2024 NASA Space Apps Challenge

GLOBE Protocol Games

Maratón OrbitingBytes

Manual de Usuario

OrbitingBytes

Introduction

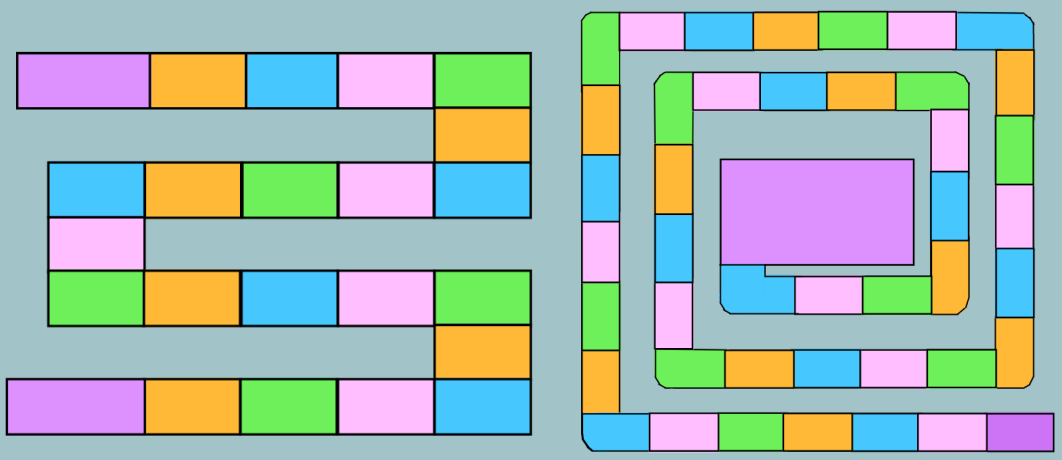
Maratón is a web-based video game inspired by the acclaimed Mexican board game of the same name, created by Sergio Schaar Chabat. It was designed to test people's knowledge and foster a desire to continue learning. This game allows you to keep researching and learning, making it ideal for an audience curious about seeking knowledge and learning from their mistakes.

Based on this premise, we created our own version, preserving the rules of the original game. It is a collection of over 100 questions about GLOBE Program protocols related to the Atmosphere, such as aerosols, air temperature, barometric pressure, clouds, precipitation, relative humidity, and surface temperature.

In this web application, 1-4 players can participate, along with the element of 'ignorance,' testing your knowledge and that of all your friends. The goal is to answer as many questions correctly as possible to advance on the board. If you answer incorrectly, ignorance will advance, so everyone’s objective will be to prevail and win against ignorance.

Additionally, you can choose between a 42-space board or a 21-space board, as well as the number of players, with the ability to customize the color of your tokens.

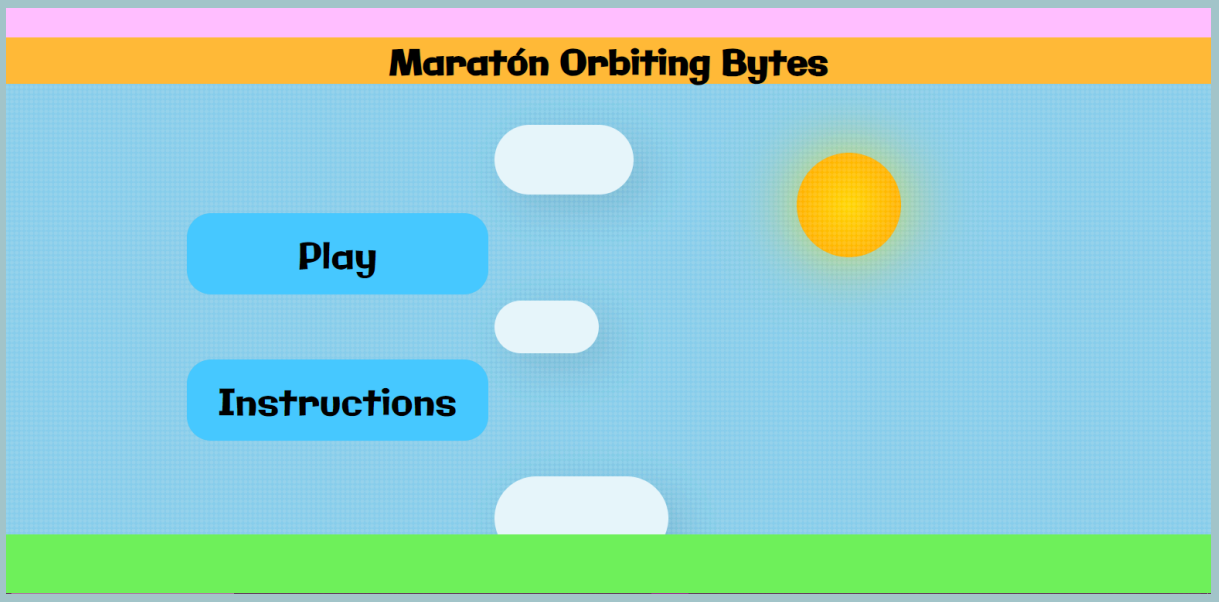
This manual will present any useful information for the user, including product generalities, technical software requirements, installation and configuration, options for using the application, troubleshooting solutions, and a glossary to explain some technical terms we may use.



Project generalities.

Game interface

- Home Screen:



1.- **Play Button**: Button to start the game.

2.- **Instructions Button**: Button to learn how to play.

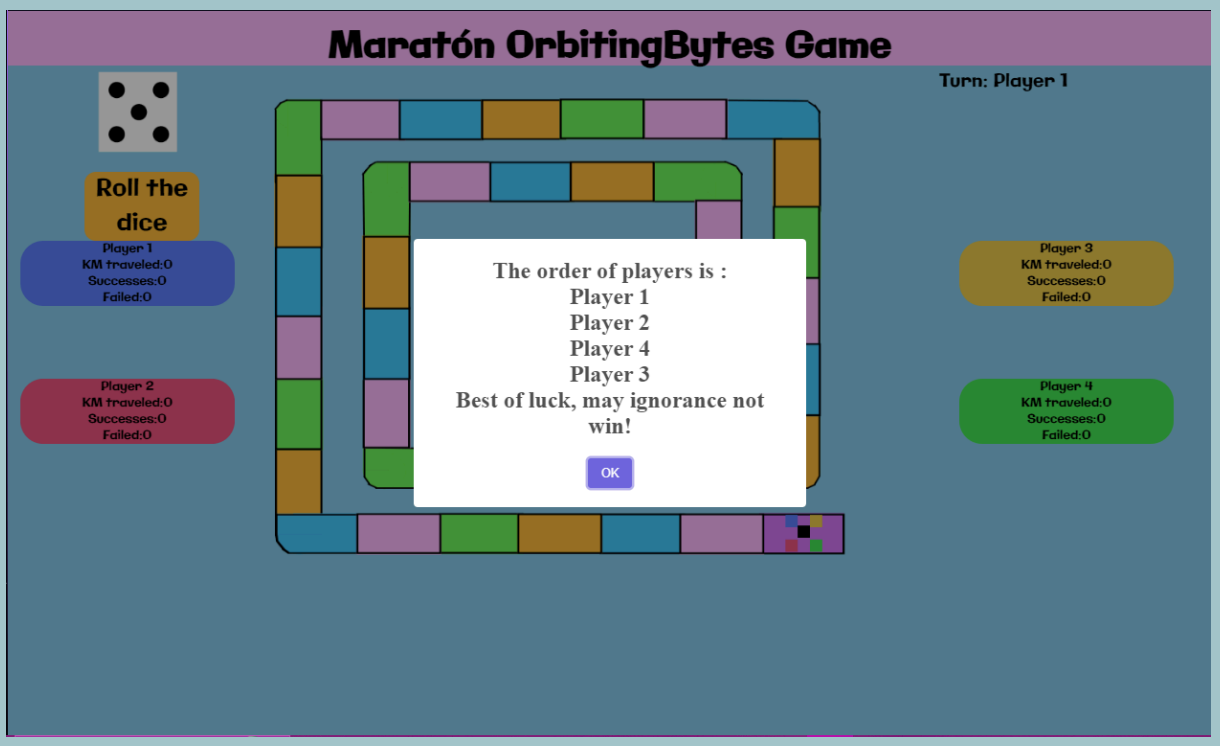
- Instructions Screen:

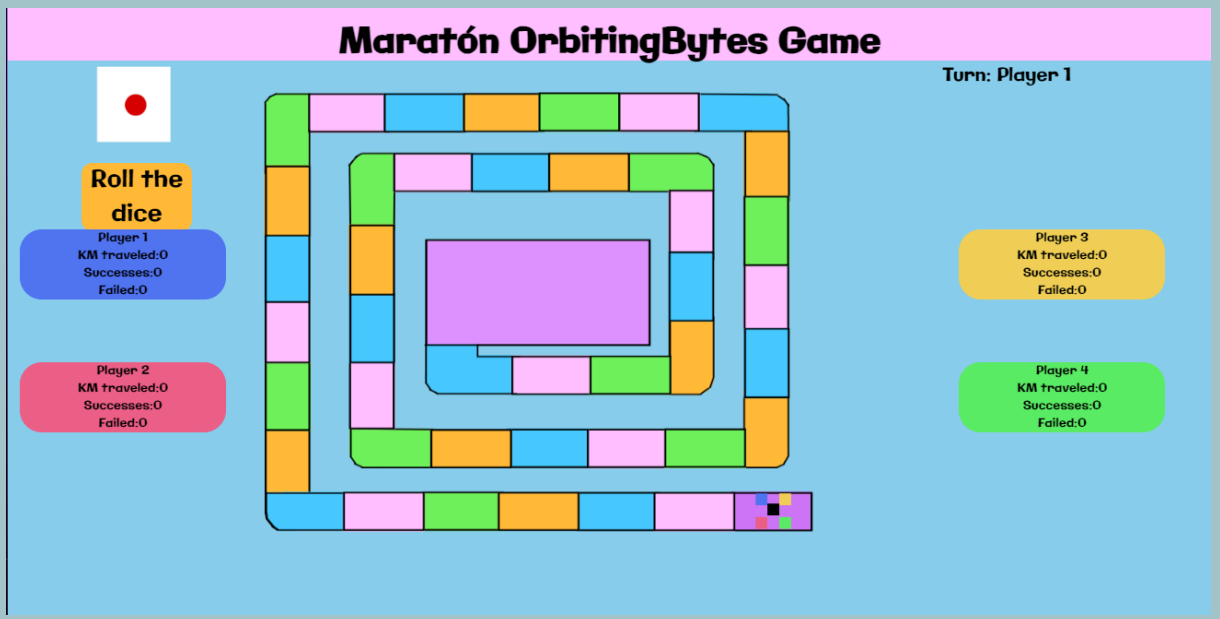
Game Instructions: Displays the instructions for the game.

- Player Selection Screen:

1. **Players**: Selection of the number of players in the game.
2. **Colors**: Select the token and card color for each player.
3. **Board**: Selection of the board size.

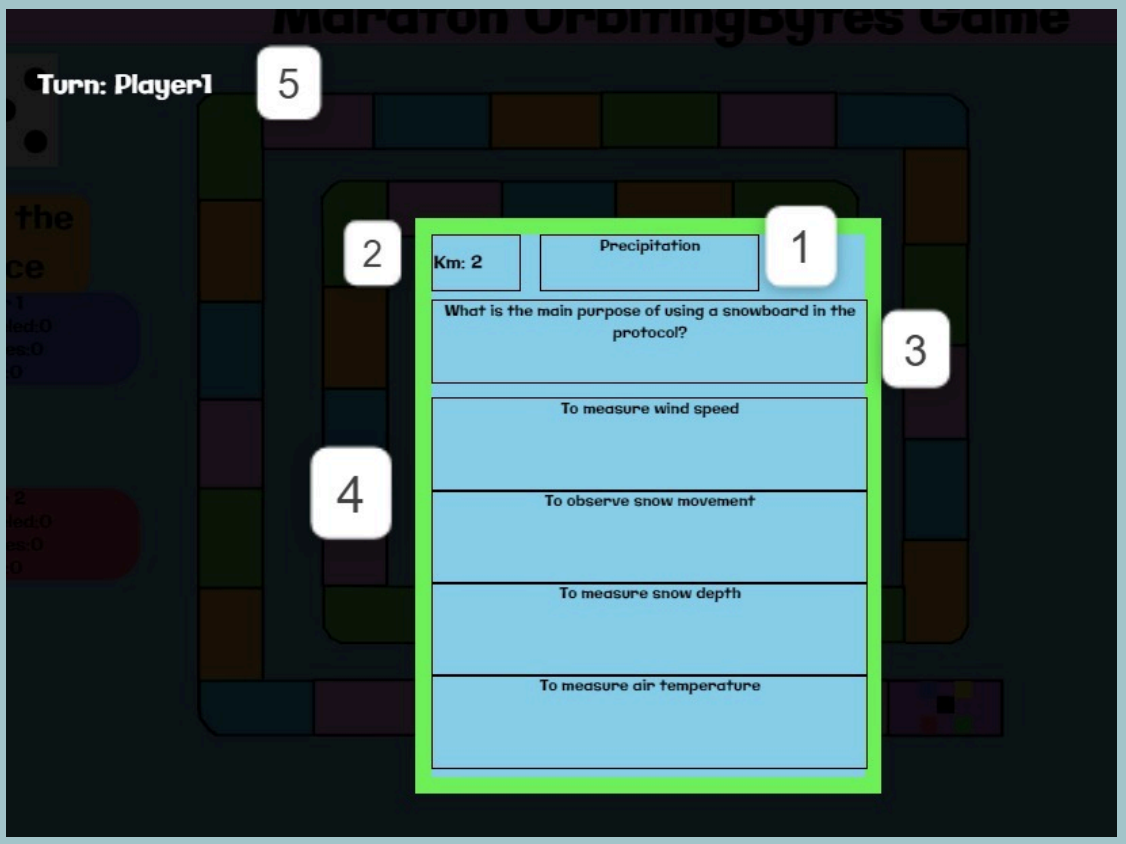
- Game Screen:





1. **Dice**: Button used to roll the dice.
2. **Information Cards**: Cards for each player that display data such as kilometers traveled, correct answers, and incorrect answers.
3. **Token**: The token for each player; indicates the position of the token on the board.
4. **Board**: The playing field for the tokens.
5. **Turn**: Shows the player whose turn it is.

- Question Screen:

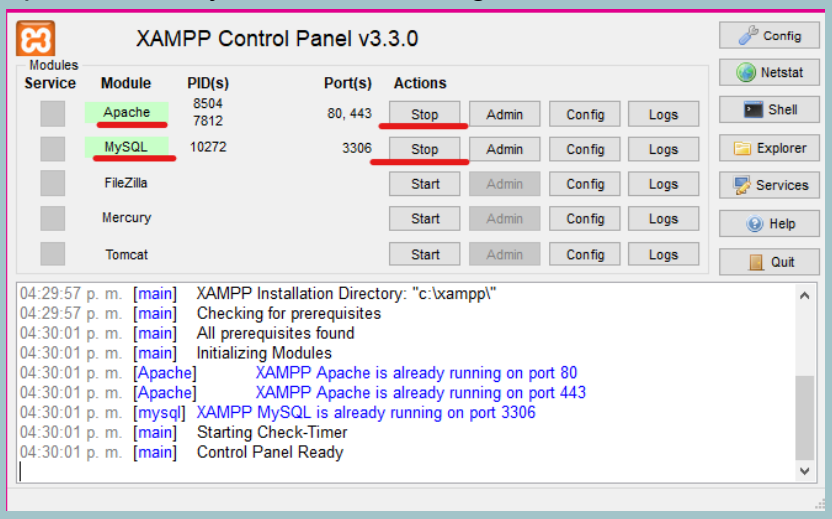


1. **Protocol**: Protocol of the current question.
2. **Kilometers**: Kilometers traveled for answering the question correctly.
3. **Question**: Content of the question.
4. **Answers**: Answer options for the question.
5. **Turn**: Turn of the player in the question.

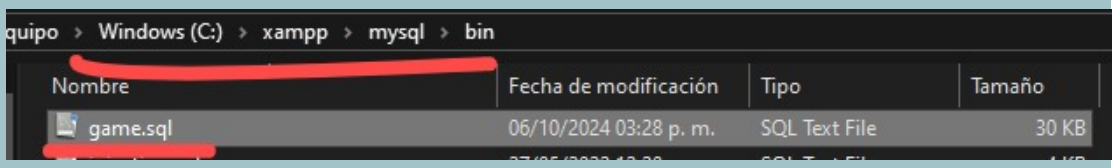
Technical Requirements of the Software, Installation, and Configuration:

- Windows:
  - Technical Requirements of the Software:
    - Access to the command console..
    - Windows version 7 or higher..
    - Internet infrastructure system: XAMPP.
    - Any web browser, except Internet Explorer.

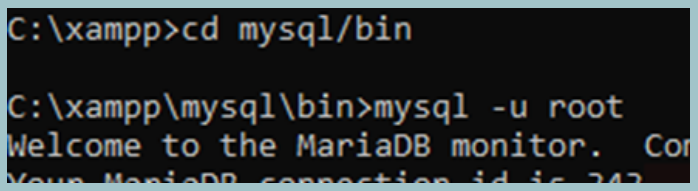
- Installation and Configuration:
  - Navigate to the directory `C:\xampp\htdocs` and clone the GitHub repository.
  - Once the repository is cloned, open XAMPP and start the Apache and MySQL servers using the "Start" button..



  - Go to the `OrbitingBytes` folder (the cloned repository) and navigate to the `docs` folder where you will find an SQL file.
  - Copy the SQL file and navigate to the path `C:\xampp/mysql/bin` and paste the copied file.



  - Open the command console and navigate to the directory where XAMPP is installed (usually `C:\xampp`).
  - From that directory, navigate to the MySQL `bin` folder using the command: `cd mysql/bin`.
  - From that directory, execute the command: `mysql -u root` to access the SQL interface.



  - Execute the command `CREATE DATABASE game;`.
  - Execute the command `exit;` to leave the interface and run the following command: `mysql -u root game < game.sql` (It's

important that this command does not end with a ‘;’ to avoid installation issues).
        - Once these steps are completed, you will be able to use the site. In your browser, enter the link: `localhost/OrbitingBytes`.
- Linux:
    - Technical Requirements of the Software:
        - Any Linux distribution compatible with LAMPP.
        - Access to a bash or zsh terminal.
        - Linux system capable of executing commands with the root user or with privileges to run the lampp command.
        - Internet infrastructure system: LAMPP.
        - Any web browser, except Internet Explorer.
    - Installation and Configuration:
        - Login with root and change the directory to `/opt/lampp/htdocs`.
        - Clone the project repository from GitHub.
        - Change the directory to "OrbitingBytes".
        - Execute the next command to change the permisions: sudo chown -R user:user /opt/lampp (user is your own system user)
        - Use the command: sudo ./lampp start to start LAMPP.
        - Move to the directory bin/ with the next command: cd bin/
        - Execute: ./mysql -u root
        - When you see the MariaDB prompt, execute the command CREATE DATABASE game;
        - press ctrl + c for exiting the program;
        - Finally, use this command to import the DB: ./mysql -u root game< ../htdocs/OrbitingBytes/docs/game.sql

Options for Using the Application:

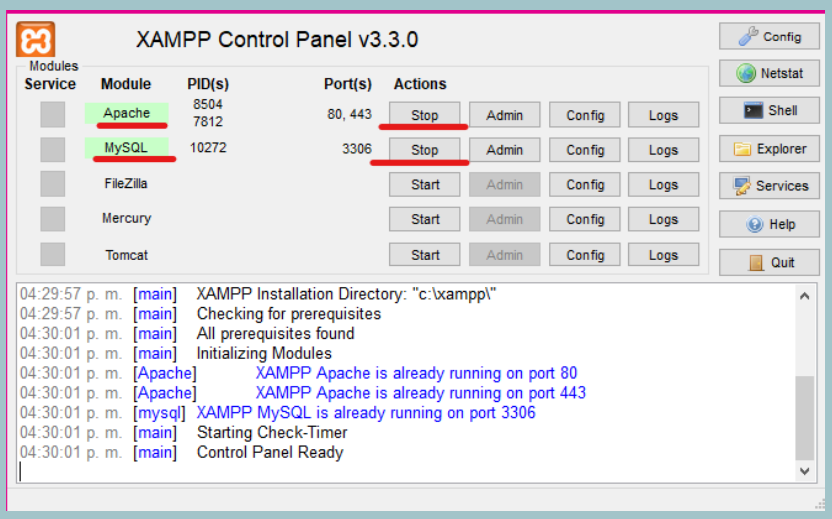
The application can be used in any web browser, except Internet Explorer, on both operating systems (Linux and Windows). This game should be played on a computer that meets the minimum requirements for the game.

Starting and Closing the Application:

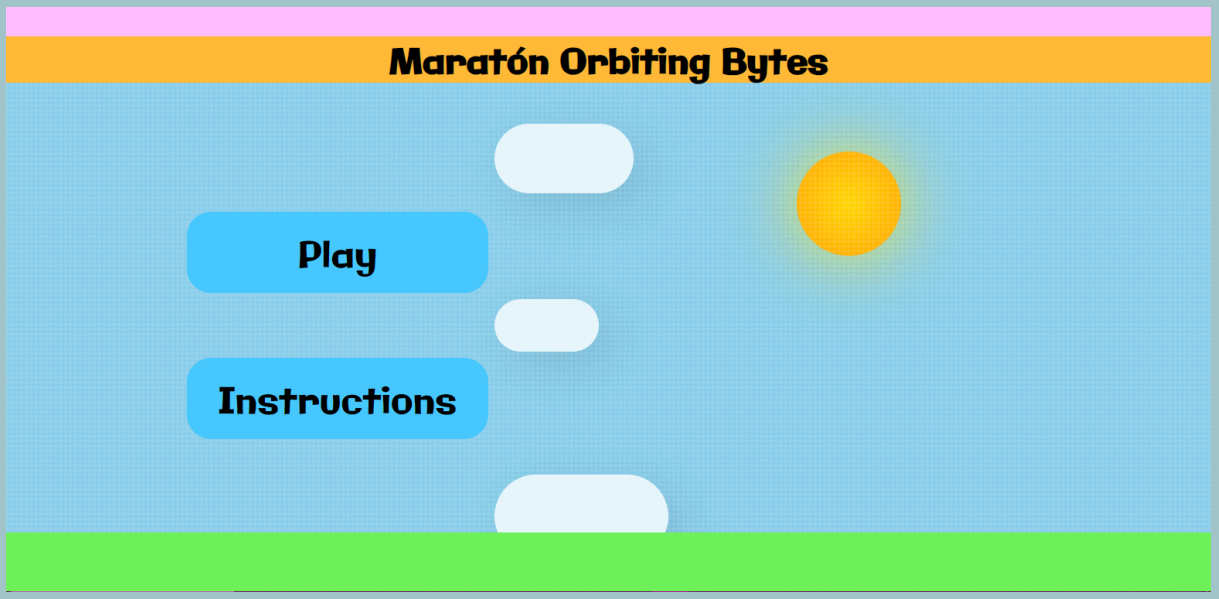
WINDOWS

START

For Windows, once XAMPP is installed, you need to find the program, open it, and start the Apache and MySQL servers.

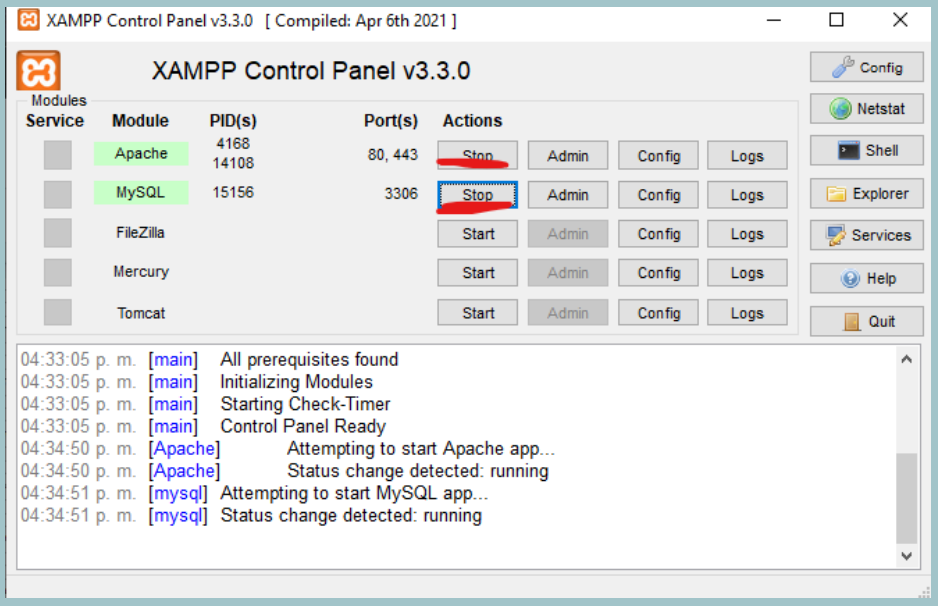


Next, open your preferred web browser according to the specified technical requirements and enter the URL: http://localhost/OrbitingBytes. You will automatically have access to the main screen of the game, and you are ready to start playing.



CLOSE

To close the application, simply close the game window in your browser, and then go to your XAMPP application to stop the servers by pressing "Stop".



LINUX

For Linux, to start your server, you must enter the command: `sudo /opt/lampp/lampp start`, then access the URL: http://127.0.0.1/OrbitingBytes/

To close the application, you must stop your XAMPP service for Windows or LAMPP for Linux by entering the command: `sudo /opt/lampp/lampp stop`.

Troubleshooting in Case the Product Does Not Work:

Here are some possible problems:

Problem: Error appears when entering the page:
Check that the Apache server is running in MySQL.

Problem: A question does not appear on the question card:
Check that the MySQL module is running in XAMPP.

Glossary of Terms:

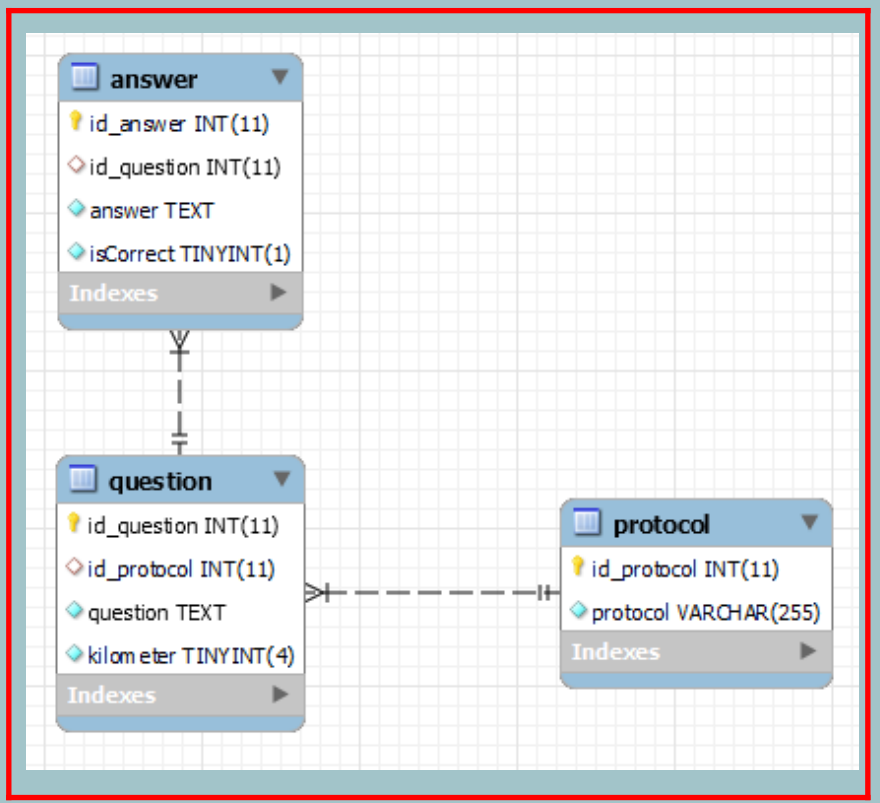
- ★ **SQL**: SQL is a programming language used by almost all relational databases to query, manipulate, and define data, as well as to provide access control.
- ★ **MySQL**: MySQL Database Service is a fully managed database service from Oracle that enables developers to create and deploy secure cloud-native applications using the world's most popular open-source database.
- ★ **Apache**: Apache is an open-source HTTP server for UNIX platforms..
- ★ **Database**: A database is an organized collection of information or structured data that is typically stored electronically in a computer system. A database usually consists of a database management system.
- ★ **Command Line**: A command line (often also known as console or terminal) is a text-based interface within an operating system through which users send commands to the operating system.

Oracle. (s.f.). Temas de base de datos.
https://www.oracle.com/mx/database/what-is-database/#link2

Annexes:

Table Name	Attribute Name	Content	Type	Nullable	Key
Protocol	id_protocol	Protocol identification number	TINYINT(4)	no	PK
	protocol	Protocol's name	VARCHAR(255)	no	
Question	id_question	Question identification number	TINYINT(4)	no	PK
	id_protocol	Protocol identification number	TINYINT(4)	no	FK
	Question	Question string	VARCHAR(255)	no	
	Kilometer	Number of kilometers the question is worth	TINYINT(4)	no	
Answer	id_answer	Answer identification number	TINYINT(4)	no	PK
	id_question	Question identification number	TINYINT(4)	no	FK
	answer	Answer string	VARCHAR(255)	no	
	boolCorrect	Indicates whether the answer to a question is correct	BOOLEAN	no	

Data Table



Entity-Relationship Diagram