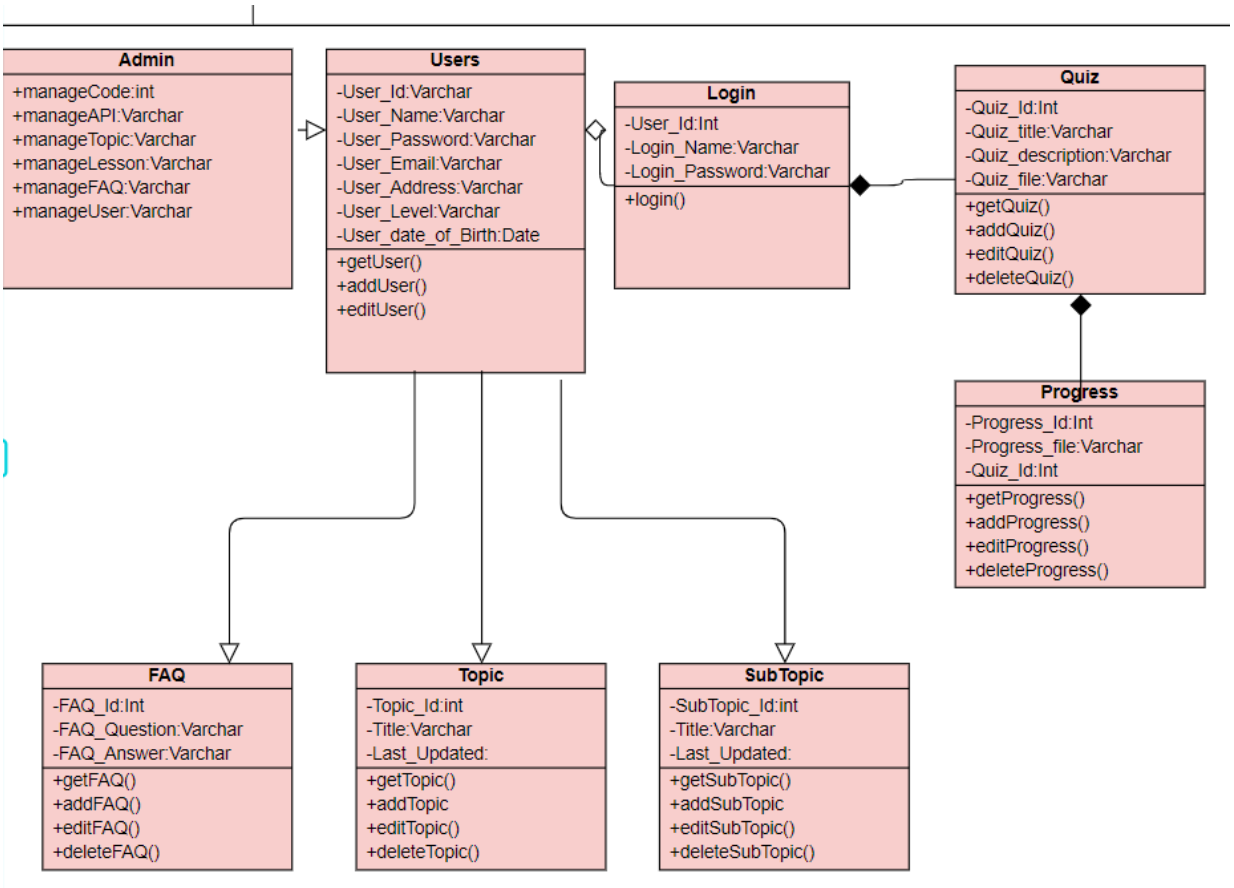


Figure 12:Class Diagram

4.2.3 Sequence diagram

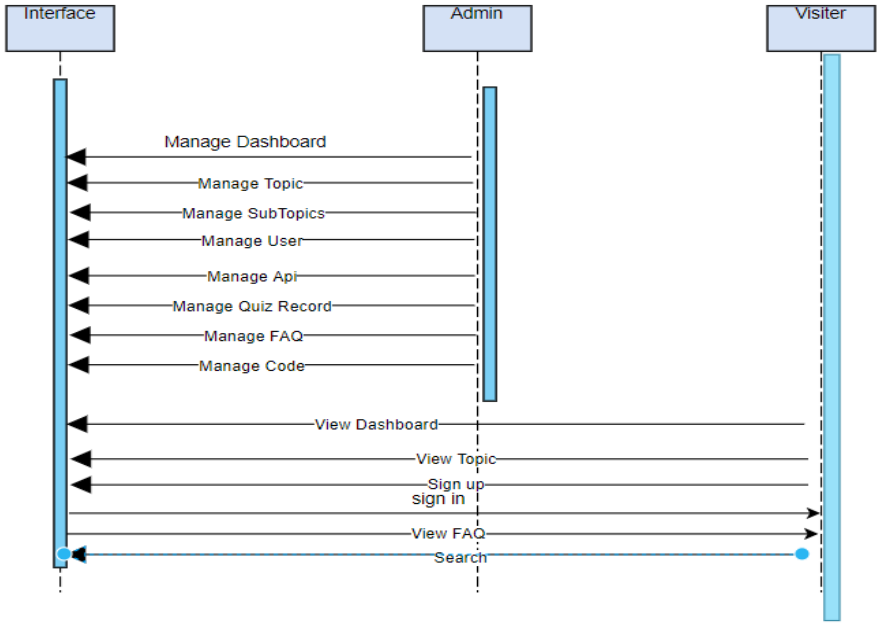


Figure 14:Sequence Diagram -Admin & Visiter

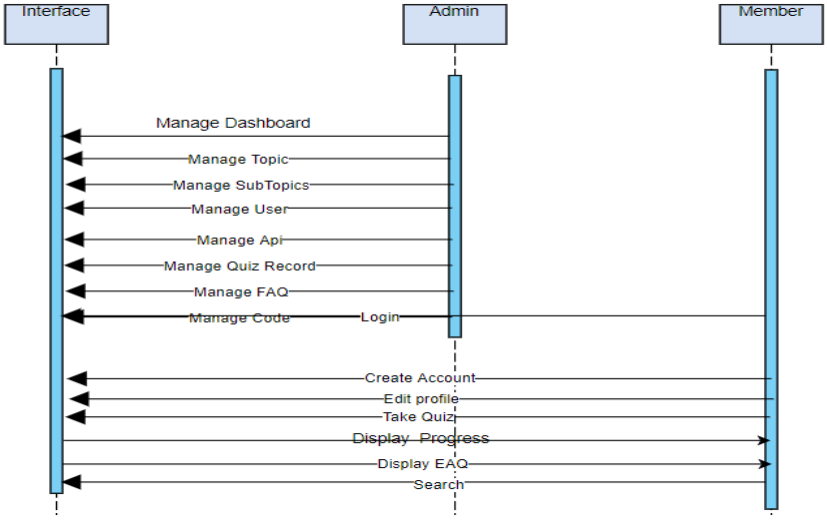


Figure 13:Sequence Diagram -Admin & Member

4.3 Interface Design

4.3.1 Design Principles

Design principles are fundamental pieces of advice for you to make easy-to-use, pleasurable designs. You apply them when you select, create and organize elements and features in your work. Design principles represent the accumulated wisdom of researchers and practitioners in design and related fields. [9]

Following are the main 6 design practices you can use when designing a system.

4.3.1.1 BALANCE

- Balance in design is similar to balance in physics. The visual balance should be in the system. it should be divided similarly into two sides of the system. if not It's like a seesaw—too much weight on either side and the whole thing will become unbalanced.

- By striking this balance you create visual harmony and stop your design from feeling too chaotic to the viewer. It's one of the most important parts of visual composition, and comes in three basic forms.

4.3.1.2 PROXIMITY

- Proximity creates a relationship between elements. It provides a focal point. Proximity doesn't mean that elements have to be placed together, it means they should be visually connected in some way.

4.3.1.3 ALIGNMENT

- Permits us to make requests and associations. Adjusting components permits them to make a visual association with one another.

4.3.1.4 REPETITION

- Repetition makes designs visually stimulating and cohesive. It also creates a sense of consistency by using a repeating motif that the viewer comes to expect. This makes it mainly useful when it comes to creating your distinct brand identity.

4.3.1.5 CONTRAST

- Designs that look the same are boring by experimenting with contrasting color hues, shapes, sizes, textures and design, you can liven things up. Humans tend to like contrast. It's a great way to grab attention, control the visual flow and keep peoples engaged.

4.3.1.6 SPACE

- The name is somewhat deceptive — it's anything but a "negative" thing and it doesn't need to be "white". It very well may be any tone: blank area is referring to what you don't add; the vacant parts around and inside your plan.

4.3.2 Mock Screens of the System

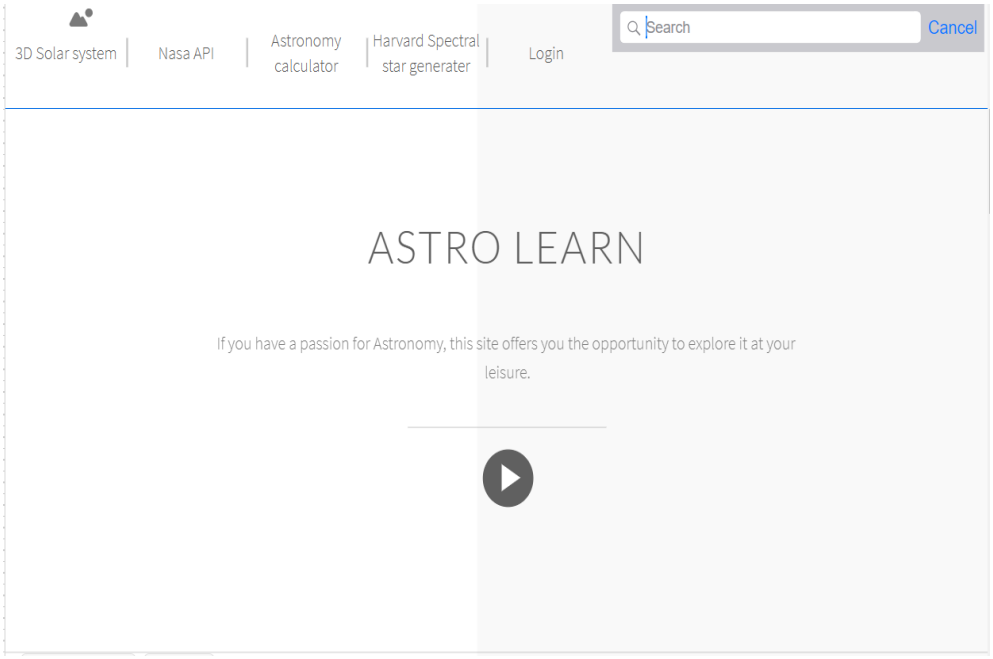


Figure 15:Mock Screen-Dash board

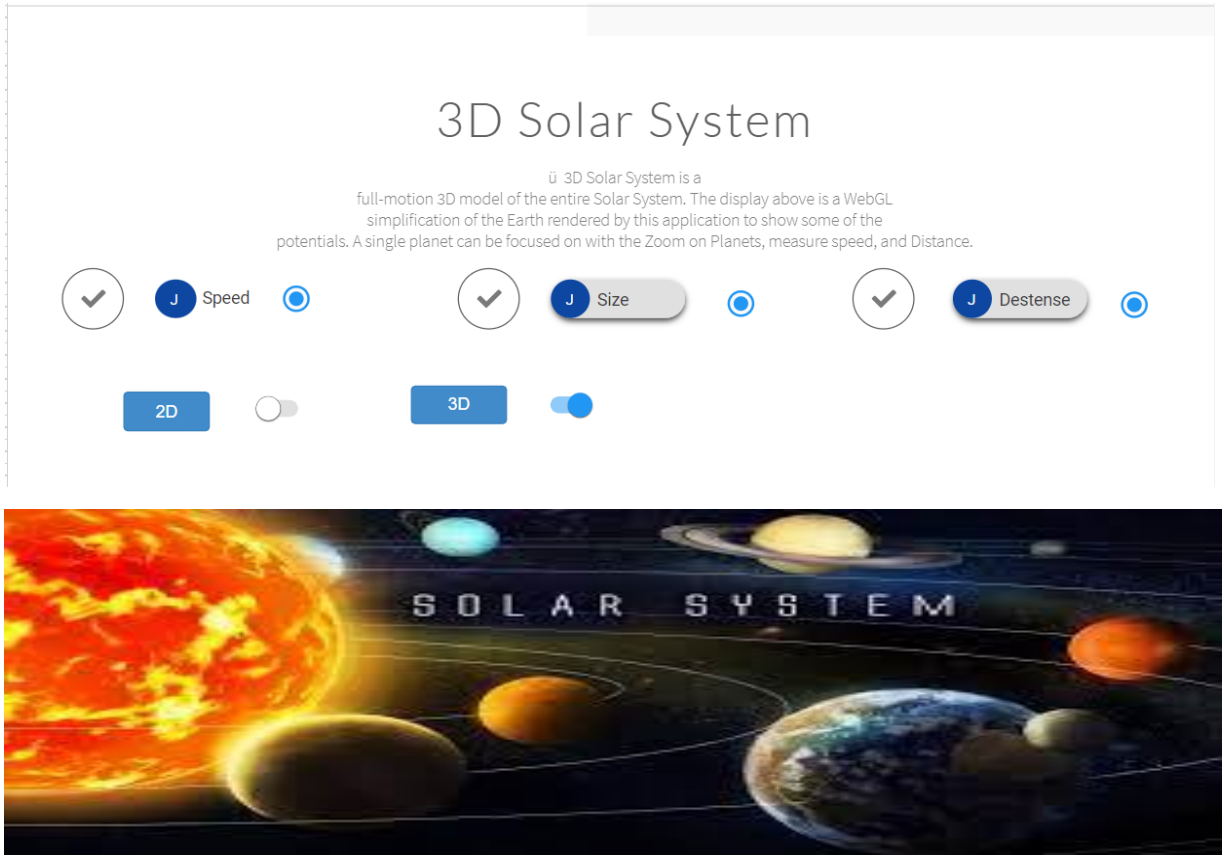


Figure 16:Mock Screen Solar System

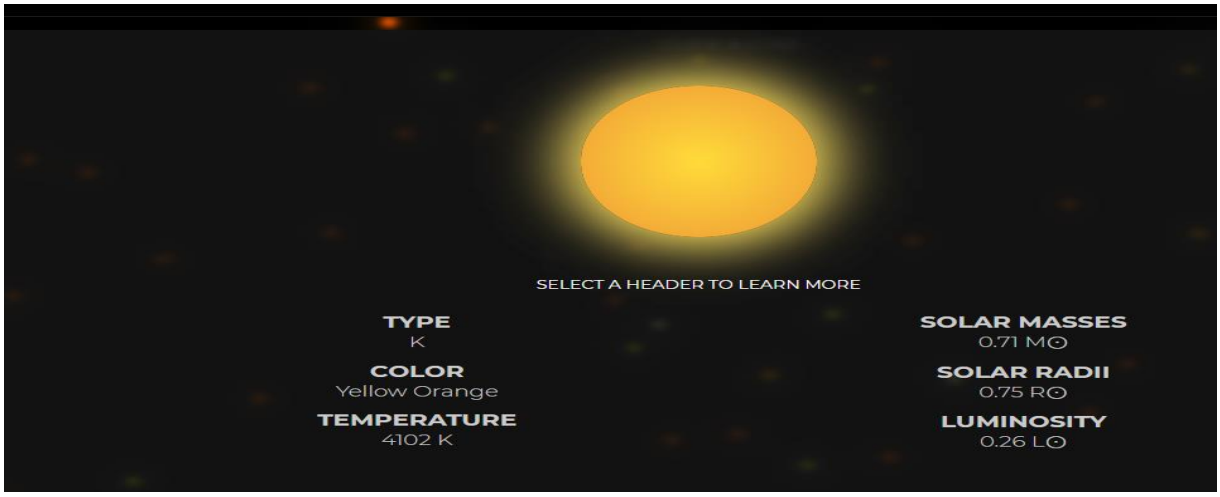


Figure 17:Mock Screen Harvard Spectral Star Generator

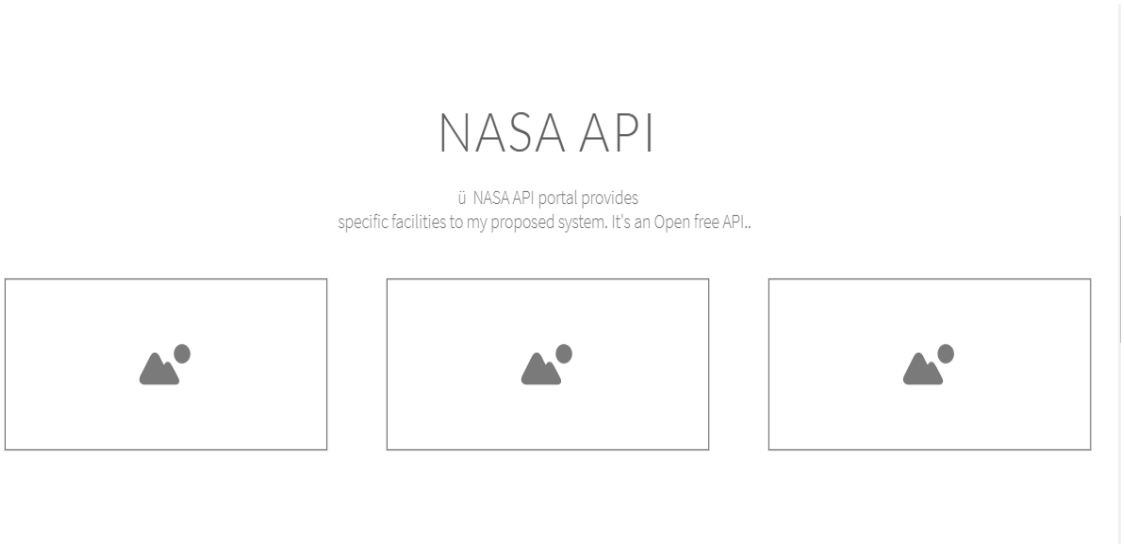


Figure 18:Mock Screen NASA API

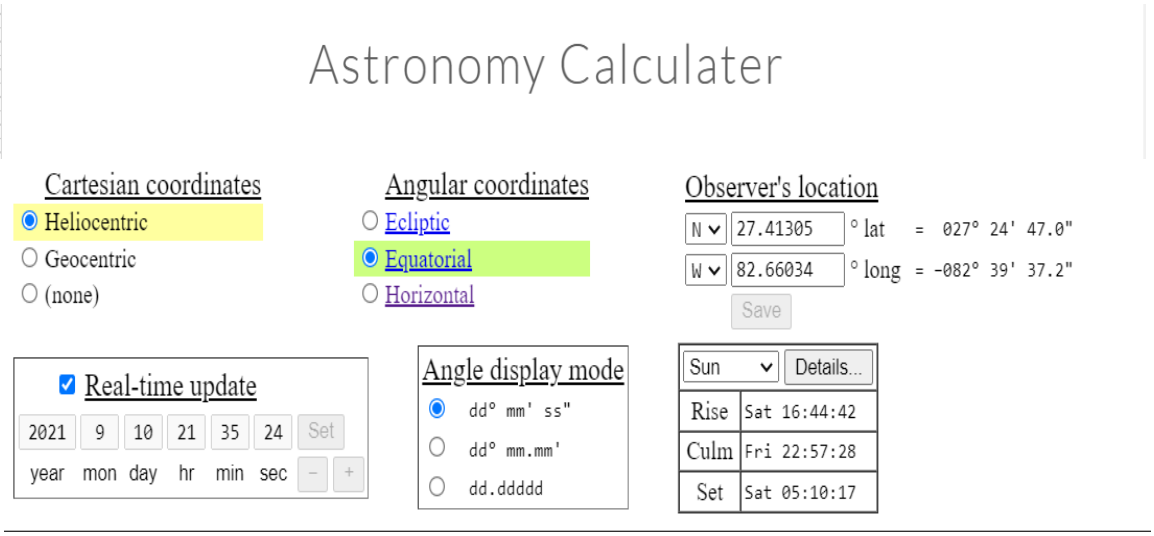


Figure 20:Mock Screen Astronomy Calculator

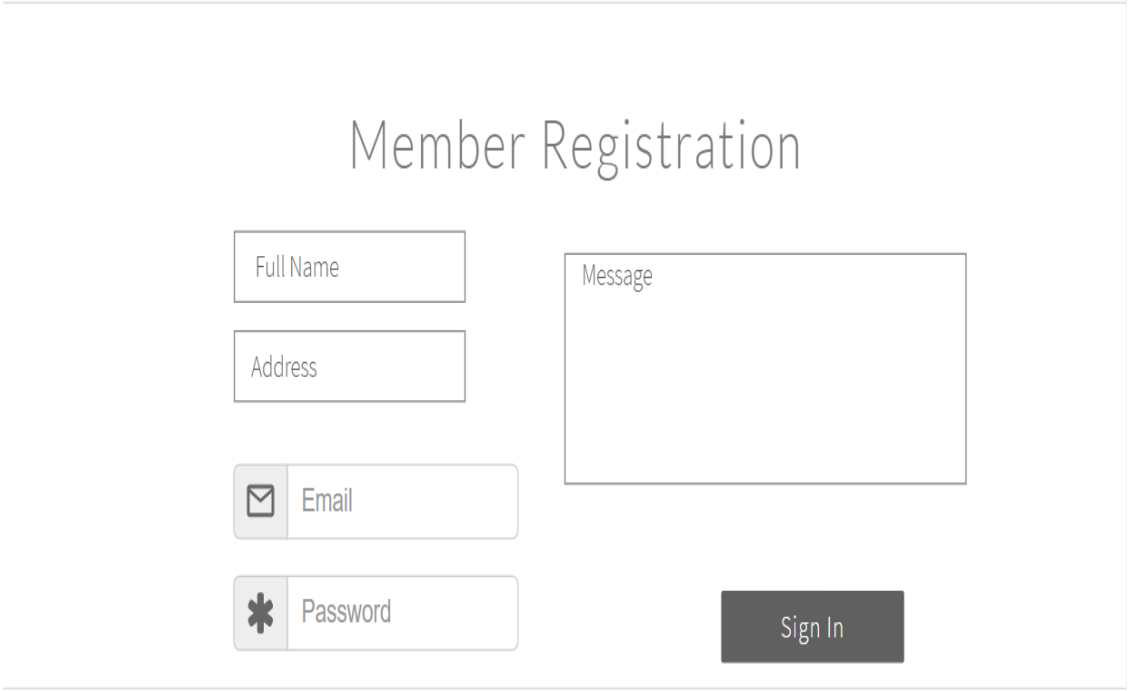


Figure 19:Mock Screen Member Registration Portal

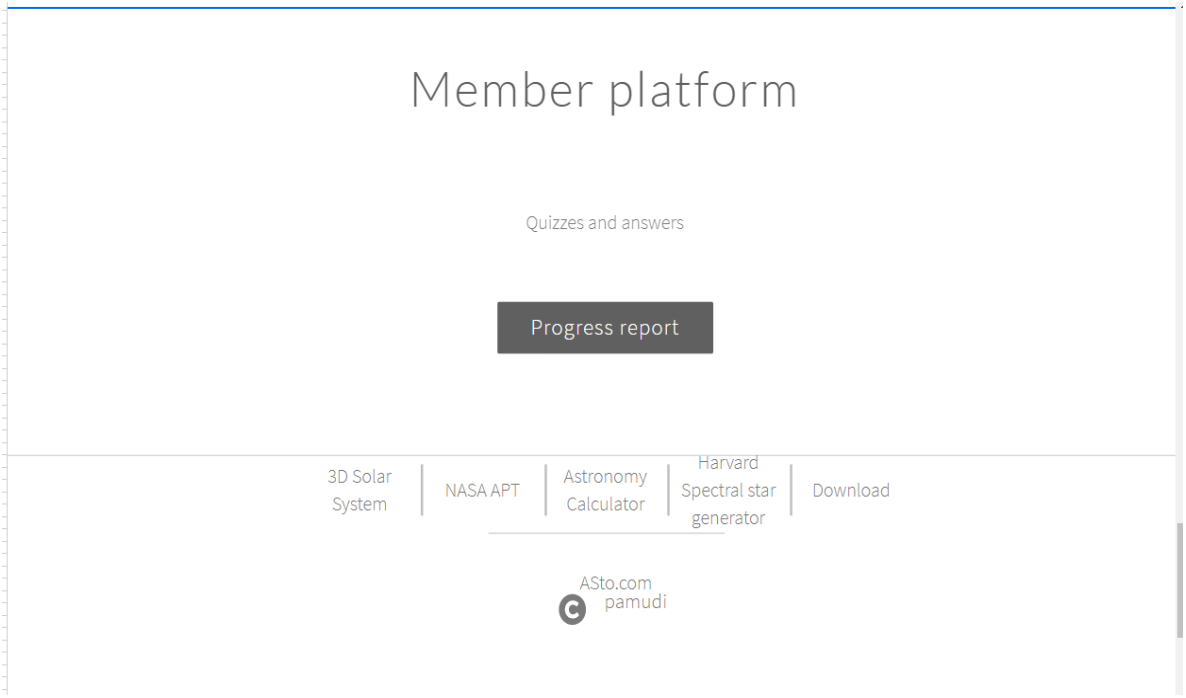


Figure 21:Mock Screen Member Platform

4.4 Database Design

Database design is the organization of data according to a database model. The designer determines what data must be stored and how the data elements interrelate. With this information, they can begin to fit the data to the database model. Database management system manages the data accordingly. [10]

4.4.1 Entity Relationship Diagrams (ERD)

An entity-relationship diagram (ERD) displays the relationships of entity sets stored in a database. An entity in this context is an object, an element of data. An entity set is a collection of similar entities. These entities can have attributes that define their properties.

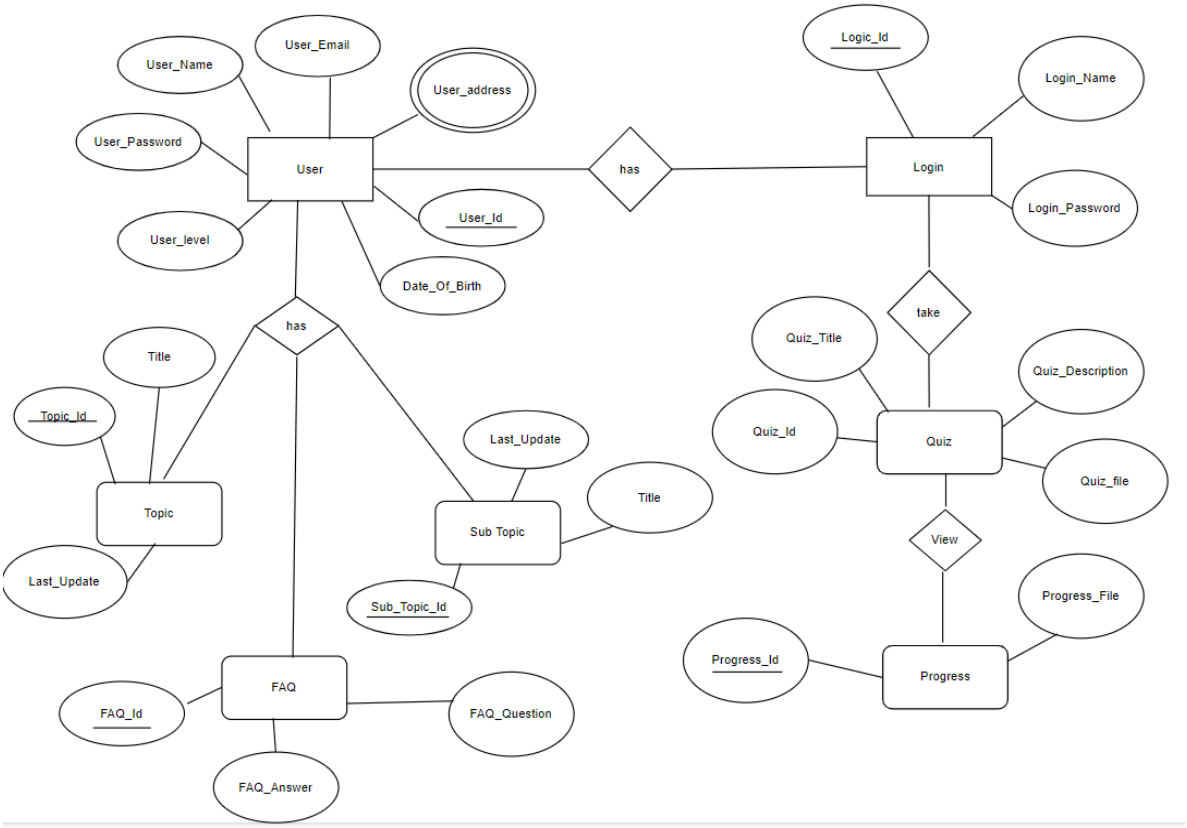


Figure 22:ER Diagram

4.4.2 Normalization

Normalization is the procedure of eliminating the data repetitions, redundancy, and unwanted characteristics like insertion, update, and deletion anomalies, and making sure the data is logically stored that can disrupt the integrity of the database. Normally Normalization as 3 forms ,1st normalization,2nd normalization,3rd normalization.

1st Normalization

- Each table cell should contain a single value.
- Each record needs to be unique

2nd Normalization

- Be in 1NF
- Single Column Primary Key that does not functionally dependent on any subset of candidate key relation

3rd Normalization

- Be in 2NF
- Has no transitive functional dependencies

4.4.3 Database Schema

- User

Table 3:User Entity

Field_Name	Data Type	Length	key	A_T	Default_value
User_id	INT	11	Primary key	√	None
User_username	VARCHAR	20			None
User_password	VARCHAR	20			None
User_email	VARCHAR	50			None
User_address	VARCHAR	50			None
User_level	VARCHAR	10			None
User_Date_of_Birth	Date				None

- Topic

Table 4:Topic Entity

Field_Name	Data Type	Length	Key	A_T	Default_value
Topic_id	INT	11	Primary Key	√	None
Topic_title	VARCHAR	20			None
Topic_description	TEXT				None
User_Id	INT	11	Foreign key		None

- Sub Topic

Table 5:Sub Topic Entity

Field_Name	Data Type	Length	Key	A_T	Default_value
Subtopic_id	INT	11	Primary Key	√	None
Subtopic_title	VARCHAR	20			None
Subtopic_description	TEXT				None
User_Id	INT	11	Foreign key		None

- Login

Table 6:Login Entity

Field_Name	Data Type	Length	Key	A_T	Default_Value
Login_id	INT	11	Foreign key	√	None
Login_name	VARCHAR	50			None
Login_password	VARCHAR	20			None

- Quiz

Table 7:Quiz Entity

Field_Name	Data Type	Length	Key	A_T	Default_value
Quiz_id	INT	11	Primary key	√	None
Quiz_title	VARCHAR	20			None
Quiz_description	TEXT				None
Quiz_file	VARCHAR	50			None
Login_Id	INT	11			None

- Progress

Table 8:Progress Entity

Field_Name	Data Type	Length	Key	A_T	Default_value
progress_id	INT	11	Primary key	√	
Progress_file	VARCHAR	50			
Quiz_id	INT	11	Foreign key		

- FAQ

Table 9:FAQ Entity

Field_Name	Data Type	Length	Key	A_T	Default _value
FAQ_Id	INT	11	Primary key	√	
FAQ_Question	VARCHAR	20			
FAQ_Answer	VARCHAR	50			

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