Astronomy

Documentation

Author	**C2307L – Group 3**
	Student1503969 – Pham Hoang Anh **Student1504524 – Nguyen Ngoc Phong** **Student1495710 – Nguyen Duy Son**
Date	**18 – May - 2024**
Instructor	**Ngo Vinh Toan**

Hanoi, 18 May 2024

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1. Problem Definition

1.1. Problem Abstraction

This astronomy project aims to discover and decode the secrets of the universe through collecting and analyzing data from celestial objects. With the aid of modern observational technology and advanced simulation methods, we aim to provide greater insight into the structure and history of galaxies, the formation and evolution of stars, as well as the nature of dark matter and dark energy. The project not only helps expand existing knowledge about the universe but also contributes to the training of future generations of astronomical scientists. The participation and cooperation of the international scientific community will be key to the success of this project, opening new possibilities in our understanding of the infinite space in which we exist.

1.2. The Current System

Our current website system includes several pages: homepage, News, stars, stars, observatory, earth. The home page displays articles and images of stars, Earth, observatories, and Mercury. News site for people to grasp the latest information. About site backup, everyone can grasp detailed information about the star. About the wild stars, everyone can grasp detailed information about the wild stars. about earth page, people can explore details about earth. observatory page, one can get detailed information about various types of astronomy observatories here. Overall, our website provides information about astronomy.

1.3. The Proposed system

The website we are building is a portal to learn details about astronomy. Below is a description of the website's functions:

1. home page: this page shows an overview of the stars, observatories, mercury, earth, news.

2. Reserve star page: provides complete information about coffee stars.

3. White stars page: displays detailed information about each star bird.

4. News page: update new information.

5. Earth page: displays details about information related to the Earth.

6. Observatory page: displays detailed information for each astronomy observatory.

Overall, the system is designed so that we can learn about the secondary links to astronomy.

1.3.1. Boundaries Of the System

The boundaries of a recommendation system in astronomy, or any other field, are often related to technological, data, and user interaction limitations. Here are some specific boundaries that the proposed system may encounter:

1. **Data Limitations:** The quality and quantity of available data directly affects the performance of the proposed system. If data is not diverse enough, incomplete, or out of date, recommendations may be inaccurate or irrelevant.
2. **Bias and Genre Issues:** Recommendation systems often tend to serve similar content, based on users' previous interests, which can limit user discovery and lead to the "echo chamber" phenomenon - where users are only exposed to similar ideas and information.
3. **Technological Limitations:** Depending on the design and algorithms used, the proposed system may not be capable of handling large data or may not be able to update quickly according to data changes.
4. **Interpretation and Transparency:** Recommender systems, especially those based on complex machine learning, sometimes lack transparency and are difficult to understand for users. Users may not understand why a particular recommendation is made, which can reduce trust in the system.

5. **Security and Privacy Barriers:** Collecting and analyzing user data to recommend personalized content can lead to security and privacy issues if not managed appropriately. careful.
6. **Response Delay:** For systems that need to continuously update data from input sources, delays in data updates can affect the timeliness and accuracy of recommendations.

1.3.2. Hardware And Software Requirements

The hardware and software requirements for the system include:

1. **Hardware Requirements:**
   • Servers: To host the website and database, depending on the scale and traffic expected servers with appropriate processing power and memory are required. • Network Equipment: Routers, switches, and firewalls to ensure network connectivity and security.
   • Client Devices: Users will access the system from various devices such as desktop computers, laptops, tablets, and smartphones. The system should be compatible with different screen sizes and resolutions.
2. **Software Requirements:**
   • Operating System: The servers may run on operating systems such as Linux, Windows Server, or others depending on the preference of the development team.
   • Web Server: Software like Apache, Nginx, or Microsoft Internet Information Services (IIS) to serve web pages to users.
   • Database Management System (DBMS): Software like MySQL, PostgreSQL, MongoDB, or others to manage the system's database.
   • Programming Languages: Depending on the development framework chosen, programming languages like PHP, Python, JavaScript, HTML, and CSS will be required for web development.

• Security Software: Antivirus, firewall, and intrusion detection/prevention systems to protect the system from cyber threats.
• Development Tools: Integrated Development Environments (IDEs), version control systems (e.g., Git), and debugging tools for software development and maintenance.

3. **Additional Requirements:**
• Backup Systems: Regular backups of data and configurations to prevent data loss in case of hardware or software failures.
• Monitoring Tools: Software for monitoring system performance, uptime, and security.
• Content Management System (CMS): If the system includes dynamic content management, a CMS like WordPress or Drupal may be utilized.
• Payment Gateway: If the system supports online ticket purchases, integration with a payment gateway like PayPal, Stripe, or others will be necessary.

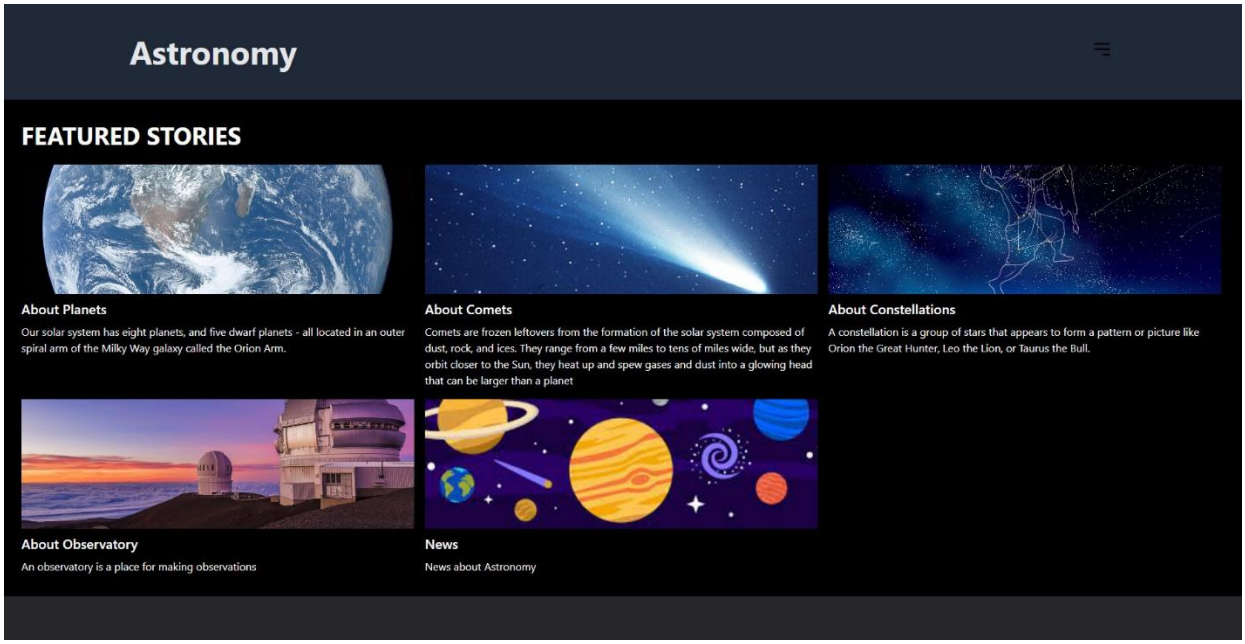
2. Customer Requirements Specification

2.1. Users of the System

Astronomy projects are designed for diverse purposes, serving all scientific, educational, and public needs Developing knowledge of the universe, from the study of the formation and evolution of stars, galaxies, and planetary systems, to gain a deeper understanding of phenomena such as black errors, gravitational waves, and cosmic radiation. Projects may focus on data collection, analysis, and visualization to test astronomical theories. Provide resources and programs to train future astronomers and advance their qualifications learning level for students and trainees. The project may include courses, workshops, and research opportunities to provide an understanding and passion for astronomy. Using astronomy as a tool to monitor and report changes in Earth's environment, such as climate monitoring from space and monitoring of near-Earth objects has powerful capabilities.

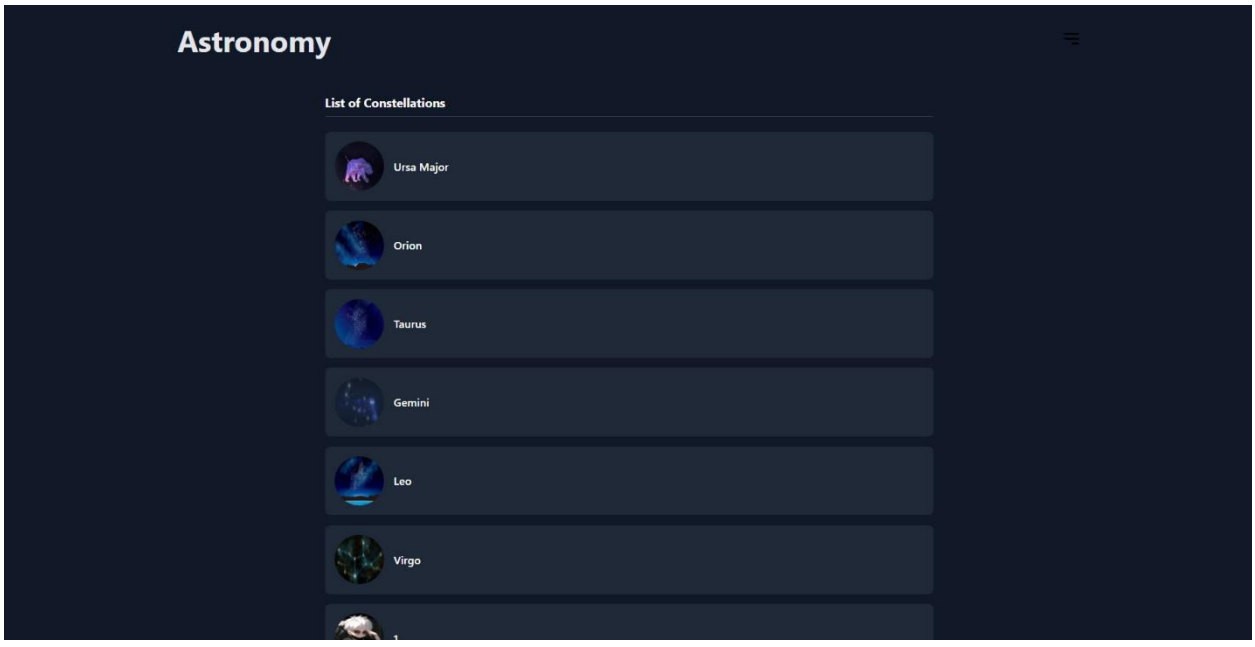
2.2. System functions

- Homepage:



- Planets:

- Constellations:



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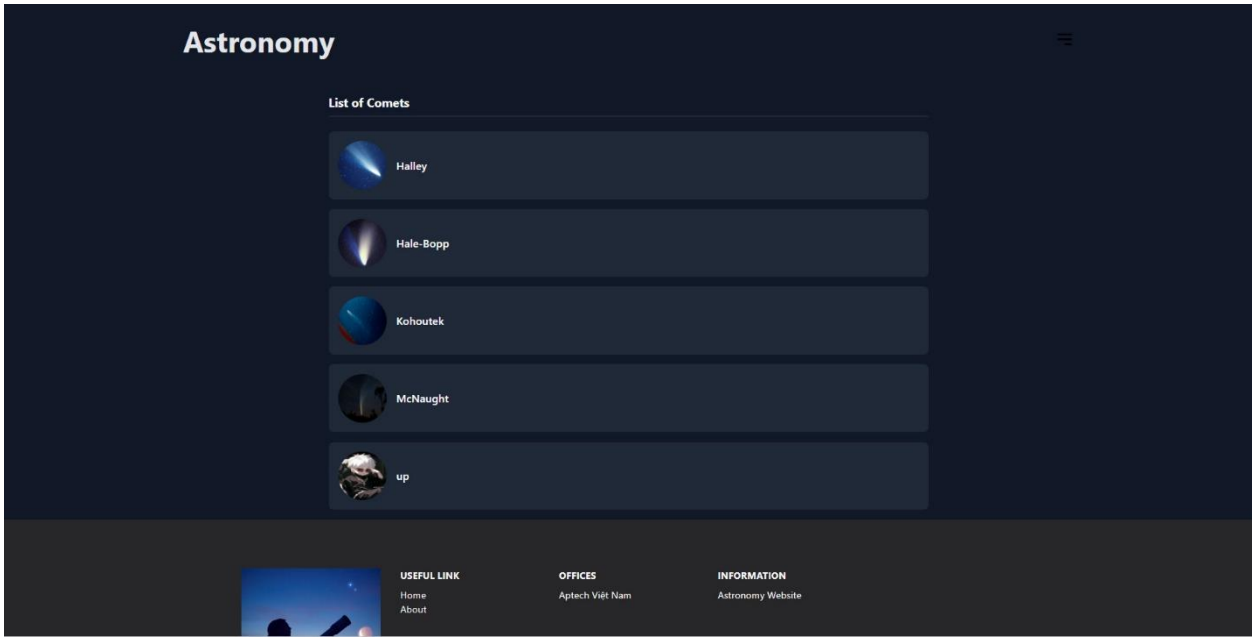
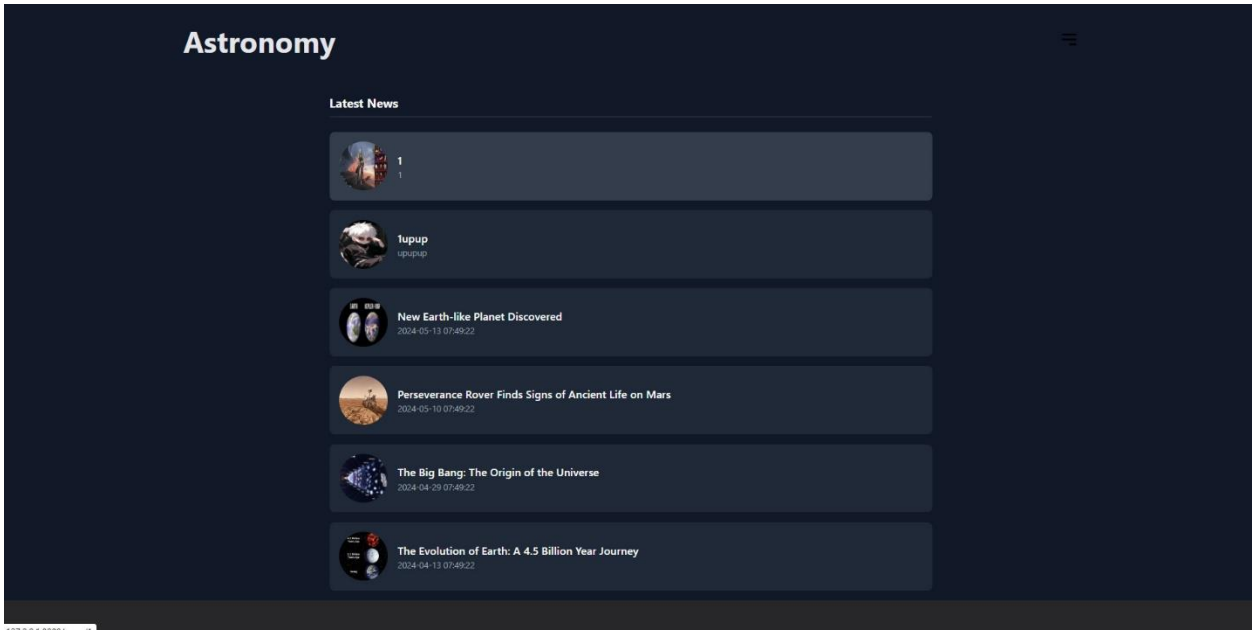
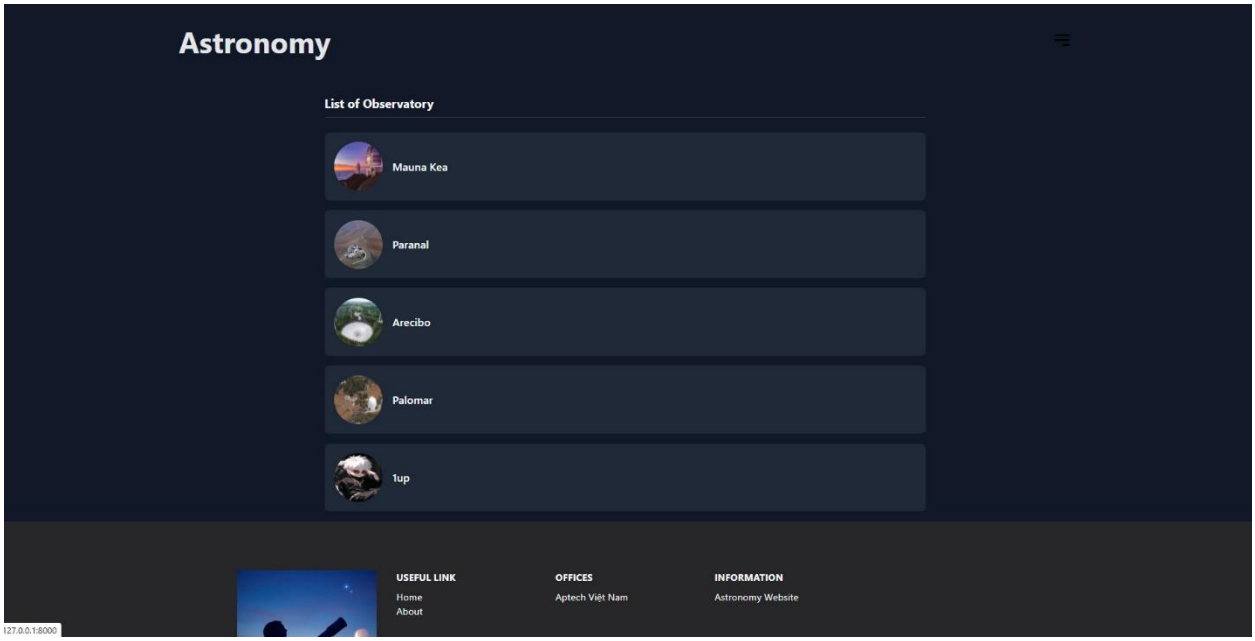
- Comets:


Astronomy
List of Comets
Halley
Hale-Bopp
Kohoutek
McNaught
up
USEFUL LINK
Home
About
OFFICES
Aptech Việt Nam
INFORMATION
Astronomy Website

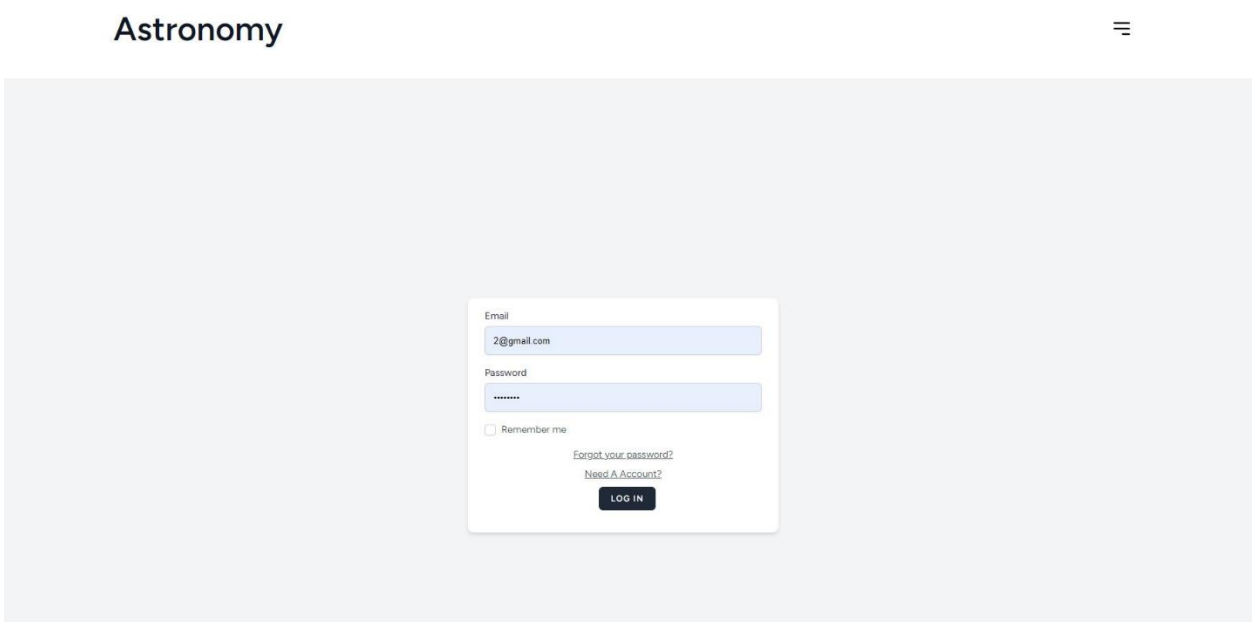
- News:


Astronomy
Latest News
1
1
1upup
upupup
New Earth-like Planet Discovered
2024-05-13 07:49:22
Perseverance Rover Finds Signs of Ancient Life on Mars
2024-05-10 07:49:22
The Big Bang: The Origin of the Universe
2024-04-29 07:49:22
The Evolution of Earth: A 4.5 Billion Year Journey
2024-04-13 07:49:22

- Observatory:



- Login:

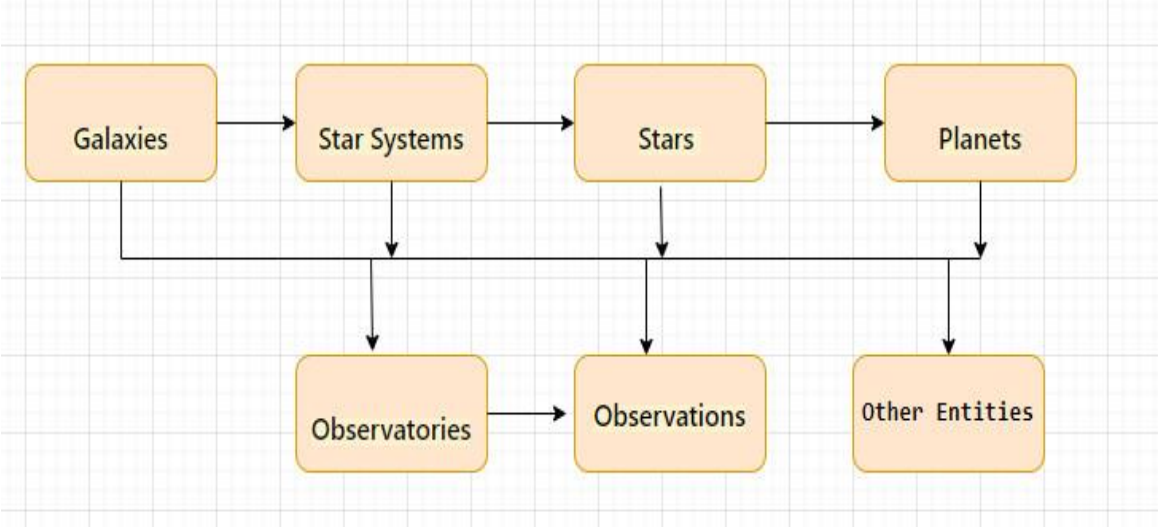


3. System Designs

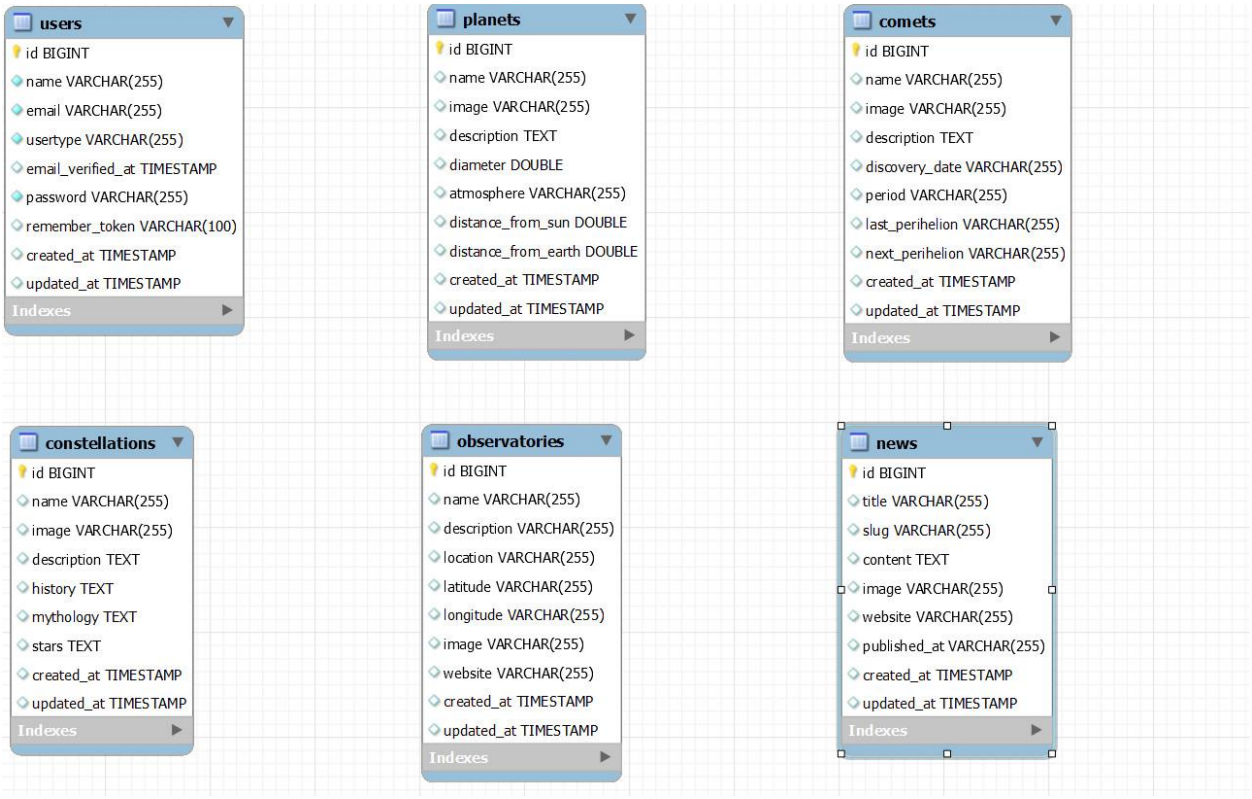
DFD graphically represents the functions, or processes, which capture, manipulate, store, and distribute data between a system and its environment and between components of a system.

3.1. ENTITY RELATIONSHIP DIAGRAM

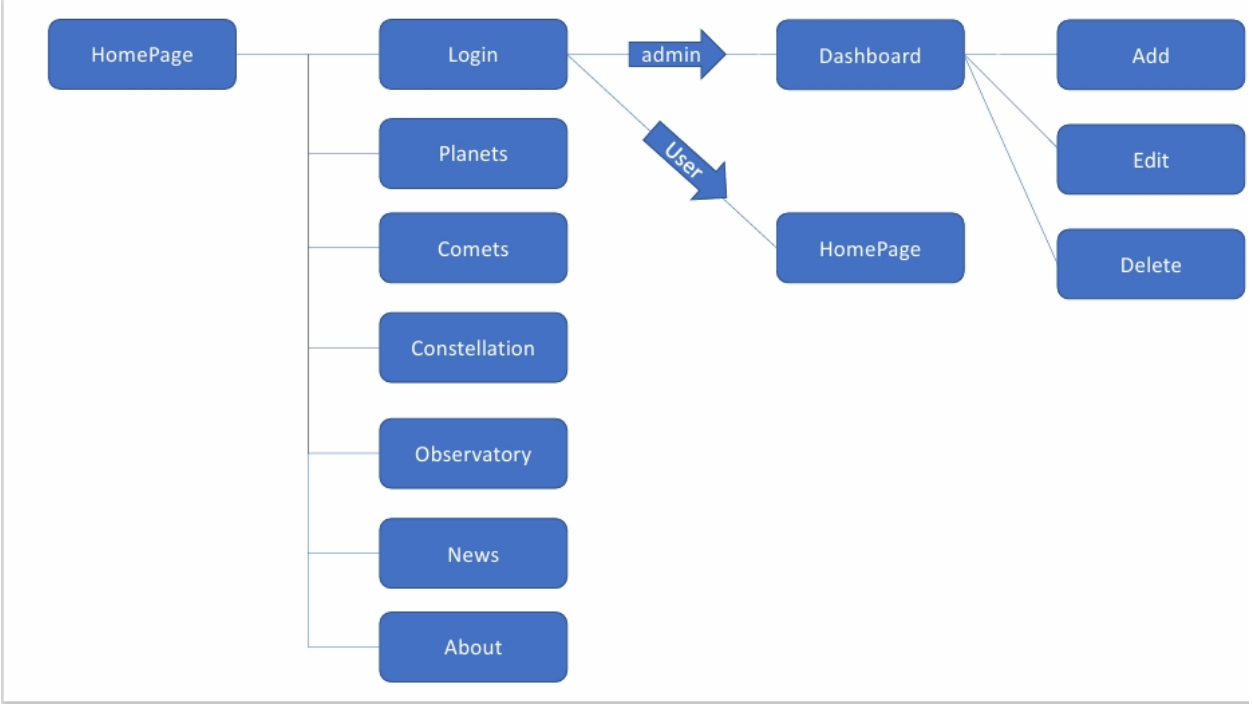
- We identify the entities that the website needs:
  + Galaxies
  + Star Systems
  + Stars
  + Planets
  + Observatories
  + Observations



3.2. DATABASE DESIGN

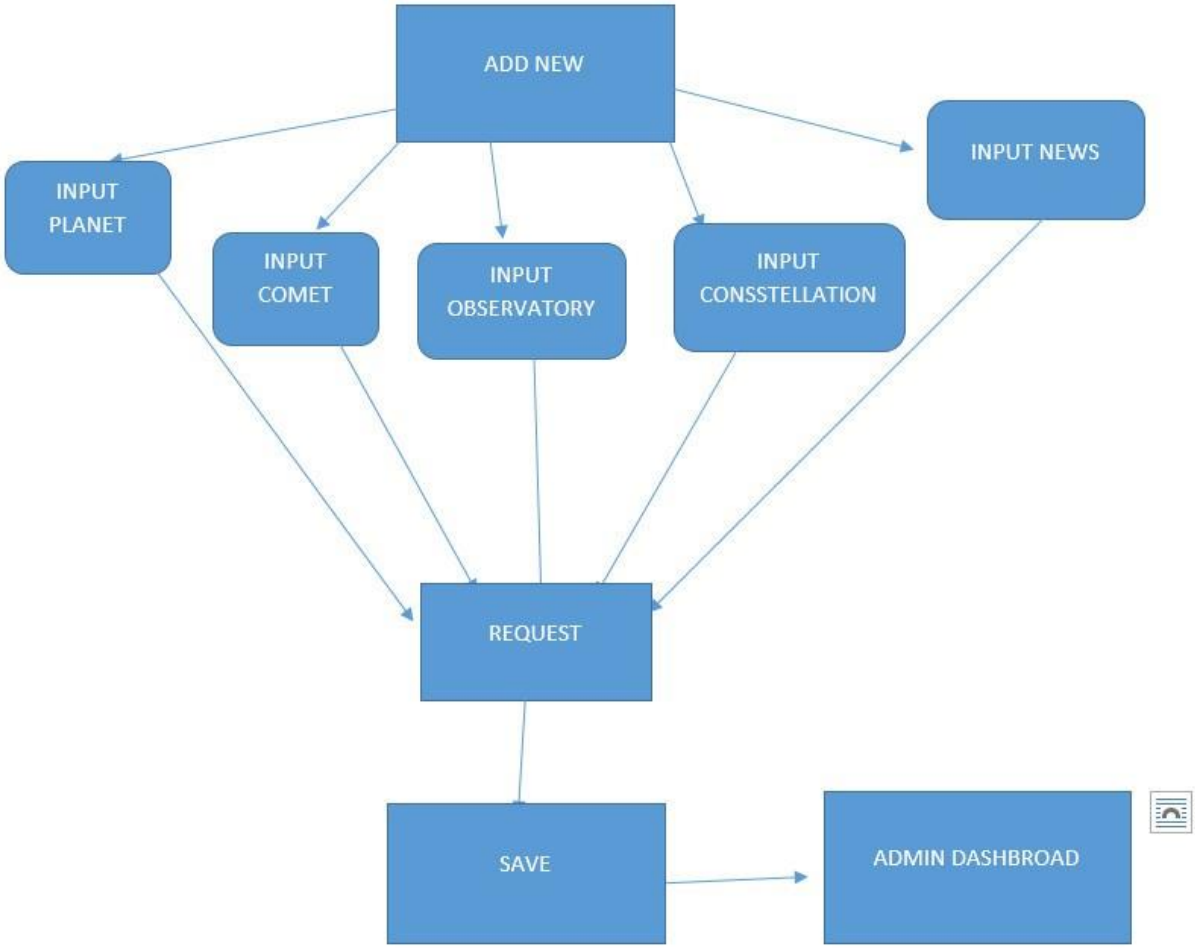


3.3. SITEMAP

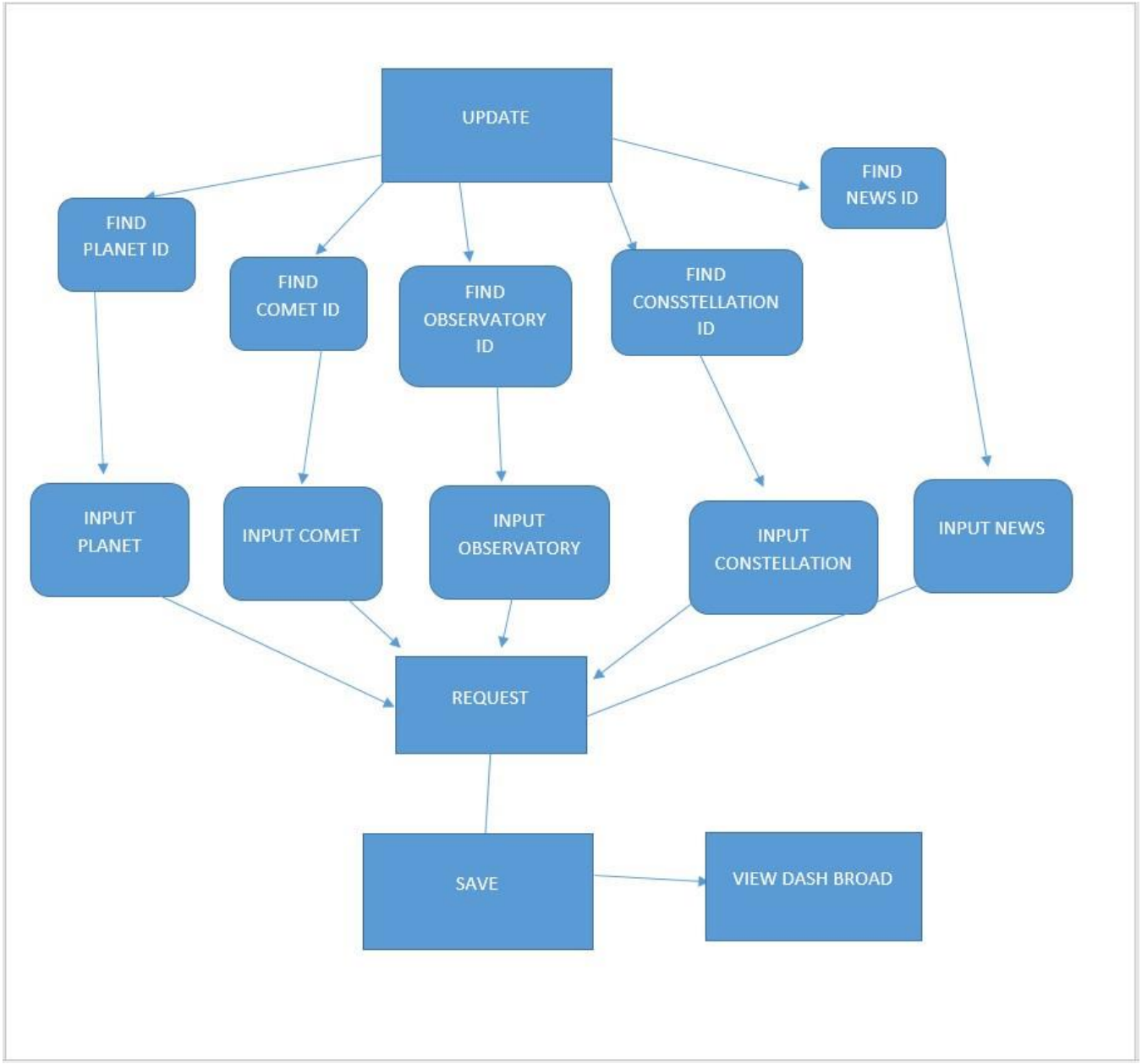

HomePage
Login
Planets
Comets
Constellation
Observatory
News
About
admin
User
Dashboard
HomePage
Add
Edit
Delete

3.4. System Functions Design

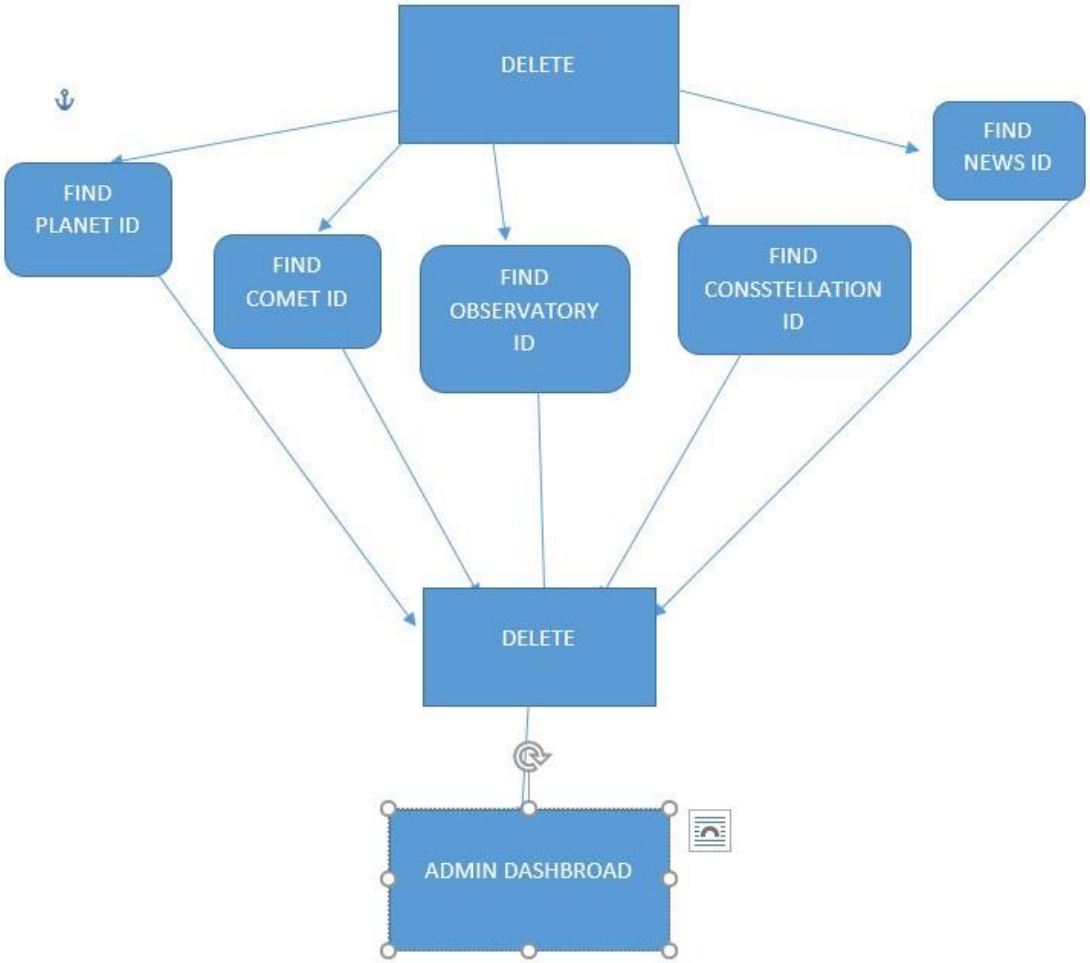
- **Add :**



- **Update:**


UPDATE
FIND PLANET ID
FIND COMET ID
FIND OBSERVATORY ID
FIND CONSSTELLATION ID
FIND NEWS ID
INPUT PLANET
INPUT COMET
INPUT OBSERVATORY
INPUT CONSTELLATION
INPUT NEWS
REQUEST
SAVE
VIEW DASH BROAD

- **Delete:**


DELETE
FIND PLANET ID
FIND COMET ID
FIND OBSERVATORY ID
FIND CONSSTELLATION ID
FIND NEWS ID
DELETE
ADMIN DASHBROAD

4. Task sheet

Task	Start time	Finish time	Implemented by	Evaluation (100%)
Feasibility study phase				
Brainstorm	11/04/2024	11/04/2024	Pham Hoang Anh	100%
Brainstorm	11/04/2024	11/04/2024	Nguyen Duy Son	
Brainstorm	11/04/2024	11/04/2024	Nguyen Ngoc Phong	
Requirement Analysis phase				
Analyze requirement	11/04/2024	11/04/2024	Pham Hoang Anh	100%
Analyze requirement	11/04/2024	11/04/2024	Nguyen Duy Son	
Analyze requirement	11/04/2024	11/04/2024	Nguyen Ngoc Phong	
Design phase				
design the theme	18/04/2024	26/04/2024	Pham Hoang Anh	100%
system management				
build CRUD	24/04/2024	28/04/2024	Nguyen Duy son	100%
Build database				
create database	28/04/2024	01/05/2024	Nguyen Ngoc Phong	100%
Debug if something does not work				
Debug if something does not work	05/05/2024	09/05/2024	Pham Hoang Anh	100%
Debug if something does not work	05/05/2024	09/05/2024	Nguyen Duy Son	
Debug if something does not work	05/05/2024	09/05/2024	Nguyen Ngoc Phong	

5. Validation Checklists

Only splitting admin and normal user.

Hanoi, 18 May 2024