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# **Cosmic Chronicles**

## Exploring Space

### Software Requirements Specification

24<sup>st</sup> April, 2024

Vansh Chaurasiya  
KM072

Prepared for  
Continuous Assessment 3  
Spring 2024

# Revision History

Date	Description	Author	Comments
1/03/2024	Initial structure and layout of website	Vansh Chaurasiya	First Revision
15/03/2024	Improved UI	Vansh Chaurasiya	Implemented Bootstrap and JQuery
4/04/2024	Implemented JavaScript functionalities to the UI	Vansh Chaurasiya	Implemented JavaScript
15/04/2024	Implemeted Nodejs and MongoDB.	Vansh Chaurasiya	Merged backend

## SIMPLE PROJECT APPROVAL FORM TEMPLATE

Vansh Chaurasiya

12217731

KM072

PROJECT NAME	Cosmic Chronicles		
JOB LOCATION	Self		
EST. START DATE	01/03/24	EST. FINISH DATE	20/04/24
PROJECT LEADER	Vansh Chaurasiya	COMPANY	Self
CONTACT NAME	Midhin Varma	ADDRESS	Lovely Professional University
PHONE	95157 49347		
EMAIL	midhinvarma123@gmail.com		

SUMMARY	A space exploring website with information regarding planets, theories, missions, blogs and etc.
DESIRED OUTCOME	A responsive attractive website with space information for the user's to learn.
ACTION TO COMPLETION	Reach more customers and educate about space
BENEFITS OF PROJECT	Educating users
PROJECTED SCHEDULE	2 months
PROJECTED BUDGET	1000 Rs. Only
PROJECTED TEAM AND RESOURCE REQUIREMENTS	A laptop with an internet connection and interaction with clients

PROPOSAL MAY BE WITHDRAWN IF NOT ACCEPTED BY DATE OF

### ACCEPTANCE OF PROPOSAL

AUTHORIZED CLIENT  
SIGNATURE

S. R. Midhin Varma

DATE OF ACCEPTANCE

05/03/2024

02/05/2024 12:15

# Project Name

## 1. Introduction

The space exploration website aims to provide users with a platform to learn about the planets of our solar system, delve into topics such as the big bang and dark matter, explore the mechanics of rockets used in space missions, and engage in interactive experiences such as a space-based asteroid blasting game. The website features a dark theme and user-friendly interface, ensuring a seamless browsing experience for users.

Key Features:

- Educational content on planets, space phenomena, and rocket technology.
- Blog section covering diverse topics related to space exploration.
- Interactive space-based asteroid blasting game for entertainment.
- Utilizes modern web technologies including HTML5, CSS, Bootstrap, JavaScript, Node.js, and MongoDB.

### 1.1 Purpose

The purpose of this project is to create a user-friendly and interactive informative website that provides a seamless experience for users to learn about space. The website will include features such as user registration, blog reading, addictive games, interactive solar system learning.

### 1.2 Scope

1. Software Product: The space exploration website, named "Cosmic Chronicles," is the primary software product to be produced.
2. Objectives and Goals:
  - Provide comprehensive educational content on planets, space phenomena, rocket technology, and related topics.
  - Offer a blog section featuring articles covering various aspects of space exploration and astronomy.
  - Develop an interactive space-based asteroid blasting game for user engagement and entertainment.
  - Implement a user-friendly interface with a dark theme to enhance user experience.
  - Utilize modern web technologies including HTML5, CSS, Bootstrap, JavaScript, Node.js, and MongoDB for efficient development and deployment.
3. Benefits:
  - Facilitates learning and exploration of space-related topics for users of all ages.
  - Provides an engaging platform for users to stay informed about the latest developments in space exploration
  - Offers an interactive and entertaining gaming experience to users interested in space-themed activities.
  - Enhances user experience with a visually appealing and intuitive user interface design.
4. Application:
  - The software product aims to cater to individuals interested in space exploration and astronomy, including students, educators, enthusiasts, and professionals.

- It serves as a valuable resource for learning, research, and entertainment, offering a wide range of educational content and interactive experiences related to space.

5. Exclusions:

- The software product does not include features unrelated to space exploration or astronomy.
- It does not provide real-time data updates or advanced scientific simulations beyond the scope of educational and entertainment purposes.
- The website does not offer services such as e-commerce, social networking, or user generated content sharing.

### 1.3 Definitions, Acronyms, and Abbreviations

- SRS: Software Requirement Specification - A document that describes the intended purpose, functionality, and behavior of a software product.
- HTML: Hypertext Markup Language
- CSS: Cascading Style Sheets
- JavaScript: A programming language used for web development
- Bootstrap: A front-end framework used for web development
- Node.js: A runtime environment that allows the execution of JavaScript code outside a web browser, commonly used for server-side scripting.
- MongoDB: A cross-platform document-oriented NoSQL database program, using JSON-like documents with optional schemas.
- UI: User Interface - The visual elements and controls through which a user interacts with a software application.
- UX: User Experience - The overall experience of a person using a product such as a website or application, encompassing usability, accessibility, and satisfaction.
- NASA: National Aeronautics and Space Administration - The United States government agency responsible for the nation's civilian space program and for aeronautics and aerospace research.
- ISRO: Indian Space Research Organization - The space agency of the Government of India, responsible for the country's space research and exploration efforts.

### 1.4 Reference

"NASA Website", National Aeronautics and Space Administration.

Available online at: [NASA](#)

"ISRO Website", Indian Space Research Organization.

Available online at: [Indian Space Research Organisation \(isro.gov.in\)](http://isro.gov.in)

### 1.5 Overview

The rest of the SRS contains detailed information regarding the requirements, functionalities, and specifications of the software product. It includes specific sections such as functional requirements, non-functional requirements, system features, user interface design, system constraints, and more.

## 2. General Description

### 2.1 PRODUCT PERSPECTIVE

In the context of your space exploration website project, this subsection of the SRS would provide an overview of how your product relates to other similar projects or products in the field of space exploration, astronomy, and related areas. It would identify key competitors, existing websites, or platforms that offer similar content or services, and highlight the unique features or advantages of your website compared to others.

## **2.2 PRODUCT FUNCTIONS**

1. **Navigation:** Users will be able to navigate seamlessly through the website, accessing different sections, pages, and features with ease. Intuitive navigation enhances the user experience and ensures efficient exploration of space-related content.
2. **Educational Content:** The website will provide comprehensive educational content on space exploration, including information about planets, celestial bodies, astronomical phenomena, and space missions. Users can access articles, videos, infographics, and interactive tutorials to expand their knowledge of the cosmos.
3. **Blogs and Articles:** Users will have access to a repository of blogs and articles written by experts in the field of astronomy and space science. These resources will cover a wide range of topics, from recent discoveries to historical milestones, fostering engagement and learning among visitors.
4. **Rocket Information:** The website will feature detailed information about rockets used in space missions, including specifications, launch histories, and notable achievements. Users can explore the engineering marvels behind space exploration and learn about the technologies that propel humanity beyond Earth's atmosphere.
5. **Space Game:** A space-themed game will be available for users to enjoy, providing entertainment and engagement. The game may involve tasks such as asteroid blasting, space station construction, or planetary exploration, offering a fun and immersive experience for visitors.
6. **Dark Theme and User Interface:** The website will feature a visually appealing dark theme with a user-friendly interface. This design choice enhances readability, reduces eye strain, and creates a futuristic ambiance that complements the space exploration theme.

## **2.3 USER CHARACTERISTICS**

1. **Diverse Audience:** The users of the Space Exploration Website encompass a diverse range of individuals, including space enthusiasts, students, educators, researchers, and the general public. Their varying levels of expertise, interests, and motivations will shape the content, functionality, and usability of the website.
2. **Curiosity and Interest:** The majority of users are likely to possess a keen curiosity and interest in space exploration, astronomy, and related scientific topics. They visit the website to satisfy their intellectual curiosity, expand their knowledge, and stay updated on the latest developments in space science.
3. **Educational Needs:** Many users, such as students and educators, use the website as an educational resource to supplement formal learning or teaching activities. They seek accurate, reliable information presented in an engaging and accessible format that facilitates learning and comprehension.



4. **Engagement Expectations:** Users expect the website to provide engaging and interactive experiences that captivate their interest and encourage exploration. Features such as interactive simulations, multimedia content, and gamified elements enhance user engagement and retention.
5. **Technical Proficiency:** While some users may possess advanced technical knowledge and skills, others may have limited familiarity with technology or space-related concepts. The website should accommodate users with varying levels of technical proficiency by offering intuitive navigation, clear instructions, and user-friendly interfaces.
6. **Accessibility Requirements:** Accessibility considerations are essential to ensure that the website is usable by individuals with disabilities, such as visual impairments or mobility limitations. Compliance with accessibility standards and guidelines enables all users to access and benefit from the website's content and features.

## **2.4 GENERAL CONSTRAINTS**

The "Constraints" subsection of the SRS for the Space Exploration Website provides a comprehensive overview of any external factors, limitations, or conditions that will constrain the options available to developers during the system design phase. These constraints play a significant role in shaping the design and implementation of the website, ensuring that it meets specified requirements while adhering to relevant standards and regulations.

Key considerations outlined in this subsection include **Technological Constraints:** The website must be developed using specific technologies and frameworks, including HTML5, CSS, Bootstrap, JavaScript, Node.js, and MongoDB. Compatibility with these technologies is essential for achieving the desired functionality, performance, and interoperability.

## **2.5 ASSUMPTIONS AND DEPENDENCIES**

The "Assumptions and Dependencies" subsection of the SRS for the Space Exploration Website identifies the key factors that influence the requirements specified in the document. These factors represent assumptions or dependencies that, if altered or invalidated, may impact the stated requirements and necessitate corresponding changes to the SRS.

1. **Operating System Assumptions:** The SRS assumes the availability of specific operating systems (e.g., Windows, macOS, Linux) on user devices accessing the website. Any changes to these assumptions, such as the introduction of new operating systems or the discontinuation of existing ones, may require adjustments to system compatibility requirements and software functionality.
2. **Browser Compatibility:** The SRS assumes compatibility with commonly used web browsers (e.g., Chrome, Firefox, Safari, Edge) for optimal website performance and user experience. Changes in browser capabilities, versions, or market share may necessitate updates to browser compatibility requirements and web development practices.
3. **Internet Connectivity:** Assumptions regarding stable internet connectivity are implicit in the SRS for seamless access to the website's content and features. Any disruptions or changes in internet connectivity standards, bandwidth availability, or network infrastructure may impact the website's functionality and performance requirements.
4. **Third-party Services and APIs:** Dependencies on external services, libraries, or APIs (e.g., for content delivery, authentication) are assumed to be available and operational as

per their documented specifications. Changes or disruptions to these dependencies, such as service outages or API version updates, may affect system integrations and functionality.

5. **Content Availability:** The SRS assumes the availability of relevant content, including articles, images, and multimedia resources, for presentation on the website. Changes in content availability, licensing agreements, or intellectual property rights may necessitate modifications to content sourcing, curation, or presentation requirements.
6. **Regulatory Compliance:** Assumptions regarding compliance with legal, regulatory, and industry standards (e.g., data privacy laws, accessibility guidelines) are inherent in the SRS. Changes in regulatory requirements or interpretations may require updates to compliance measures and data handling practices.
7. **User Behavior and Preferences:** The SRS is based on assumptions about user behavior, preferences, and expectations regarding website functionality, navigation, and interaction. Changes in user demographics, preferences, or technological literacy may influence user experience design decisions and usability requirements.

### **3. Specific Requirements**

Section 3 of the SRS, titled "System Requirements," outlines the detailed requirements that will guide the design, implementation, and testing of the software project. These requirements serve as the foundation for developing the software solution and ensuring its alignment with customer needs and expectations. Each requirement in this section must adhere to specific criteria to ensure clarity, correctness, and testability. The requirements are organized into several subsections to facilitate easy access and understanding:

Each requirement in this section should be:

- Correct
- Traceable (both forward and backward to prior/future artifacts)
- Unambiguous
- Verifiable (i.e., testable)
- Prioritized (with respect to importance and/or stability)
- Complete
- Consistent
- Uniquely identifiable (usually via numbering like 3.4.5.6)

## **3.1 EXTERNAL INTERFACE REQUIREMENTS**

### **3.1.1 User Interfaces**

**Requirement Description:** The user interface (UI) of the Space Exploration Website shall feature a visually appealing and intuitive design, incorporating a dark theme to enhance the user experience and reflect the cosmic theme of the website.

### **3.1.2 Software Interfaces**

**Requirement Description:** The Space Exploration Website shall be accessible from any device with standard hardware capabilities, including desktop computers, laptops, tablets, and smartphones, ensuring compatibility across a wide range of platforms.

### **3.1.3 Communications Interfaces**

**Requirement Description:** The Space Exploration Website shall integrate with third-party software components and libraries, such as web development frameworks (e.g., Bootstrap,



jQuery) and content management systems to leverage existing functionality and streamline development efforts.

## **3.2 Functional Requirements**

### **3.2.1 User registration**

Users can register on the website by providing their name, email address, and password. The website will verify the user's email address before activating the account.

### **3.2.2 Inputs**

User interaction with navigation elements (menus, buttons) to access different sections (planets, moons, etc.)

### **3.2.3 Outputs**

The system displays informative content pages about planets, moons, rockets and missions.

### **3.2.4 Error Handling**

In case of database connection issues, the system displays a user-friendly error message and attempts to reconnect.

### **3.2.5 Introduction:**

This feature enables users to explore content related to space exploration history, missions, technologies, and rockets.

## **3.5 Non-Functional Requirements**

### **3.5.1 Performance**

The website will be designed to be fast and responsive. The website will load within 3 seconds, and the page transition time will be less than 0.5 seconds.

### **3.5.2 Reliability**

The website will be designed to be reliable and stable. The website will have a uptime of 99.9%.

### **3.5.3 Availability**

The website will be available 24/7, and users can access it from anywhere in the world.

### **3.5.4 Security**

The website will be designed to be secure. The website will use HTTPS protocol for communication, and the website will have a firewall to prevent unauthorized access.

### **3.5.5 Maintainability**

The website will be designed to be maintainable. The website will use open-source technologies, and the website will be easy to update and modify.

### **3.5.6 Portability**

The website will be designed to be portable. The website will be compatible with various web browsers and devices..

### **3.7 Design Constraints**

The website will be designed to be responsive, ensuring that it can be accessed on various devices. The website will be designed to be scalable, ensuring that it can handle a large number of users.

### **3.9 Other Requirements**

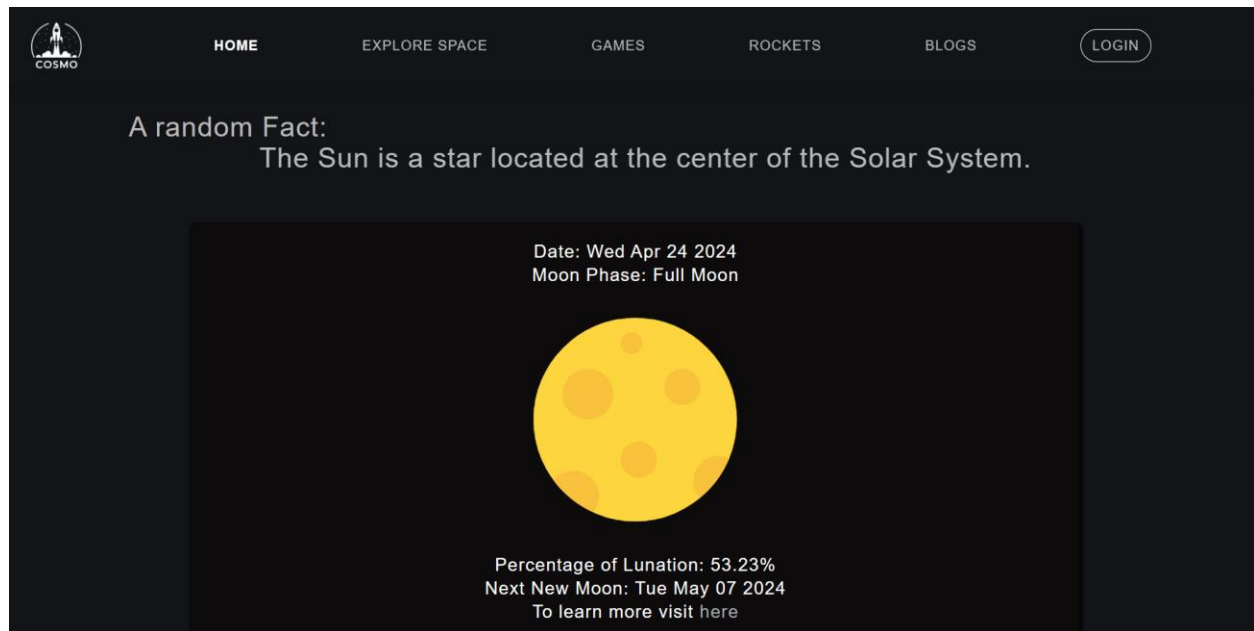
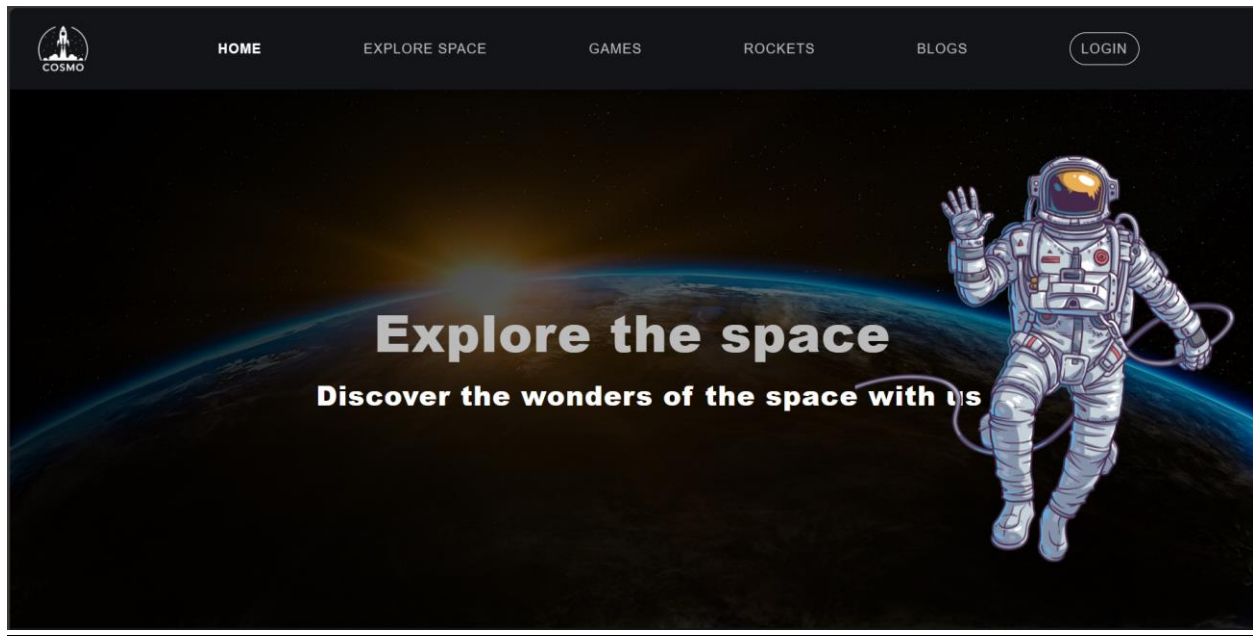
The website will be tested for functionality, performance, and security. The website will be tested on various web browsers and devices. The website will be reviewed by users and experts to ensure that it meets the requirements.

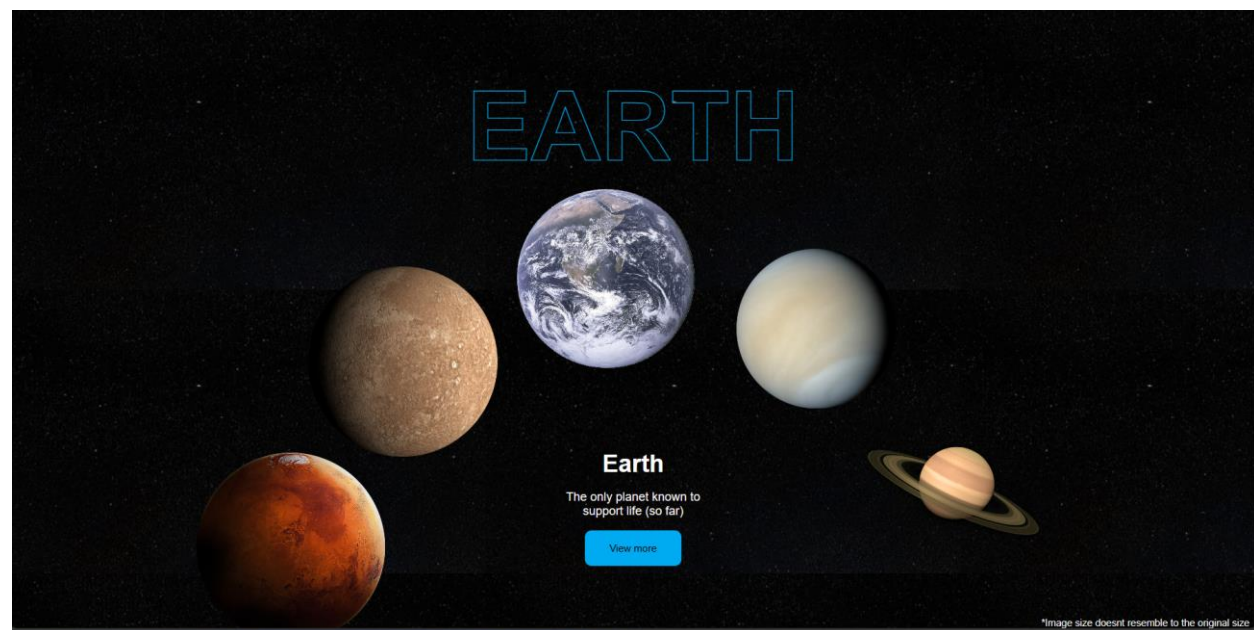
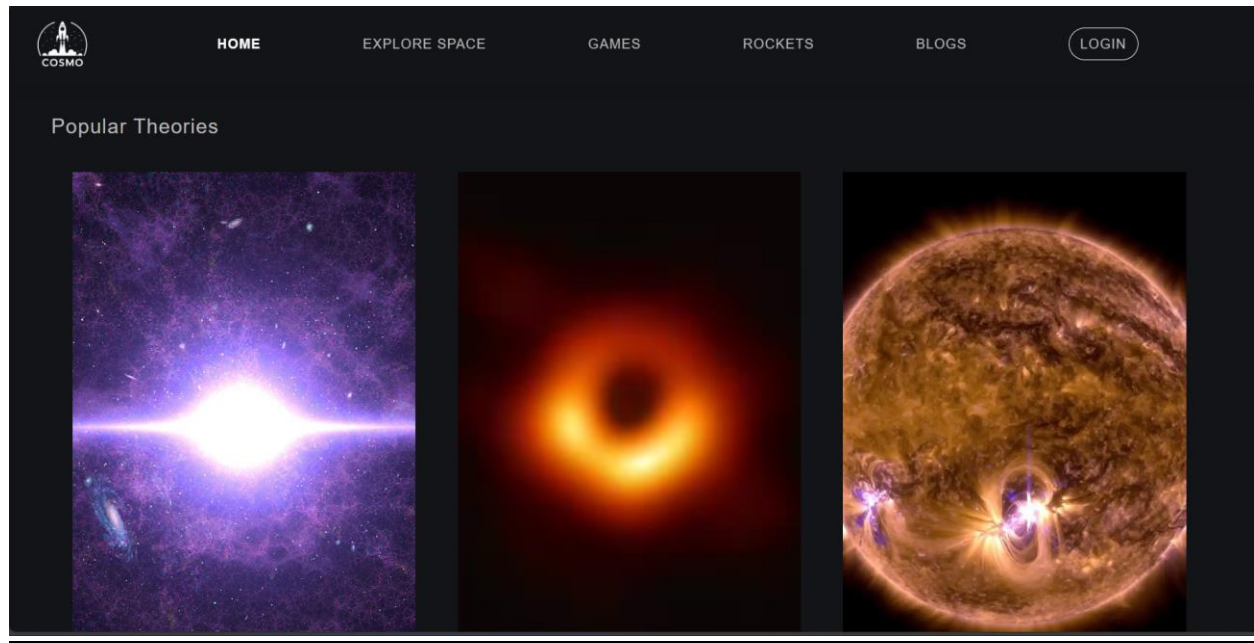
## **4. Github link and Screenshots**

### **GITHUB LINK:**

<https://github.com/vansh-codes/Cosmic-Chronicles>

### **SCREENSHOTS:**







## EARTH



Earth, the third planet from the Sun, is the only known planet to support life.

- ✦ Mass: Approximately  $5.972 \times 10^{24}$  kg
- ✦ Diameter: 12760km
- ✦ Temperature: Ranges from -89 to 57 degrees Celsius
- ✦ Distance: Average distance from the Sun about 93 million miles (150 million km)
- ✦ Gravity: About  $9.8 \text{ m/s}^2$
- ✦ Rings: Earth has no rings.
- ✦ Speed: Orbits the Sun at about 29.78 km/s
- ✦ Shape: Earth is not actually round. It bulges slightly at the equator and is flattened at the poles due to the centrifugal force caused by its rotation. This shape is called an oblate spheroid.
- ✦ Moon: Earth has a single moon, which is relatively large compared to the size of the planet. The moon is thought to have formed about 4.5 billion years ago when a Mars-sized object collided with Earth.
- ✦ Rotational speed: Earth takes about 23.5 hours to complete one rotation on its axis. This is why we have a day and night cycle.
- ✦ Revolution speed: Earth takes about 365.25 days to complete one revolution around the sun. This is why we have a year. The extra quarter-day is why we have leap years every four years.
- ✦ Its diverse surface includes mountains, oceans, and forests, making it ideal for life to thrive.
- ✦ Earth's atmosphere consists of nitrogen, oxygen, carbon dioxide, and trace gases, creating the perfect conditions for life.
- ✦ The planet's magnetic field protects it from harmful solar radiation, allowing life to flourish on its surface.
- ✦ Earth's geology is shaped by processes such as erosion, plate tectonics, and volcanic activity, contributing to its dynamic and ever-changing landscape.

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## MOON



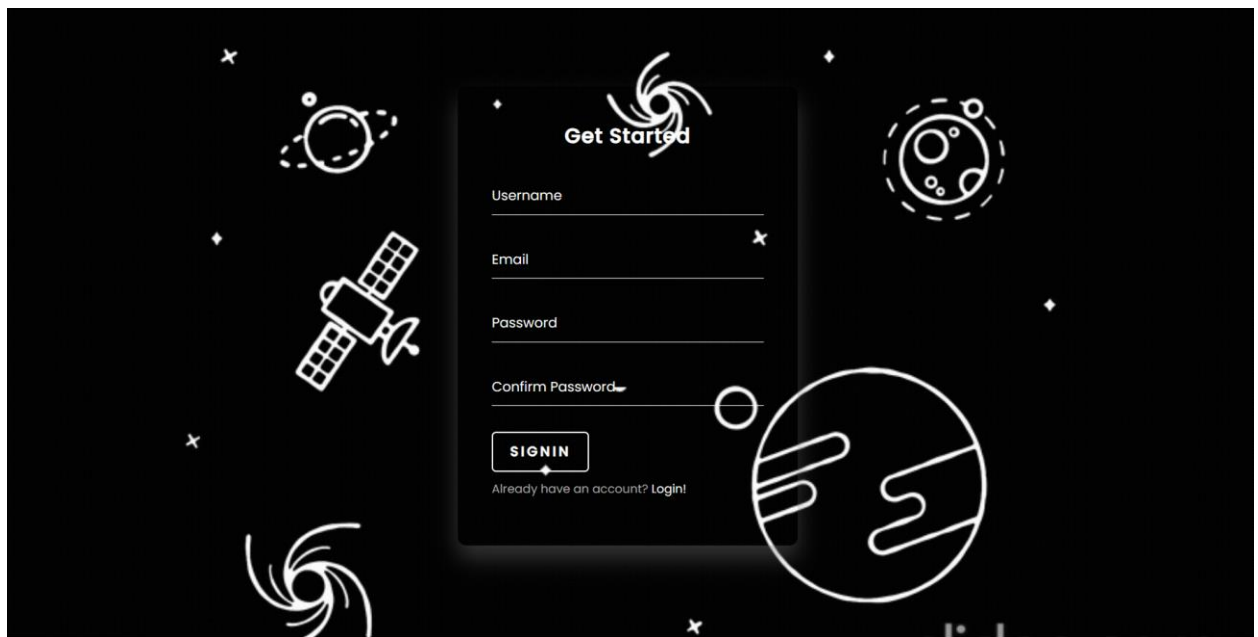
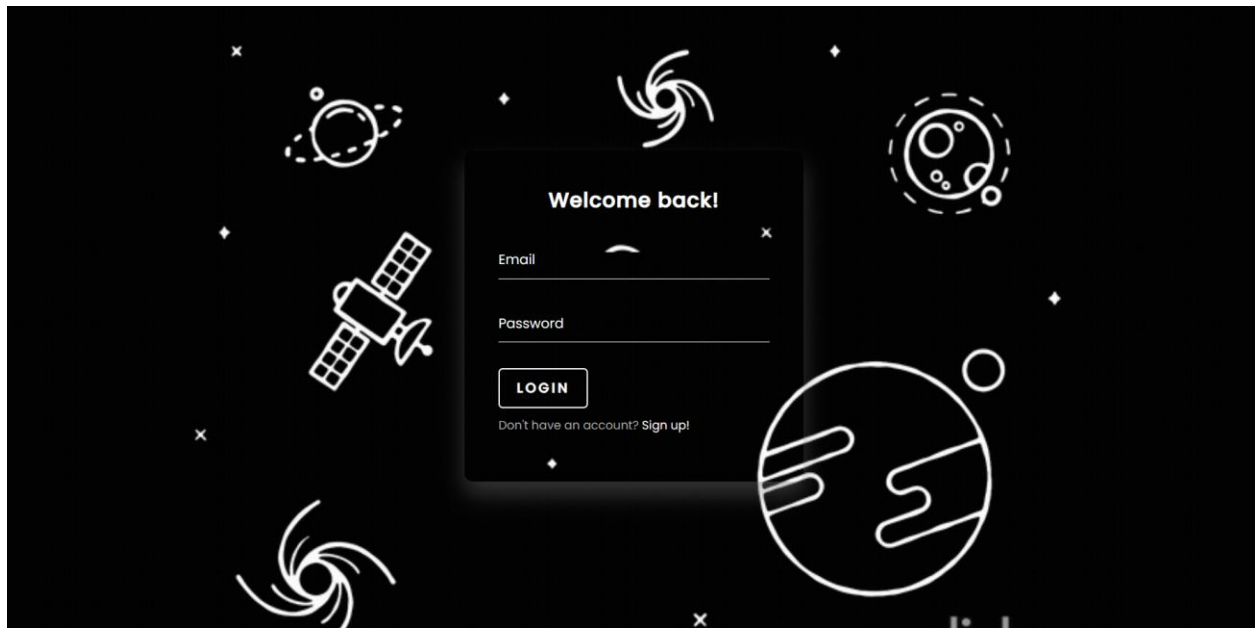
The Moon, Earth's natural satellite, has fascinated humanity for centuries.

- ✦ Mass: Approximately  $7.35 \times 10^{22}$  kg
- ✦ Temperature: Ranges from -233 to 123 degrees Celsius
- ✦ Distance: Average distance from Earth about 384,400 kilometers
- ✦ Gravity: About  $1.62 \text{ m/s}^2$
- ✦ Speed: Orbits the Earth at about 1 km/s
- ✦ Shape: The Moon is not a perfect sphere but an oblate spheroid, slightly bulging at its equator due to the tidal forces exerted by Earth.
- ✦ Moons: The Moon is itself a moon of Earth and has no natural moons of its own.
- ✦ Rotation Speed: The Moon's rotation period is tidally locked with Earth's revolution period. This means it takes the Moon the same amount of time to rotate on its axis as it does to orbit Earth (roughly 27.3 Earth days). As a result, the same side of the Moon always faces Earth, while the far side remains permanently hidden.
- ✦ Revolution Speed: The Moon takes about one month to orbit Earth (27.3 days to complete a revolution, but 29.5 days to change from New Moon to New Moon).
- ✦ The Moon's phases and gravitational pull influence Earth's tides and have cultural significance across civilizations.
- ✦ Lunar exploration missions have revealed valuable insights into the Moon's composition, history, and potential resources.
- ✦ The Moon lacks a significant atmosphere and experiences extreme temperature variations between its day and night sides.
- ✦ Lunar craters, mountains, and maria (dark plains) provide clues about the Moon's formation and geological history.

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PHASES OF MOON

OVERVIEW FROM SPACE





# Cosmic Blast

Welcome to the Cosmic Blast Game! Save the Earth from incoming asteroids by clicking on them.

## Instructions:

- ✦ Click on the asteroids to destroy them and increase your score.
- ✦ Missed asteroids will damage the Earth, decreasing Earth's health.
- ✦ If health reaches zero, the game is over.


Start Game


HOME

Score: 0



Health: 100%

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Cosmonaut Oleg Kononenko inspects the Soyuz MS-09 spacecraft during a spacewalk on Dec. 11, 2018.

## Biomedical Research, Spacewalk Preps Wrap Week on Station


19 April 2024

In the blog post dated April 19, 2024, I provided updates on the activities aboard the International Space Station (ISS) as we wrapped up the week. Our focus was on biomedical research and preparations for upcoming spacewalks. I participated in various biomedical experiments aimed at understanding the effects of spaceflight on the human body, contributing valuable data to ongoing research efforts. Additionally, we conducted final preparations for upcoming spacewalks, ensuring that equipment and procedures were in place for successful missions outside the station. These activities reflect our commitment to advancing scientific knowledge and maintaining the operational capabilities of the ISS. As we conclude the week, I am proud of our accomplishments and look forward to continuing our work in space exploration.

[Read more](#)

Stunning View of Lyrids and E...

## Enjoy the Warming Weather Under These 3 Upcoming Meteor Showers

HOMEEXPLORE SPACEGAMESROCKETS**BLOGS**[LOGIN](#)

## The Universe's History

The origin, evolution, and nature of the universe have fascinated and confounded humankind for centuries. New ideas and major discoveries made during the 20th century transformed cosmology - the term for the way we conceptualize and study the universe - although much remains unknown. Here is the history of the universe according to cosmologists' current theories.

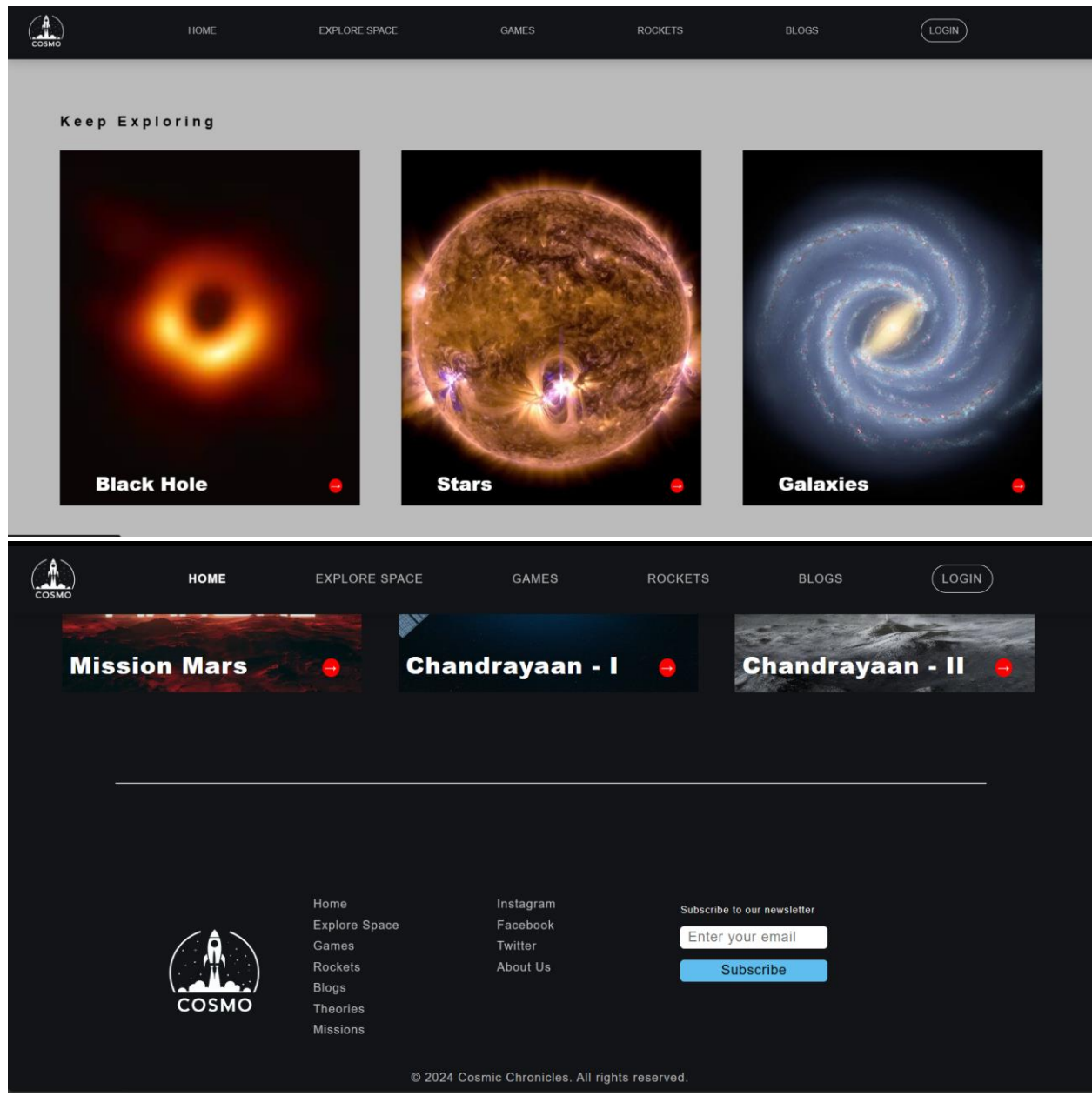
### Cosmic Inflation

Around 13.8 billion years ago, the universe expanded faster than the speed of light for a fraction of a second, a period called cosmic inflation. Scientists aren't sure what came before inflation or what powered it. It's possible that energy during this

#### Contents

- | The Universe History
- | Cosmic Inflation
- | Big Bang and Nucleosynthesis
- | Recombination
- | Dark ages
- | First stars
- | Reionization
- | The Future

Project Name



Code:

## Project Name

```
15 </body>
16 <nav>
17   <div class="logo">
18     <a href="/"></a>
19   </div>
20   <div class="hamburger">
21     <div class="line1"></div>
22     <div class="line2"></div>
23     <div class="line3"></div>
24   </div>
25   <ul class="navbar-links">
26     <li><a href="/" class="active">Home</a></li>
27     <li><a href="/solar-system-explore">Explore Space</a></li>
28     <li><a href="/cosmic-blast">Games</a></li>
29     <li><a href="/rockets">Rockets</a></li>
30     <li><a href="/blogs">Blogs</a></li>
31     <li><a class="login-button" href="/login" id="auth">Login</a></li>
32     <!-- <li><button class="join-button" href="#">Join</button></li> -->
33   </ul>
34 </nav>
35
36 <section class="hero-section" id="home">
37   <div class="hero-heading">
38     <h1>Explore the space</h1>
39     <p>Discover the wonders of the space with us</p>
40   </div>
41   <div class="hero-right-section">
42     
43   </div>
44 </section>
45
46 <div class="everyday-fact">
47   <h4>A random Fact:</h4>
48   <marquee behavior="scroll slowly" direction="" id="marquee-fact">The Sun is a star located at the center of the Solar System.</marquee>
49 </div>
50
51 > <div id="moon-phase"> ...
52 </div>
```

```
<body>
  <div id="interface">
    <h1>Cosmic Blast</h1>
    <p>Welcome to the Cosmic Blast Game! Save the Earth from incoming asteroids by clicking on them.</p>
    <p>Instructions:</p>
    <ul>
      <li>Click on the asteroids to destroy them and increase your score.</li>
      <li>Missed asteroids will damage the Earth, decreasing Earth's health.</li>
      <li>If health reaches zero, the game is over.</li>
    </ul>
    <button id="start-btn" class="start-btn">Start Game</button>
    <button class="start-btn"><a href="/">HOME</a></button>
    <form action="/logout" method="POST">
      <button class="start-btn">LOGOUT</button>
    </form>
  </div>

  <div id="game-container">
    <button id="quit-btn">&#10006;</button>
    <div id="earth"></div>
    <div id="health-bar">
      <div id="health-text"></div>
    </div>
    <div id="score"></div>
  </div>

  <div id="end-screen" class="hidden">
    <div class="popup">
      <h2>Earth has been destroyed by the asteroids</h2>
      <p>Your final score: <span id="final-score"></span></p>
      <button id="play-again-btn">Play Again</button>
      <button id="home-btn">BACK</button>
    </div>
  </div>

  <script src="js/game.js"></script>
```

## Project Name

```
document.addEventListener("DOMContentLoaded", function() {
  const earth = document.getElementById("earth");
  const healthBar = document.getElementById("health-bar");
  const healthText = document.getElementById("health-text");
  const scoreDisplay = document.getElementById("score");
  const interfaceDiv = document.getElementById("interface");
  const gameContainer = document.getElementById("game-container");
  const startBtn = document.getElementById("start-btn");
  const quitBtn = document.getElementById("quit-btn");

  const endScreen = document.getElementById("end-screen");
  const finalScore = document.getElementById("final-score");

  var explosionSound = new Audio();
  explosionSound.src = "../images/explode.mp3";
  explosionSound.preload = "auto";

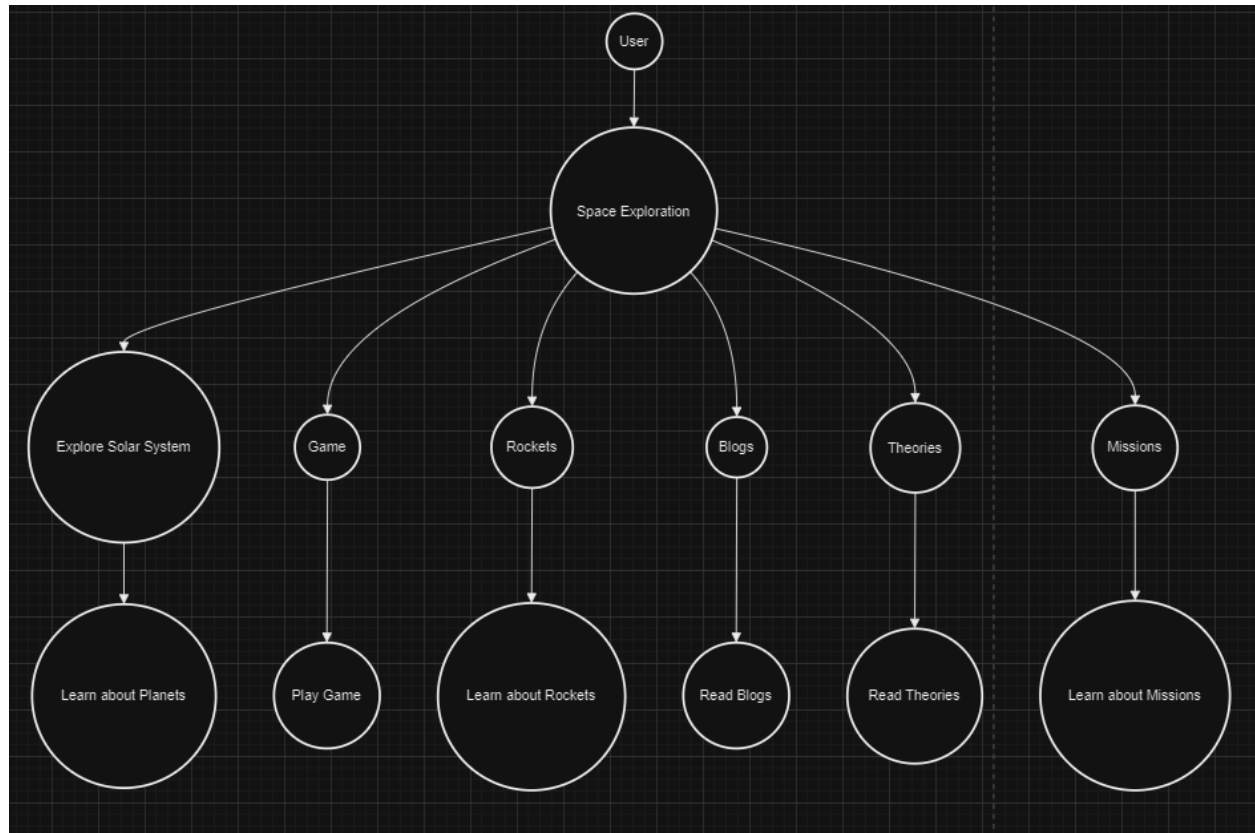
  let health = 100;
  let score = 0;
  let asteroids = [];
  let gameInterval;

  startBtn.addEventListener("click", startGame);
  quitBtn.addEventListener("click", quitGame);

  function startGame() {
    interfaceDiv.style.display = "none";
    gameContainer.style.display = "block";
    health = 100;
    updateHealthBar();
    gameInterval = setInterval(createAsteroid, 1000); // Decreased interval for more frequent asteroid appearance
  }

  function endGame() {
    clearInterval(gameInterval);
    gameContainer.style.display = "none";
    finalScore.textContent = score;
  }
});
```

## Data Flow Diagram







Thank  
You!