

**Quiz Quest**

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Project Documentation Report

CSC 431:Mobile Applications

Department of Arts and Sciences

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Introduction:

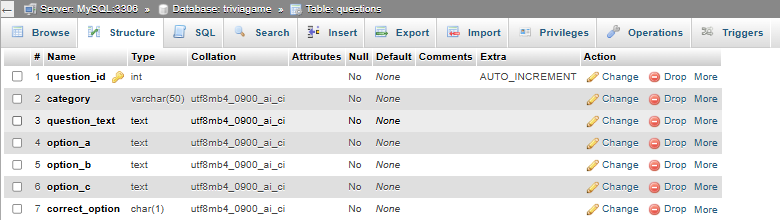
Quiz Quest

The project is going to be showing a mobile application which is a trivia game entitled “ QuizQuest”. The app is constructed using Android Studio “Java” as a frontend, and php as backend implementation . To begin with, when the app is running the user needs to log in or sign up. When the user logs in successfully they are directed to the Category menu of the app which consists of logged in username, title of the app and the 6 categories of the questions which are buttons, and the user can only select one. When the user selects a category, we go to the playing screen which consists of the username, a progress bar, which only progresses when the user chooses the correct answer. Under the question there are 3 radio buttons showing the choices which the user has to pick from and a submit button. The playing screen repeats for the 10 questions since when the user chooses a category 10 questions of this category will be loaded in the app. As for the final screen it consists of a text view which is “ you scored -/10” and see a leaderboard and play again button. When the play again button is pressed it goes back to the Category menu of the app. In addition , a web admin portal in which the admin manages the questions stored in the database , the admin can delete certain question or add question to a certain category.

1. **Building the Database:**

* **Table Questions:**

First, table questions has the following attributes: question\_id(int) , category( varchar), question\_text(text), option\_a(text), option\_b (text), option\_c (text), correct\_option( char).This table contains all the questions with their text, their category,options and the correct options.The question\_id is also on auto\_increment which ensures that all the questions have different ids to differentiate each one.



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* **Table Users:**

Table Users contains: user\_id(int) , username (varchar) with password(varchar) , email(varchar) .The user\_id has auto\_inctrement which highlights that each user has a different id from the other to differentiate between the different users.

A screenshot of a computer

Description automatically generated

CREATE TABLE Users (

user\_id INT AUTO\_INCREMENT PRIMARY KEY,

username VARCHAR(50) NOT NULL,

email VARCHAR(100) UNIQUE NOT NULL,

password VARCHAR(255) NOT NULL

);

* **Table Scores:**

Table Scores includes: score\_id(int) , user\_id(int) , category(varchar), score(int).This table contains all the leaderboard data showing every user and their score in each category. The score\_id is also on auto\_increment which means that it all scores have different ids to differentiate between the different scores.

A screenshot of a computer

Description automatically generated

CREATE TABLE Scores (

score\_id INT AUTO\_INCREMENT PRIMARY KEY,

user\_id INT NOT NULL,

category VARCHAR(50) NOT NULL,

score INT NOT NULL,

FOREIGN KEY (user\_id) REFERENCES Users(user\_id)

);

**2)Choosing the Categories:**

There are 6 different categories offering a variety of questions for the user to pick based on their preference which are: Science, Geography, History, Football, Technology, and Entertainment.

**3) Doing the questions for the categories and inserting them into the database:**

For the questions, as we had mentioned before when the user chooses a category it picks 10 questions from the database of the category selected to display for the user. Now to ensure that the questions are not repeated frequently, we need to pick the questions randomly and dynamically from the database with a high number of questions for each category to ensure that the repeated questions are minimal.

* Science:

INSERT INTO Questions (category, question\_text, option\_a, option\_b, option\_c, correct\_option) VALUES

('Science', 'What is the chemical symbol for water?', 'O', 'H2O', 'CO2', 'B'),

('Science', 'Which planet is known as the Red Planet?', 'Mars', 'Venus', 'Jupiter', 'A'),

('Science', 'What is the process by which plants make their food?', 'Respiration', 'Photosynthesis', 'Transpiration', 'B'),

('Science', 'What is the hardest natural substance on Earth?', 'Diamond', 'Iron', 'Quartz', 'A'),

('Science', 'Which gas do plants absorb during photosynthesis?', 'Oxygen', 'Carbon dioxide', 'Nitrogen', 'B'),

('Science', 'What is the speed of light?', '300,000 km/s', '150,000 km/s', '450,000 km/s', 'A'),

('Science', 'Which element is found in abundance in the Earth\'s crust?', 'Silicon', 'Oxygen', 'Aluminum', 'B'),

('Science', 'What is the powerhouse of the cell?', 'Nucleus', 'Mitochondria', 'Ribosome', 'B'),

('Science', 'What is the primary gas in the Earth\'s atmosphere?', 'Oxygen', 'Nitrogen', 'Carbon dioxide', 'B'),

('Science', 'What is the chemical formula for table salt?', 'NaCl', 'KCl', 'CaCO3', 'A'),

('Science', 'What is the study of fungi called?', 'Zoology', 'Botany', 'Mycology', 'C'),

('Science', 'Which vitamin is produced by the body when exposed to sunlight?', 'Vitamin C', 'Vitamin D', 'Vitamin B12', 'B'),

('Science', 'What is the primary component of the Sun?', 'Helium', 'Hydrogen', 'Oxygen', 'B'),

('Science', 'What is the SI unit of force?', 'Joule', 'Newton', 'Pascal', 'B'),

('Science', 'What type of blood cells help fight infections?', 'Red blood cells', 'White blood cells', 'Platelets', 'B'),

('Science', 'What is the boiling point of water at sea level?', '100°C', '90°C', '80°C', 'A'),

('Science', 'What is the largest organ in the human body?', 'Liver', 'Skin', 'Heart', 'B'),

('Science', 'What is the atomic number of carbon?', '6', '8', '12', 'A'),

('Science', 'Which planet is the largest in our solar system?', 'Jupiter', 'Saturn', 'Neptune', 'A'),

('Science', 'What type of lens is used in a magnifying glass?', 'Concave', 'Convex', 'Flat', 'B'),

('Science', 'What is the common name for sodium bicarbonate?', 'Baking soda', 'Washing powder', 'Table salt', 'A'),

('Science', 'What is the primary function of red blood cells?', 'Fight infection', 'Carry oxygen', 'Produce hormones', 'B'),

('Science', 'Which gas is known as laughing gas?', 'Nitrous oxide', 'Carbon dioxide', 'Helium', 'A'),

('Science', 'What is the main organ of the human circulatory system?', 'Brain', 'Heart', 'Lungs', 'B'),

('Science', 'Which part of the brain controls balance and coordination?', 'Cerebrum', 'Cerebellum', 'Medulla', 'B');

('Science', 'What is the smallest unit of life?', 'Molecule', 'Cell', 'Atom', 'B'),

('Science', 'Which part of the plant conducts photosynthesis?', 'Roots', 'Leaves', 'Stem', 'B'),

('Science', 'Which planet is closest to the Sun?', 'Venus', 'Earth', 'Mercury', 'C'),

('Science', 'What is the chemical symbol for gold?', 'Au', 'Ag', 'Go', 'A'),

('Science', 'What type of energy is stored in a stretched rubber band?', 'Kinetic energy', 'Potential energy', 'Thermal energy', 'B'),

('Science', 'What gas do humans exhale?', 'Oxygen', 'Nitrogen', 'Carbon dioxide', 'C'),

('Science', 'What is the primary source of energy for the Earth?', 'The Moon', 'The Sun', 'Fossil fuels', 'B'),

('Science', 'What is the term for animals that only eat plants?', 'Carnivores', 'Herbivores', 'Omnivores', 'B'),

('Science', 'What is the most abundant gas in the universe?', 'Oxygen', 'Helium', 'Hydrogen', 'C'),

('Science', 'What does DNA stand for?', 'Deoxyribonucleic Acid', 'Dinitrogen Acid', 'Double Helix Acid', 'A'),

('Science', 'Which organ in the human body filters blood?', 'Liver', 'Kidneys', 'Heart', 'B'),

('Science', 'What is the measure of an object\'s resistance to acceleration?', 'Weight', 'Mass', 'Force', 'B'),

('Science', 'What is the process by which water changes from a liquid to a gas?', 'Condensation', 'Evaporation', 'Precipitation', 'B'),

('Science', 'What is the term for a material that does not allow electricity to flow through it?', 'Conductor', 'Insulator', 'Semiconductor', 'B'),

('Science', 'What is the pH of pure water?', '7', '6', '8', 'A'),

('Science', 'Which planet has the most moons?', 'Jupiter', 'Saturn', 'Uranus', 'A'),

('Science', 'What is the process of splitting an atomic nucleus called?', 'Fusion', 'Fission', 'Combustion', 'B'),

('Science', 'What is the main function of the human skeleton?', 'Protect internal organs', 'Produce energy', 'Aid in digestion', 'A'),

('Science', 'What is the largest planet in our solar system?', 'Jupiter', 'Saturn', 'Neptune', 'A'),

('Science', 'What is the main ingredient in glass?', 'Sand', 'Clay', 'Limestone', 'A'),

('Science', 'Which vitamin is essential for blood clotting?', 'Vitamin A', 'Vitamin D', 'Vitamin K', 'C'),

('Science', 'What type of blood cells carry oxygen?', 'White blood cells', 'Red blood cells', 'Platelets', 'B'),

('Science', 'What is the closest star to Earth?', 'Alpha Centauri', 'The Sun', 'Proxima Centauri', 'B'),

('Science', 'What is the main gas found in the air we breathe?', 'Oxygen', 'Nitrogen', 'Carbon dioxide', 'B'),

('Science', 'Which part of the human brain is responsible for memory?', 'Cerebrum', 'Cerebellum', 'Medulla', 'A');

* Geography

INSERT INTO Questions (category, question\_text, option\_a, option\_b, option\_c, correct\_option) VALUES

('Geography', 'What is the largest continent in the world?', 'Africa', 'Asia', 'Europe', 'B'),

('Geography', 'Which country has the longest coastline in the world?', 'Canada', 'Australia', 'Russia', 'A'),

('Geography', 'What is the capital of Australia?', 'Sydney', 'Canberra', 'Melbourne', 'B'),

('Geography', 'Which desert is the largest in the world?', 'Sahara', 'Arabian', 'Gobi', 'A'),

('Geography', 'Which river is the longest in the world?', 'Nile', 'Amazon', 'Yangtze', 'A'),

('Geography', 'What is the smallest country in the world by area?', 'Vatican City', 'Monaco', 'San Marino', 'A'),

('Geography', 'Which is the largest ocean in the world?', 'Atlantic Ocean', 'Pacific Ocean', 'Indian Ocean', 'B'),

('Geography', 'What is the capital of Canada?', 'Ottawa', 'Toronto', 'Vancouver', 'A'),

('Geography', 'What mountain range separates Europe and Asia?', 'Alps', 'Ural Mountains', 'Andes', 'B'),

('Geography', 'What is the official language of Brazil?', 'Spanish', 'Portuguese', 'French', 'B'),

('Geography', 'Which continent is known as the Frozen Continent?', 'Antarctica', 'Arctic', 'Europe', 'A'),

('Geography', 'What is the capital of Japan?', 'Tokyo', 'Kyoto', 'Osaka', 'A'),

('Geography', 'What is the largest island in the world?', 'Greenland', 'New Guinea', 'Borneo', 'A'),

('Geography', 'What is the deepest ocean trench in the world?', 'Mariana Trench', 'Tonga Trench', 'Philippine Trench', 'A'),

('Geography', 'What is the most populous country in the world?', 'India', 'China', 'United States', 'B'),

('Geography', 'Which US state has the most lakes?', 'Alaska', 'Minnesota', 'Michigan', 'B'),

('Geography', 'Which country is nicknamed the Land of the Rising Sun?', 'South Korea', 'Japan', 'China', 'B'),

('Geography', 'What is the longest river in the United States?', 'Missouri River', 'Mississippi River', 'Colorado River', 'A'),

('Geography', 'What is the largest desert in North America?', 'Mojave', 'Chihuahuan', 'Sonoran', 'B'),

('Geography', 'What is the smallest continent in the world by area?', 'Europe', 'Australia', 'Antarctica', 'B'),

('Geography', 'What is the capital of Germany?', 'Berlin', 'Frankfurt', 'Munich', 'A'),

('Geography', 'Which European country is known for tulips and windmills?', 'Netherlands', 'Belgium', 'Denmark', 'A'),

('Geography', 'What is the capital city of Egypt?', 'Cairo', 'Alexandria', 'Giza', 'A'),

('Geography', 'What is the national animal of Canada?', 'Moose', 'Beaver', 'Polar bear', 'B'),

('Geography', 'Which country is both in Europe and Asia?', 'Turkey', 'Russia', 'Kazakhstan', 'A');

('Geography', 'What is the largest lake in the world by area?', 'Lake Superior', 'Caspian Sea', 'Lake Victoria', 'B'),

('Geography', 'Which country has the most time zones?', 'United States', 'France', 'Russia', 'B'),

('Geography', 'What is the capital of South Korea?', 'Busan', 'Seoul', 'Incheon', 'B'),

('Geography', 'Which African country has the highest population?', 'Nigeria', 'Egypt', 'Ethiopia', 'A'),

('Geography', 'What is the tallest mountain in the world?', 'K2', 'Kangchenjunga', 'Mount Everest', 'C'),

('Geography', 'What country is famous for its fjords?', 'Norway', 'Sweden', 'Iceland', 'A'),

('Geography', 'Which is the hottest desert in the world?', 'Sahara', 'Kalahari', 'Lut Desert', 'C'),

('Geography', 'What is the capital of Argentina?', 'Buenos Aires', 'Cordoba', 'Mendoza', 'A'),

('Geography', 'Which sea is the saltiest in the world?', 'Dead Sea', 'Red Sea', 'Mediterranean Sea', 'A'),

('Geography', 'Which US state is the largest by area?', 'Texas', 'Alaska', 'California', 'B'),

('Geography', 'What is the capital of Italy?', 'Florence', 'Rome', 'Milan', 'B'),

('Geography', 'Which European country is known for its castles and medieval architecture?', 'Germany', 'Spain', 'Czech Republic', 'A'),

('Geography', 'Which river flows through Paris?', 'Seine', 'Rhine', 'Thames', 'A'),

('Geography', 'Which country is home to Mount Kilimanjaro?', 'Kenya', 'Tanzania', 'Uganda', 'B'),

('Geography', 'Which ocean is the smallest in the world?', 'Arctic Ocean', 'Indian Ocean', 'Southern Ocean', 'A'),

('Geography', 'What is the capital of Thailand?', 'Bangkok', 'Phuket', 'Chiang Mai', 'A'),

('Geography', 'Which US state is known as the Sunshine State?', 'Florida', 'California', 'Hawaii', 'A'),

('Geography', 'What is the currency used in Japan?', 'Yuan', 'Yen', 'Won', 'B'),

('Geography', 'Which South American country is landlocked?', 'Paraguay', 'Uruguay', 'Chile', 'A'),

('Geography', 'What is the capital of Russia?', 'Saint Petersburg', 'Moscow', 'Kazan', 'B'),

('Geography', 'Which country is known as the Land of a Thousand Lakes?', 'Sweden', 'Finland', 'Norway', 'B'),

('Geography', 'What is the largest island in the Mediterranean Sea?', 'Sardinia', 'Sicily', 'Crete', 'B'),

('Geography', 'Which mountain range is home to Mount Everest?', 'Rockies', 'Andes', 'Himalayas', 'C'),

('Geography', 'Which African lake is the source of the Nile River?', 'Lake Malawi', 'Lake Tanganyika', 'Lake Victoria', 'C'),

('Geography', 'What is the capital of Mexico?', 'Guadalajara', 'Cancun', 'Mexico City', 'C');

* History

INSERT INTO Questions (category, question\_text, option\_a, option\_b, option\_c, correct\_option) VALUES

('History', 'Who was the first President of the United States?', 'Thomas Jefferson', 'George Washington', 'Abraham Lincoln', 'B'),

('History', 'In which year did World War II end?', '1942', '1945', '1948', 'B'),

('History', 'What was the name of the ship on which the Pilgrims traveled to America in 1620?', 'Titanic', 'Mayflower', 'Santa Maria', 'B'),

('History', 'Who discovered America in 1492?', 'Christopher Columbus', 'Vasco da Gama', 'Ferdinand Magellan', 'A'),

('History', 'Which empire was ruled by Julius Caesar?', 'Byzantine Empire', 'Roman Empire', 'Ottoman Empire', 'B'),

('History', 'Which war was fought between the North and South regions in the United States?', 'Revolutionary War', 'Civil War', 'Korean War', 'B'),

('History', 'What was the name of the last Queen of France before the French Revolution?', 'Marie Antoinette', 'Catherine de Medici', 'Anne of Austria', 'A'),

('History', 'Which city was the capital of the Byzantine Empire?', 'Rome', 'Constantinople', 'Athens', 'B'),

('History', 'Who was the first human to travel into space?', 'Neil Armstrong', 'Yuri Gagarin', 'Buzz Aldrin', 'B'),

('History', 'In which year did the Titanic sink?', '1912', '1905', '1920', 'A'),

('History', 'Who was the leader of Nazi Germany during World War II?', 'Joseph Stalin', 'Adolf Hitler', 'Benito Mussolini', 'B'),

('History', 'What was the name of the first manned mission to land on the moon?', 'Apollo 11', 'Challenger', 'Discovery', 'A'),

('History', 'Which ancient civilization built the pyramids?', 'Mesopotamians', 'Egyptians', 'Romans', 'B'),

('History', 'What was the name of the first artificial satellite launched into space?', 'Sputnik', 'Voyager', 'Pioneer', 'A'),

('History', 'Who was the famous nurse known as the Lady with the Lamp?', 'Florence Nightingale', 'Marie Curie', 'Clara Barton', 'A'),

('History', 'Which empire was known for its warriors called samurai?', 'Roman Empire', 'Ottoman Empire', 'Japanese Empire', 'C'),

('History', 'In which year did the Berlin Wall fall?', '1987', '1989', '1991', 'B'),

('History', 'Who was the first Emperor of China?', 'Qin Shi Huang', 'Kublai Khan', 'Sun Yat-sen', 'A'),

('History', 'What was the primary cause of the Cold War?', 'Religious conflict', 'Ideological differences', 'Territorial disputes', 'B'),

('History', 'Which battle marked the end of Napoleon\'s rule in Europe?', 'Battle of Trafalgar', 'Battle of Leipzig', 'Battle of Waterloo', 'C'),

('History', 'Who was known as the Iron Lady?', 'Angela Merkel', 'Margaret Thatcher', 'Indira Gandhi', 'B'),

('History', 'Which famous document was signed in 1776?', 'Constitution of the United States', 'Declaration of Independence', 'Magna Carta', 'B'),

('History', 'Who painted the ceiling of the Sistine Chapel?', 'Leonardo da Vinci', 'Michelangelo', 'Raphael', 'B'),

('History', 'Which country gifted the Statue of Liberty to the United States?', 'Germany', 'France', 'Italy', 'B'),

('History', 'Who was assassinated in 1963 in Dallas, Texas?', 'Robert Kennedy', 'John F. Kennedy', 'Martin Luther King Jr.', 'B');

('History', 'Who was the first Prime Minister of India?', 'Mahatma Gandhi', 'Jawaharlal Nehru', 'Sardar Patel', 'B'),

('History', 'Which empire was known for building the Great Wall of China?', 'Han', 'Ming', 'Tang', 'B'),

('History', 'Who was the longest-serving British monarch before Queen Elizabeth II?', 'Queen Victoria', 'King George VI', 'King Edward VII', 'A'),

('History', 'In which year did the United Nations officially come into existence?', '1945', '1950', '1939', 'A'),

('History', 'What was the name of the plane that dropped the atomic bomb on Hiroshima?', 'Spirit of St. Louis', 'Enola Gay', 'Memphis Belle', 'B'),

('History', 'Who wrote the Communist Manifesto?', 'Friedrich Engels and Karl Marx', 'Vladimir Lenin and Leon Trotsky', 'Mao Zedong and Zhou Enlai', 'A'),

('History', 'Which war is considered the deadliest conflict in human history?', 'World War I', 'World War II', 'Napoleonic Wars', 'B'),

('History', 'What historical event is known as the Trail of Tears?', 'American Civil War', 'Native American forced relocation', 'Westward Expansion', 'B'),

('History', 'Which country did Napoleon Bonaparte represent?', 'Italy', 'France', 'Spain', 'B'),

('History', 'Who was the first President of South Africa elected after the end of apartheid?', 'Nelson Mandela', 'Desmond Tutu', 'Thabo Mbeki', 'A'),

('History', 'What was the ancient city of Byzantium later renamed to?', 'Istanbul', 'Athens', 'Alexandria', 'A'),

('History', 'Which U.S. President issued the Emancipation Proclamation?', 'Abraham Lincoln', 'George Washington', 'Andrew Johnson', 'A'),

('History', 'What was the name of the ancient trade route connecting the East and the West?', 'Spice Road', 'Silk Road', 'Amber Road', 'B'),

('History', 'What was the name of the ship Charles Darwin sailed on during his voyage of discovery?', 'HMS Beagle', 'HMS Victory', 'HMS Endeavour', 'A'),

('History', 'Which empire was founded by Genghis Khan?', 'Ottoman Empire', 'Mongol Empire', 'Byzantine Empire', 'B'),

('History', 'Who discovered penicillin?', 'Louis Pasteur', 'Alexander Fleming', 'Marie Curie', 'B'),

('History', 'What year marked the start of the American Revolutionary War?', '1765', '1775', '1783', 'B'),

('History', 'Who was the first female Prime Minister of the United Kingdom?', 'Theresa May', 'Margaret Thatcher', 'Elizabeth I', 'B'),

('History', 'What ancient wonder was located in Babylon?', 'Great Pyramid', 'Hanging Gardens', 'Colossus of Rhodes', 'B'),

('History', 'Which treaty ended World War I?', 'Treaty of Versailles', 'Treaty of Paris', 'Treaty of Ghent', 'A'),

('History', 'Who led the Salt March in 1930 as part of the Indian independence movement?', 'Subhas Chandra Bose', 'Mahatma Gandhi', 'Jawaharlal Nehru', 'B'),

('History', 'What civilization is known for creating the first written code of law?', 'Egyptians', 'Babylonians', 'Greeks', 'B'),

('History', 'Who was assassinated on April 4, 1968?', 'Malcolm X', 'Martin Luther King Jr.', 'John F. Kennedy', 'B'),

('History', 'Which explorer is credited with being the first European to reach India by sea?', 'Christopher Columbus', 'Ferdinand Magellan', 'Vasco da Gama', 'C'),

('History', 'Which event marked the start of the Great Depression in 1929?', 'World War I', 'Stock Market Crash', 'Dust Bowl', 'B');

* Football

INSERT INTO Questions (category, question\_text, option\_a, option\_b, option\_c, correct\_option) VALUES

('Football', 'Which country has won the most FIFA World Cups?', 'Germany', 'Brazil', 'Italy', 'B'),

('Football', 'Who is the all-time leading goal scorer in World Cup history?', 'Miroslav Klose', 'Pelé', 'Ronaldo (Brazil)', 'A'),

('Football', 'What year was the first FIFA World Cup held?', '1928', '1930', '1932', 'B'),

('Football', 'Which club has won the most UEFA Champions League titles?', 'Barcelona', 'Real Madrid', 'AC Milan', 'B'),

('Football', 'Who won the Ballon d\'Or in 2022?', 'Lionel Messi', 'Karim Benzema', 'Robert Lewandowski', 'B'),

('Football', 'Which country hosted the 2018 FIFA World Cup?', 'Russia', 'Brazil', 'Qatar', 'A'),

('Football', 'Who scored the famous "Hand of God" goal?', 'Lionel Messi', 'Diego Maradona', 'Zinedine Zidane', 'B'),

('Football', 'Which English football club is known as the "Red Devils"?', 'Liverpool', 'Manchester United', 'Arsenal', 'B'),

('Football', 'Who won the UEFA Euro 2020 championship?', 'France', 'Italy', 'England', 'B'),

('Football', 'Which player has won the most Ballon d\'Or awards?', 'Cristiano Ronaldo', 'Lionel Messi', 'Johan Cruyff', 'B'),

('Football', 'What is the official name of the trophy awarded to the FIFA World Cup winners?', 'Jules Rimet Trophy', 'FIFA World Cup Trophy', 'Golden Cup', 'B'),

('Football', 'Which country won the first-ever FIFA World Cup?', 'Argentina', 'Uruguay', 'Italy', 'B'),

('Football', 'Which player is nicknamed "The Pharaoh"?', 'Mohamed Salah', 'Riyad Mahrez', 'Hakim Ziyech', 'A'),

('Football', 'Which club is often referred to as "The Old Lady"?', 'Juventus', 'Inter Milan', 'AS Roma', 'A'),

('Football', 'In football, what does VAR stand for?', 'Video Assistant Referee', 'Virtual Arbitration Replay', 'Verified Action Replay', 'A'),

('Football', 'Who is the only goalkeeper to win the Ballon d\'Or?', 'Lev Yashin', 'Gianluigi Buffon', 'Manuel Neuer', 'A'),

('Football', 'Which country has appeared in every FIFA World Cup since its inception?', 'Germany', 'Brazil', 'Argentina', 'B'),

('Football', 'What is the maximum number of players allowed on the field for a single team during a football match?', '10', '11', '12', 'B'),

('Football', 'Which player scored the fastest goal in FIFA World Cup history?', 'Pelé', 'Hakan Şükür', 'Cristiano Ronaldo', 'B'),

('Football', 'Which country won the FIFA Women\'s World Cup in 2019?', 'United States', 'Netherlands', 'Germany', 'A'),

('Football', 'Which club won the first-ever Premier League title in 1992-93?', 'Manchester United', 'Blackburn Rovers', 'Arsenal', 'A'),

('Football', 'Which Italian football club is based in the city of Naples?', 'Napoli', 'Inter Milan', 'Lazio', 'A'),

('Football', 'What is the term used when a player scores three goals in a single match?', 'Brace', 'Hat-trick', 'Treble', 'B'),

('Football', 'Which stadium is home to FC Barcelona?', 'Santiago Bernabéu', 'Camp Nou', 'Wanda Metropolitano', 'B'),

('Football', 'Which country won the most FIFA Women\'s World Cups?', 'United States', 'Germany', 'Brazil', 'A');

('Football', 'Which player has scored the most goals in football history?', 'Lionel Messi', 'Cristiano Ronaldo', 'Pelé', 'B'),

('Football', 'Which country won the 2006 FIFA World Cup?', 'France', 'Italy', 'Germany', 'B'),

('Football', 'Which club is nicknamed "The Blues"?', 'Chelsea', 'Manchester City', 'Everton', 'A'),

('Football', 'Who holds the record for the most appearances in the UEFA Champions League?', 'Xavi Hernandez', 'Cristiano Ronaldo', 'Iker Casillas', 'B'),

('Football', 'Which country won the first UEFA European Championship in 1960?', 'Spain', 'Soviet Union', 'France', 'B'),

('Football', 'Which player is known as "El Fenomeno"?', 'Ronaldo (Brazil)', 'Ronaldinho', 'Rivaldo', 'A'),

('Football', 'Which African country was the first to qualify for a FIFA World Cup?', 'Nigeria', 'Egypt', 'South Africa', 'B'),

('Football', 'Which stadium is famously called "The Theatre of Dreams"?', 'Anfield', 'Old Trafford', 'Emirates Stadium', 'B'),

('Football', 'Who scored the "Goal of the Century" during the 1986 FIFA World Cup?', 'Pelé', 'Diego Maradona', 'Zico', 'B'),

('Football', 'Which country will host the FIFA World Cup in 2026?', 'Qatar', 'United States, Canada, and Mexico', 'Spain', 'B'),

('Football', 'Which player has won the most Premier League titles?', 'Ryan Giggs', 'Paul Scholes', 'Thierry Henry', 'A'),

('Football', 'Which manager is known as "The Special One"?', 'Pep Guardiola', 'José Mourinho', 'Carlo Ancelotti', 'B'),

('Football', 'What is the name of Bayern Munich\'s home stadium?', 'Allianz Arena', 'Signal Iduna Park', 'Olympiastadion', 'A'),

('Football', 'Which country won the 2010 FIFA World Cup?', 'Spain', 'Netherlands', 'Germany', 'A'),

('Football', 'Which club does Erling Haaland currently play for (as of 2024)?', 'Borussia Dortmund', 'Manchester City', 'Bayern Munich', 'B'),

('Football', 'Which team won the first-ever FIFA Club World Cup in 2000?', 'Real Madrid', 'Corinthians', 'Boca Juniors', 'B'),

('Football', 'Who is the youngest player to score in a FIFA World Cup match?', 'Pelé', 'Kylian Mbappé', 'Lionel Messi', 'A'),

('Football', 'Which Italian club is known as "The Rossoneri"?', 'Inter Milan', 'AC Milan', 'Napoli', 'B'),

('Football', 'Which country won the 1982 FIFA World Cup?', 'West Germany', 'Italy', 'Brazil', 'B'),

('Football', 'Which player famously cried after losing the 2014 FIFA World Cup final?', 'Lionel Messi', 'Manuel Neuer', 'Neymar', 'A'),

('Football', 'Which English club has the most FA Cup titles?', 'Manchester United', 'Arsenal', 'Liverpool', 'B'),

('Football', 'Who is the highest-scoring defender in football history?', 'Franco Baresi', 'Ronald Koeman', 'Sergio Ramos', 'B'),

('Football', 'Which team won the Copa America in 2021?', 'Brazil', 'Argentina', 'Uruguay', 'B'),

('Football', 'Which football club is known as "The Gunners"?', 'Arsenal', 'Tottenham Hotspur', 'Manchester City', 'A');

('Football', 'Which football player is known as "King Zlatan"?', 'Zlatan Ibrahimović', 'Cristiano Ronaldo', 'Thierry Henry', 'A');

* Technology :

INSERT INTO Questions (category, question\_text, option\_a, option\_b, option\_c, correct\_option) VALUES

('Technology', 'Who is known as the father of the computer?', 'Charles Babbage', 'Alan Turing', 'John von Neumann', 'A'),

('Technology', 'What does HTML stand for?', 'HyperText Markup Language', 'Hyperlink and Text Markup Language', 'Home Tool Markup Language', 'A'),

('Technology', 'Which company developed the iPhone?', 'Google', 'Apple', 'Microsoft', 'B'),

('Technology', 'What does CPU stand for?', 'Central Processing Unit', 'Central Programming Unit', 'Computer Processing Unit', 'A'),

('Technology', 'What year was the World Wide Web invented?', '1985', '1989', '1995', 'B'),

('Technology', 'Who is credited with inventing the World Wide Web?', 'Tim Berners-Lee', 'Bill Gates', 'Steve Jobs', 'A'),

('Technology', 'What does AI stand for in technology?', 'Artificial Insight', 'Artificial Intelligence', 'Automated Interface', 'B'),

('Technology', 'Which programming language is known as the backbone of the web?', 'Python', 'JavaScript', 'Java', 'B'),

('Technology', 'What is the most popular social media platform as of 2024?', 'Instagram', 'Facebook', 'TikTok', 'C'),

('Technology', 'What is the name of the first electronic general-purpose computer?', 'ENIAC', 'UNIVAC', 'Colossus', 'A'),

('Technology', 'What is the primary function of RAM in a computer?', 'Store permanent data', 'Provide temporary data storage', 'Control input devices', 'B'),

('Technology', 'Which company owns the Android operating system?', 'Microsoft', 'Google', 'Samsung', 'B'),

('Technology', 'What does USB stand for?', 'Universal Serial Bus', 'Unified Storage Bus', 'Universal System Backup', 'A'),

('Technology', 'What was the first search engine on the internet?', 'Yahoo', 'Archie', 'AltaVista', 'B'),

('Technology', 'Which company is known for its Surface line of products?', 'Apple', 'Microsoft', 'Dell', 'B'),

('Technology', 'What is the most widely used operating system in the world?', 'macOS', 'Linux', 'Windows', 'C'),

('Technology', 'What does IoT stand for?', 'Internet of Technology', 'Internet of Things', 'Interface of Technology', 'B'),

('Technology', 'Which tech company is famous for its Think Different campaign?', 'Microsoft', 'Apple', 'IBM', 'B'),

('Technology', 'What year was the first email sent?', '1969', '1971', '1980', 'B'),

('Technology', 'What is the name of the popular version control system created by Linus Torvalds?', 'SVN', 'Git', 'Mercurial', 'B'),

('Technology', 'What does VPN stand for?', 'Virtual Private Network', 'Virtual Protected Node', 'Virtual Processing Network', 'A'),

('Technology', 'Which company developed the Windows operating system?', 'Apple', 'Microsoft', 'IBM', 'B'),

('Technology', 'Which programming language is known for its use in data science?', 'Python', 'C++', 'Ruby', 'A'),

('Technology', 'What is the name of Elon Musk\'s space exploration company?', 'Blue Origin', 'SpaceX', 'Virgin Galactic', 'B'),

('Technology', 'Which company created the first-ever smartphone?', 'Nokia', 'IBM', 'Apple', 'B');

('Technology', 'Which company is known as "Big Blue"?', 'IBM', 'Intel', 'HP', 'A'),

('Technology', 'What does HTTP stand for?', 'Hyperlink Text Transfer Protocol', 'HyperText Transfer Protocol', 'High Text Transfer Protocol', 'B'),

('Technology', 'Which programming language is primarily used for Android app development?', 'Swift', 'Kotlin', 'Ruby', 'B'),

('Technology', 'What year was Google founded?', '1998', '2000', '1995', 'A'),

('Technology', 'Which company developed the PlayStation gaming console?', 'Microsoft', 'Sony', 'Nintendo', 'B'),

('Technology', 'What does DNS stand for?', 'Domain Name System', 'Data Network Server', 'Dynamic Name Service', 'A'),

('Technology', 'Which company created the first microprocessor?', 'AMD', 'Intel', 'IBM', 'B'),

('Technology', 'What was the first video uploaded on YouTube?', 'Charlie Bit My Finger', 'Me at the Zoo', 'Evolution of Dance', 'B'),

('Technology', 'What does SEO stand for?', 'Search Engine Optimization', 'System Efficiency Output', 'Site Engineering Operation', 'A'),

('Technology', 'What is the most widely used database management system?', 'MongoDB', 'MySQL', 'PostgreSQL', 'B'),

('Technology', 'What does GPU stand for?', 'General Processing Unit', 'Graphics Processing Unit', 'Grid Processing Unit', 'B'),

('Technology', 'Which programming language is commonly used for AI and machine learning?', 'Python', 'C#', 'PHP', 'A'),

('Technology', 'What year was Microsoft founded?', '1975', '1980', '1985', 'A'),

('Technology', 'Which company developed the Tesla electric cars?', 'General Motors', 'Tesla', 'Ford', 'B'),

('Technology', 'What does PDF stand for?', 'Portable Document Format', 'Printable Data File', 'Personal Data Format', 'A'),

('Technology', 'What is the name of Apple\'s operating system for mobile devices?', 'macOS', 'iOS', 'watchOS', 'B'),

('Technology', 'Which programming language is known for its simplicity and readability?', 'Java', 'Python', 'C++', 'B'),

('Technology', 'What is the name of the online cloud storage service provided by Google?', 'Google Docs', 'Google Drive', 'Google Cloud', 'B'),

('Technology', 'What does SaaS stand for?', 'System as a Service', 'Software as a Service', 'Storage as a Solution', 'B'),

('Technology', 'Which programming language was created by Guido van Rossum?', 'JavaScript', 'Python', 'Ruby', 'B'),

('Technology', 'What is the main purpose of a firewall in a computer network?', 'To store data', 'To block unauthorized access', 'To speed up the network', 'B'),

('Technology', 'Which company owns LinkedIn?', 'Google', 'Microsoft', 'Facebook', 'B'),

('Technology', 'What is the name of the first computer virus?', 'Melissa', 'Creeper', 'ILOVEYOU', 'B'),

('Technology', 'What does ASCII stand for?', 'American Standard Code for Information Interchange', 'Advanced System Code for Interchange', 'Automated System for Computer Input', 'A'),

('Technology', 'What is the full form of BIOS in computers?', 'Basic Input Output System', 'Binary Input Output Software', 'Basic Interface Operating System', 'A');

* Entertainment :

INSERT INTO Questions (category, question\_text, option\_a, option\_b, option\_c, correct\_option) VALUES

('Entertainment', 'Who directed the movie "Titanic"?', 'Steven Spielberg', 'James Cameron', 'Christopher Nolan', 'B'),

('Entertainment', 'Which actor played Iron Man in the Marvel Cinematic Universe?', 'Chris Evans', 'Robert Downey Jr.', 'Chris Hemsworth', 'B'),

('Entertainment', 'What is the highest-grossing film of all time as of 2024?', 'Titanic', 'Avatar', 'Avengers: Endgame', 'B'),

('Entertainment', 'Which pop singer is known as the "Queen of Pop"?', 'Madonna', 'Lady Gaga', 'Beyoncé', 'A'),

('Entertainment', 'What is the name of the fictional continent in "Game of Thrones"?', 'Middle-earth', 'Westeros', 'Narnia', 'B'),

('Entertainment', 'Who won the Academy Award for Best Actor in 2022?', 'Will Smith', 'Benedict Cumberbatch', 'Andrew Garfield', 'A'),

('Entertainment', 'Which artist is known for the hit song "Shape of You"?', 'Ed Sheeran', 'Shawn Mendes', 'Justin Bieber', 'A'),

('Entertainment', 'What is the name of the wizarding school in the "Harry Potter" series?', 'Durmstrang', 'Hogwarts', 'Beauxbatons', 'B'),

('Entertainment', 'Who directed the "Lord of the Rings" trilogy?', 'George Lucas', 'Peter Jackson', 'J.R.R. Tolkien', 'B'),

('Entertainment', 'Which animated movie features a character named Elsa?', 'Tangled', 'Frozen', 'Moana', 'B'),

('Entertainment', 'What is the name of the protagonist in the "Pirates of the Caribbean" series?', 'Jack Sparrow', 'Will Turner', 'Davy Jones', 'A'),

('Entertainment', 'Which actress starred as Katniss Everdeen in "The Hunger Games"?', 'Emma Watson', 'Jennifer Lawrence', 'Kristen Stewart', 'B'),

('Entertainment', 'What is the name of the coffee shop in "Friends"?', 'Central Perk', 'Mocha Magic', 'Coffee House', 'A'),

('Entertainment', 'Who sang the theme song for the James Bond film "Skyfall"?', 'Adele', 'Sam Smith', 'Billie Eilish', 'A'),

('Entertainment', 'Which actor played the Joker in "The Dark Knight"?', 'Joaquin Phoenix', 'Heath Ledger', 'Jared Leto', 'B'),

('Entertainment', 'Which animated movie is about emotions living inside a young girl’s mind?', 'Inside Out', 'Soul', 'Up', 'A'),

('Entertainment', 'What is the name of Thor’s hammer in the Marvel movies?', 'Stormbreaker', 'Mjolnir', 'Gungnir', 'B'),

('Entertainment', 'Who played Forrest Gump in the movie "Forrest Gump"?', 'Tom Cruise', 'Tom Hanks', 'Brad Pitt', 'B'),

('Entertainment', 'Which musical features the song "Do-Re-Mi"?', 'Mary Poppins', 'The Sound of Music', 'My Fair Lady', 'B'),

('Entertainment', 'What is the name of Simba’s father in "The Lion King"?', 'Scar', 'Mufasa', 'Zazu', 'B'),

('Entertainment', 'Who voiced Woody in the "Toy Story" series?', 'Tim Allen', 'Tom Hanks', 'Robin Williams', 'B'),

('Entertainment', 'What is the name of the talking snowman in "Frozen"?', 'Olaf', 'Sven', 'Kristoff', 'A'),

('Entertainment', 'Which actor starred in the "Mission: Impossible" series?', 'Tom Cruise', 'Matt Damon', 'Harrison Ford', 'A'),

('Entertainment', 'Which movie franchise features a character named Legolas?', 'The Chronicles of Narnia', 'The Lord of the Rings', 'Harry Potter', 'B'),

('Entertainment', 'Who directed the movie "Inception"?', 'Quentin Tarantino', 'Christopher Nolan', 'James Cameron', 'B');

('Entertainment', 'Which movie features the quote "May the Force be with you"?', 'Star Wars', 'Star Trek', 'The Matrix', 'A'),

('Entertainment', 'Who won the Grammy Award for Album of the Year in 2021?', 'Taylor Swift', 'Billie Eilish', 'Beyoncé', 'A'),

('Entertainment', 'Which TV series is about a chemistry teacher turned meth manufacturer?', 'Narcos', 'Breaking Bad', 'The Sopranos', 'B'),

('Entertainment', 'Who starred as Wolverine in the "X-Men" series?', 'Hugh Jackman', 'Ryan Reynolds', 'Chris Hemsworth', 'A'),

('Entertainment', 'Which movie won the Academy Award for Best Picture in 2020?', 'Joker', 'Parasite', '1917', 'B'),

('Entertainment', 'What is the name of the talking cat in "Shrek 2"?', 'Garfield', 'Puss in Boots', 'Felix', 'B'),

('Entertainment', 'Who sang the hit song "Rolling in the Deep"?', 'Adele', 'Beyoncé', 'Rihanna', 'A'),

('Entertainment', 'Which movie features the character Andy Dufresne?', 'The Shawshank Redemption', 'The Green Mile', 'Goodfellas', 'A'),

('Entertainment', 'What is the name of the main antagonist in Disney\'s "The Little Mermaid"?', 'Ursula', 'Maleficent', 'Cruella', 'A'),

('Entertainment', 'Which movie is about a board game that comes to life?', 'Jumanji', 'Zathura', 'The Game', 'A'),

('Entertainment', 'Who is the creator of the "Star Wars" franchise?', 'George Lucas', 'J.J. Abrams', 'Steven Spielberg', 'A'),

('Entertainment', 'Which movie features a character named Rose and a sinking ship?', 'Titanic', 'The Perfect Storm', 'Poseidon', 'A'),

('Entertainment', 'Which artist is known as the "King of Pop"?', 'Elvis Presley', 'Michael Jackson', 'Prince', 'B'),

('Entertainment', 'What is the name of the kingdom in "Frozen"?', 'Arendelle', 'Narnia', 'Neverland', 'A'),

('Entertainment', 'Who starred as the titular character in the movie "Deadpool"?', 'Ryan Reynolds', 'Hugh Jackman', 'Chris Evans', 'A'),

('Entertainment', 'Which Netflix series is about a chess prodigy named Beth Harmon?', 'The Crown', 'The Queen\'s Gambit', 'Stranger Things', 'B'),

('Entertainment', 'Which Pixar movie is about a young boy named Miguel who loves music?', 'Coco', 'Up', 'Ratatouille', 'A'),

('Entertainment', 'What is the name of the fictional city where Batman operates?', 'Metropolis', 'Gotham', 'Star City', 'B'),

('Entertainment', 'Who directed the movie "Pulp Fiction"?', 'Quentin Tarantino', 'Martin Scorsese', 'Christopher Nolan', 'A'),

('Entertainment', 'What is the name of the dragon in "The Hobbit"?', 'Drogon', 'Smaug', 'Toothless', 'B'),

('Entertainment', 'Which character says "I\'m the king of the world!" in "Titanic"?', 'Jack', 'Rose', 'Cal', 'A'),

('Entertainment', 'What is the name of the sequel to the Disney movie "Frozen"?', 'Frozen Forever', 'Frozen II', 'Frozen Again', 'B'),

('Entertainment', 'Which actor played James Bond in "Skyfall"?', 'Pierce Brosnan', 'Daniel Craig', 'Sean Connery', 'B'),

('Entertainment', 'Which animated film features a robot named WALL-E?', 'Robots', 'WALL-E', 'Big Hero 6', 'B'),

('Entertainment', 'Which musician performed at the Super Bowl Halftime Show in 2022?', 'Eminem', 'Justin Timberlake', 'Beyoncé', 'A');

4)**Filling the table users and scores with data:**

INSERT INTO Users (user\_id, username, email, password) VALUES

(1, 'user1', 'user1@gmail.com', 'password1'),

(2, 'user2', 'user2@gmail.com', 'password2'),

(3, 'user3', 'user3@gmail.com', 'password3'),

(4, 'user4', 'user4@gmail.com', 'password4'),

(5, 'user5', 'user5@gmail.com', 'password5'),

(6, 'user6', 'user6@gmail.com', 'password6'),

(7, 'user7', 'user7@gmail.com', 'password7'),

(8, 'user8', 'user8@gmail.com', 'password8'),

(9, 'user9', 'user9@gmail.com', 'password9'),

(10, 'user10', 'user10@gmail.com', 'password10');

INSERT INTO Scores (user\_id, category, score) VALUES

(1, 'Science', 2),

(1, 'Geography', 5),

(1, 'History', 5),

(1, 'Football', 0),

(1, 'Technology', 5),

(1, 'Entertainment', 3),

(2, 'Science', 7),

(2, 'Geography', 6),

(2, 'History', 4),

(2, 'Football', 8),

(2, 'Technology', 9),

(2, 'Entertainment', 2),

(3, 'Science', 1),

(3, 'Geography', 4),

(3, 'History', 3),

(3, 'Football', 6),

(3, 'Technology', 7),

(3, 'Entertainment', 5),

(4, 'Science', 8),

(4, 'Geography', 3),

(4, 'History', 4),

(4, 'Football', 2),

(4, 'Technology', 1),

(4, 'Entertainment', 6),

(5, 'Science', 10),

(5, 'Geography', 5),

(5, 'History', 9),

(5, 'Football', 7),

(5, 'Technology', 8),

(5, 'Entertainment', 4),

(6, 'Science', 6),

(6, 'Geography', 4),

(6, 'History', 7),

(6, 'Football', 5),

(6, 'Technology', 3),

(6, 'Entertainment', 8),

(7, 'Science', 3),

(7, 'Geography', 7),

(7, 'History', 5),

(7, 'Football', 9),

(7, 'Technology', 6),

(7, 'Entertainment', 7),

(8, 'Science', 9),

(8, 'Geography', 6),

(8, 'History', 8),

(8, 'Football', 10),

(8, 'Technology', 9),

(8, 'Entertainment', 6),

(9, 'Science', 4),

(9, 'Geography', 3),

(9, 'History', 6),

(9, 'Football', 5),

(9, 'Technology', 7),

(9, 'Entertainment', 8),

(10, 'Science', 2),

(10, 'Geography', 8),

(10, 'History', 7),

(10, 'Football', 9),

(10, 'Technology', 10),

(10, 'Entertainment', 4);

**5) Creating the backend files:** This section will display the backend code used with revealing the role of each file

**a) connection.php**

<?php

$host = 'localhost';

$db\_user = 'root';

$db\_password = '';

$db\_name = 'triviagame';

$conn = new mysqli($host, $db\_user, $db\_password, $db\_name);

if ($conn->connect\_error){

    die(json\_encode([

        'success' => false,

        'message' => 'Database connection failed: ' . $conn->connect\_error

    ]));

}

$conn->set\_charset('utf8mb4');

if ($\_SERVER['REQUEST\_METHOD'] === 'GET'){

    echo json\_encode([

        'success' => true,

        'message' => 'Database connection established successfully.'

    ]);

}

* **Purpose**: Establishes a connection to the database.
* **Details**:
  + Sets up the database host, username, password, and database name.
  + Ensures the connection is successful or outputs an error.

**b)login.php**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

if (!$conn) {

    echo json\_encode([

        'success' => false,

        'message' => 'Database connection failed.'

    ]);

    exit;

}

if ($\_SERVER['REQUEST\_METHOD'] !== 'POST') {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

    exit;

}

$email = isset($\_POST['email']) ? trim($\_POST['email']) : null;

$password = isset($\_POST['password']) ? trim($\_POST['password']) : null;

if (!$email || !$password) {

    echo json\_encode([

        'success' => false,

        'message' => 'Email or password not provided.',

        'debug' => [

            'email' => $email,

            'password' => $password

        ]

    ]);

    exit;

}

$stmt = $conn->prepare("SELECT user\_id, username, password FROM Users WHERE email = ?");

if (!$stmt) {

    echo json\_encode([

        'success' => false,

        'message' => 'Failed to prepare SQL statement.',

        'debug' => $conn->error

    ]);

    exit;

}

$stmt->bind\_param("s", $email);

$stmt->execute();

$result = $stmt->get\_result();

if ($result->num\_rows > 0) {

    $user = $result->fetch\_assoc();

    if ($password === $user['password']) {

        echo json\_encode([

            'success' => true,

            'user\_id' => $user['user\_id'],

            'username' => $user['username']

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'Incorrect password.',

            'debug' => [

                'input\_password' => $password,

                'stored\_password' => $user['password']

            ]

        ]);

    }

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'User not found.',

        'debug' => [

            'email' => $email

        ]

    ]);

}

$stmt->close();

$conn->close();

* **Purpose**: Authenticates a user by verifying their email and password.
* **Details**:
  + Accepts email and password via POST.
  + Checks if the credentials match a record in the Users table.
  + Returns a successful response with user details if valid or an error if invalid.

c) **signup.php**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

if ($\_SERVER['REQUEST\_METHOD'] === 'POST') {

    $username = isset($\_POST['username']) ? trim($\_POST['username']) : null;

    $email = isset($\_POST['email']) ? trim($\_POST['email']) : null;

    $password = isset($\_POST['password']) ? trim($\_POST['password']) : null;

    // Validate input

    if (!$username || !$email || !$password) {

        echo json\_encode([

            'success' => false,

            'message' => 'All fields (username, email, password) are required.'

        ]);

        exit;

    }

    $stmt = $conn->prepare("SELECT user\_id FROM Users WHERE email = ?");

    if (!$stmt) {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to prepare SQL statement.',

            'debug' => $conn->error

        ]);

        exit;

    }

    $stmt->bind\_param("s", $email);

    $stmt->execute();

    $result = $stmt->get\_result();

    if ($result->num\_rows > 0) {

        echo json\_encode([

            'success' => false,

            'message' => 'Email is already registered.'

        ]);

        $stmt->close();

        exit;

    }

    $stmt = $conn->prepare("INSERT INTO Users (username, email, password) VALUES (?, ?, ?)");

    if (!$stmt) {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to prepare SQL statement for insertion.',

            'debug' => $conn->error

        ]);

        exit;

    }

    $stmt->bind\_param("sss", $username, $email, $password);

    if ($stmt->execute()) {

        echo json\_encode([

            'success' => true,

            'message' => 'User registered successfully!',

            'user\_id' => $stmt->insert\_id

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to register user.',

            'debug' => $stmt->error

        ]);

    }

    $stmt->close();

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

}

$conn->close();

* **Purpose**: Registers a new user in the database.
* **Details**:
  + Accepts username, email, and password via POST.
  + Ensures the email is unique before inserting it into the Users table.
  + Returns success on successful registration or an error if the email is already registered.

d)**questions.php**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

if ($\_SERVER['REQUEST\_METHOD'] === 'POST') {

    $category = isset($\_POST['category']) ? trim($\_POST['category']) : null;

    if (!$category) {

        echo json\_encode([

            'success' => false,

            'message' => 'Category is required.'

        ]);

        exit;

    }

    //getting 10 random question from the database

    $stmt = $conn->prepare("SELECT question\_id, question\_text, option\_a, option\_b, option\_c, correct\_option FROM Questions WHERE category = ? ORDER BY RAND() LIMIT 10");

    if (!$stmt) {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to prepare SQL statement.',

            'debug' => $conn->error

        ]);

        exit;

    }

    $stmt->bind\_param("s", $category);

    $stmt->execute();

    $result = $stmt->get\_result();

    // checking if we fetched the questions from the database

    if ($result->num\_rows > 0) {

        $questions = [];

        while ($row = $result->fetch\_assoc()) {

            $questions[] = $row; //adding each question to the array

        }

        echo json\_encode([

            'success' => true,

            'questions' => $questions

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'No questions found for the selected category.'

        ]);

    }

    $stmt->close();

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

}

$conn->close();

* **Purpose**: Fetches 10 random questions from the database for a specific category.
* **Details**:
  + Accepts a category via POST.
  + Retrieves 10 random questions from the Questions table for the specified category.
  + Returns the question text, answer options, and the correct answer.

e) **scores.php**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

if ($\_SERVER['REQUEST\_METHOD'] === 'POST') {

    // Get input data

    $user\_id = isset($\_POST['user\_id']) ? (int)$\_POST['user\_id'] : null;

    $category = isset($\_POST['category']) ? trim($\_POST['category']) : null;

    $score = isset($\_POST['score']) ? (int)$\_POST['score'] : null;

    if (!$user\_id || !$category || $score === null) {

        echo json\_encode([

            'success' => false,

            'message' => 'All fields (user\_id, category, score) are required.'

        ]);

        exit;

    }

    // Checking if the user and category exists

    $stmt = $conn->prepare("SELECT user\_id FROM Users WHERE user\_id = ?");

    $stmt->bind\_param("i", $user\_id);

    $stmt->execute();

    $user\_result = $stmt->get\_result();

    if ($user\_result->num\_rows === 0) {

        echo json\_encode([

            'success' => false,

            'message' => 'Invalid user ID.'

        ]);

        $stmt->close();

        exit;

    }

    $stmt->close();

    // Update the score for the user and category

    $stmt = $conn->prepare("INSERT INTO Scores (user\_id, category, score)

                            VALUES (?, ?, ?)

                            ON DUPLICATE KEY UPDATE score = GREATEST(score, VALUES(score))");

    if (!$stmt) {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to prepare SQL statement.',

            'debug' => $conn->error

        ]);

        exit;

    }

    $stmt->bind\_param("isi", $user\_id, $category, $score);

    if ($stmt->execute()) {

        echo json\_encode([

            'success' => true,

            'message' => 'Score submitted successfully.'

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to submit score.',

            'debug' => $stmt->error

        ]);

    }

    $stmt->close();

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

}

$conn->close();

* **Purpose**: Submits a user's score after completing the game.
* **Details**:
  + Accepts user\_id, category, and score via POST.
  + Updates the Scores table:
    - Inserts a new score if none exists for the user and category.
    - Updates the score only if the new score is higher than the existing score.
  + Returns success or failure based on the operation.

f)**leaderboard.php:**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

ob\_clean();

if ($\_SERVER['REQUEST\_METHOD'] === 'GET') {

    //giving the user an option to select a category

    $category = isset($\_GET['category']) ? trim($\_GET['category']) : null;

    if ($category) {

        // Fetch leaderboard for a specific category

        $query = "

            SELECT

                s.category,

                u.username,

                s.score

            FROM

                Scores s

            JOIN

                Users u

            ON

                s.user\_id = u.user\_id

            WHERE

                s.category = ?

            ORDER BY

                s.score DESC

            LIMIT 50;

        ";

        $stmt = $conn->prepare($query);

        if (!$stmt) {

            echo json\_encode([

                'success' => false,

                'message' => 'Failed to prepare SQL statement.',

                'debug' => $conn->error

            ]);

            exit;

        }

        $stmt->bind\_param("s", $category);

    } else {

        // getting the leader board without the category

        $query = "

            SELECT

                s.category,

                u.username,

                s.score

            FROM

                Scores s

            JOIN

                Users u

            ON

                s.user\_id = u.user\_id

            ORDER BY

                s.score DESC

            LIMIT 50;

        ";

        $stmt = $conn->prepare($query);

        if (!$stmt) {

            echo json\_encode([

                'success' => false,

                'message' => 'Failed to prepare SQL statement.',

                'debug' => $conn->error

            ]);

            exit;

        }

    }

    $stmt->execute();

    $result = $stmt->get\_result();

    if ($result) {

        $leaderboard = [];

        while ($row = $result->fetch\_assoc()) {

            $leaderboard[] = $row;

        }

        echo json\_encode([

            'success' => true,

            'leaderboard' => $leaderboard

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to fetch leaderboard.',

            'debug' => $conn->error

        ]);

    }

    $stmt->close();

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

}

$conn->close();

* **Purpose**: Fetches the leaderboard data.
* **Details**:
  + Accepts an optional category via GET.
  + If category is provided:
    - Fetches the leaderboard for that specific category.
  + If no category is provided:
    - Fetches the leaderboard globally for all categories.
  + Returns category, username, and scores sorted by score in descending order.

g)**changeusername.php**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

if ($\_SERVER['REQUEST\_METHOD'] === 'POST') {

    $user\_id = isset($\_POST['user\_id']) ? (int)$\_POST['user\_id'] : null;

    $new\_username = isset($\_POST['new\_username']) ? trim($\_POST['new\_username']) : null;

    if (empty($user\_id) || empty($new\_username)) {

        echo json\_encode([

            'success' => false,

            'message' => 'User ID and new username are required.'

        ]);

        exit;

    }

    // Updating the username

    $stmt = $conn->prepare("UPDATE Users SET username = ? WHERE user\_id = ?");

    if (!$stmt) {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to prepare SQL statement.',

            'debug' => $conn->error

        ]);

        exit;

    }

    $stmt->bind\_param("si", $new\_username, $user\_id);

    if ($stmt->execute()) {

        echo json\_encode([

            'success' => true,

            'message' => 'Username updated successfully.'

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to update username.',

            'debug' => $stmt->error

        ]);

    }

    $stmt->close();

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

}

$conn->close();

Purpose:

* Updates the username for a specific user\_id.
* Requires user\_id and new\_username

h)**changepassword.php**

<?php

header('Content-Type: application/json');

require\_once 'connection.php';

if ($\_SERVER['REQUEST\_METHOD'] === 'POST') {

    $user\_id = isset($\_POST['user\_id']) ? (int)$\_POST['user\_id'] : null;

    $old\_password = isset($\_POST['old\_password']) ? trim($\_POST['old\_password']) : null;

    $new\_password = isset($\_POST['new\_password']) ? trim($\_POST['new\_password']) : null;

    // Validating input

    if (!$user\_id || !$old\_password || !$new\_password) {

        echo json\_encode([

            'success' => false,

            'message' => 'User ID, old password, and new password are required.'

        ]);

        exit;

    }

    // Verifying the old password

    $stmt = $conn->prepare("SELECT password FROM Users WHERE user\_id = ?");

    $stmt->bind\_param("i", $user\_id);

    $stmt->execute();

    $result = $stmt->get\_result();

    if ($result->num\_rows === 0) {

        echo json\_encode([

            'success' => false,

            'message' => 'User not found.'

        ]);

        $stmt->close();

        exit;

    }

    $user = $result->fetch\_assoc();

    if ($old\_password !== $user['password']) {

        echo json\_encode([

            'success' => false,

            'message' => 'Old password is incorrect.'

        ]);

        $stmt->close();

        exit;

    }

    $stmt->close();

    // Update the password

    $stmt = $conn->prepare("UPDATE Users SET password = ? WHERE user\_id = ?");

    if (!$stmt) {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to prepare SQL statement.',

            'debug' => $conn->error

        ]);

        exit;

    }

    $stmt->bind\_param("si", $new\_password, $user\_id);

    if ($stmt->execute()) {

        echo json\_encode([

            'success' => true,

            'message' => 'Password updated successfully.'

        ]);

    } else {

        echo json\_encode([

            'success' => false,

            'message' => 'Failed to update password.',

            'debug' => $stmt->error

        ]);

    }

    $stmt->close();

} else {

    echo json\_encode([

        'success' => false,

        'message' => 'Invalid request method.'

    ]);

}

$conn->close();

**Purpose:**

* Updates the password for a specific user\_id.
* Verifies the old\_password before updating to new\_password.

i) **logout.php:**

<?php

header('Content-Type: application/json');

session\_start();

session\_unset();

session\_destroy();

echo json\_encode([

    'success' => true,

    'message' => 'Logout successful.'

]);

Purpose: Ends the user's session to log them out.

6) **How the application works:**

* **Before running the app:**

****

As you can see before running the app , we designed a logo as an icon for the app.

* **Main Activity:**

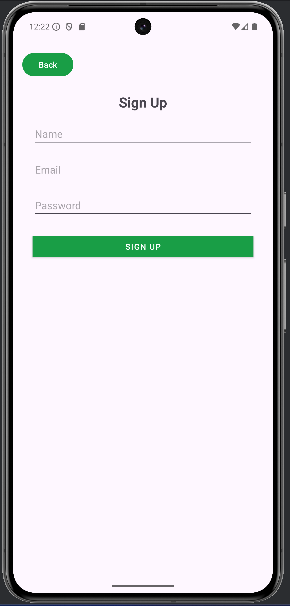
The main activity prompts the user to either signup or login, If the user presses on signup this will direct the user to the signup activity and vice-versa.

**A screenshot of a cell phone

Description automatically generated**

* **Signup Activity:**

The signup activity prompts the user to enter his name , email , and desired password. And after the user has entered the information correctly and presses the button signup it will direct him to the login activity

****

* **Login Activity:**

The login activity prompts the user to enter the email and password , after the user presses the login button , if the combination is correct and valid according to the database , this will direct the user to the category activity.

**A screen shot of a phone

Description automatically generated**

* **Category Activity:**

The category activity prompts the user to choose one of six categories to play the game , in addition there is a settings button. When the settings button is pressed it will direct the user to the settings activity.

**A screenshot of a cell phone

Description automatically generated**

* **Settings activity:**

In the settings activity , the user and a choice to either change their username or password and either logout from the account

**A screen shot of a cell phone

Description automatically generated**

* **Change username activity:**

This activity prompts the user to enter their new desired username. When the user pressed the change username button if the username isn’t taken already and isn’t the same original username , the username will be changed

**A close up of a cell phone

Description automatically generated**

* **Change password activity:**

This activity prompts the user to enter the old password and the new desired password, if the passwords don’t match then when the user presses on the change password button the password will be changed.

**A screen shot of a cell phone

Description automatically generated**

* **Logout activity:**

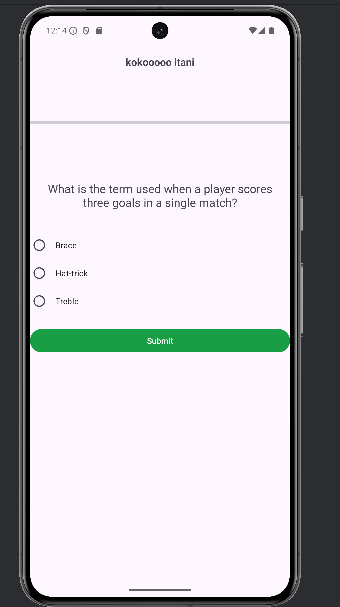
After the user presses the logout button it will redirect the user to the main activity

**A screenshot of a cell phone

Description automatically generated**

* **Quiz Activity:**

As you can see at first the progress bar starts empty , and it progresses when the user submits a correct answer, in the example below the correct answer to the question is option -b- “hat-trick”.

****

After we submit the correct answer, as you can see in the below picture the progress bar progressed. When all questions are answered it will direct the user to the results activity.

**A screenshot of a cell phone

Description automatically generated**

* **Results Activity:**

After the user finishes from the quiz activity , they will end up here where , it will display their score from the quiz done , in addition the user has a choice to either play again which will redirect them to the category activity or to see the leaderboards in which will direct them to the leaderboard activity

**A screenshot of a cell phone

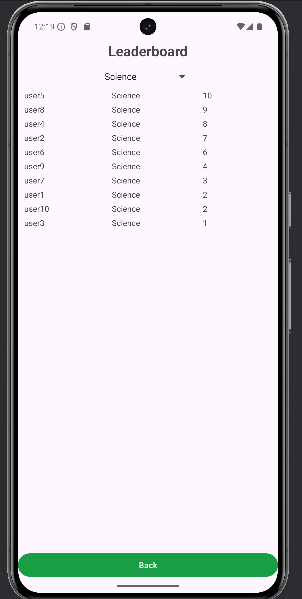
Description automatically generated**

* **Leaderboard activity:**

As shown in the picture below, the user can use a spinner to select a specific category. By default, the leaderboard displays all categories until the user selects a different category from the spinner. Once the category is changed, the leaderboard updates accordingly, as illustrated in the next picture.

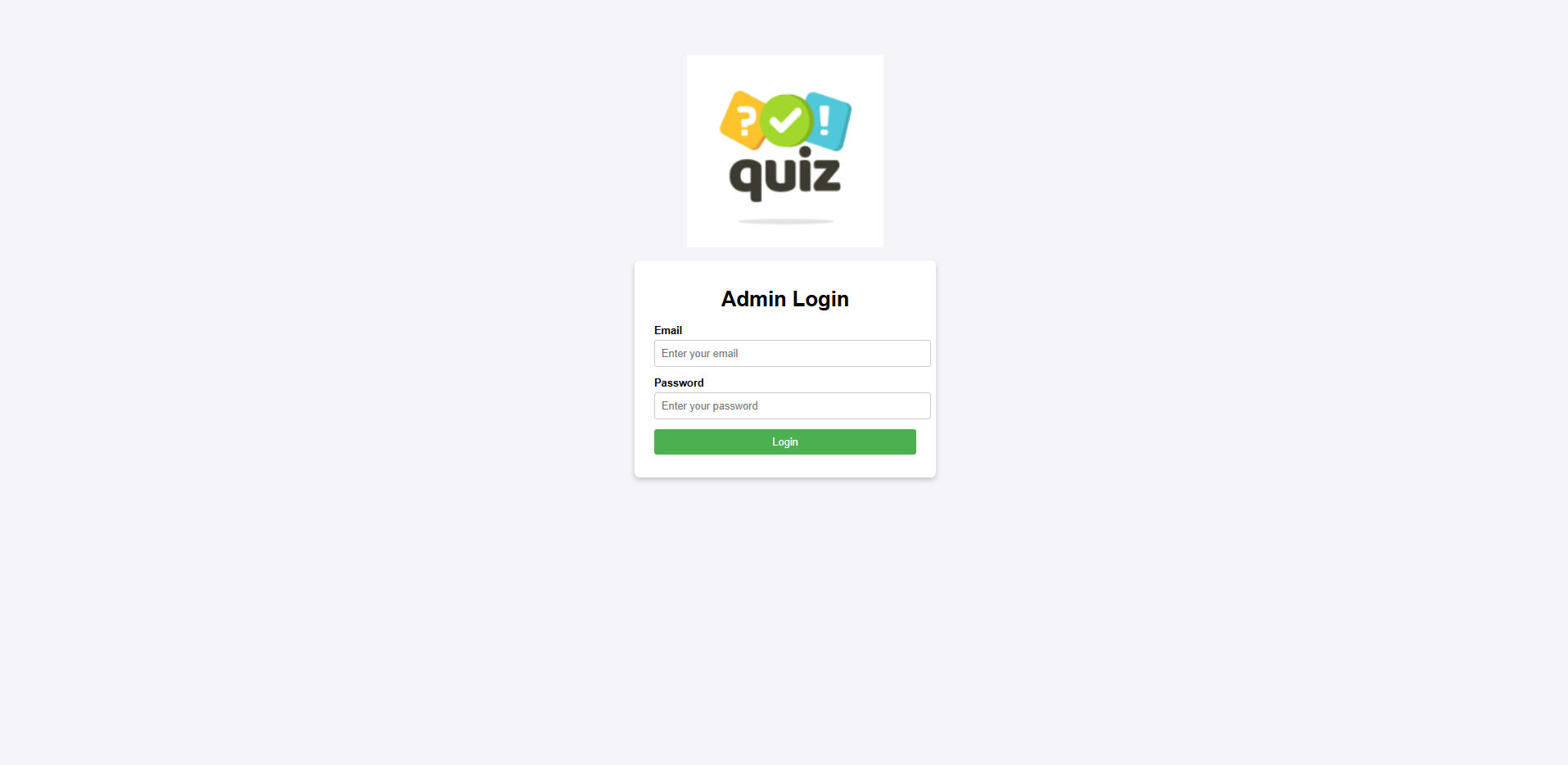
**A screenshot of a cell phone

Description automatically generated**

****

**7)Admin Control panel:**

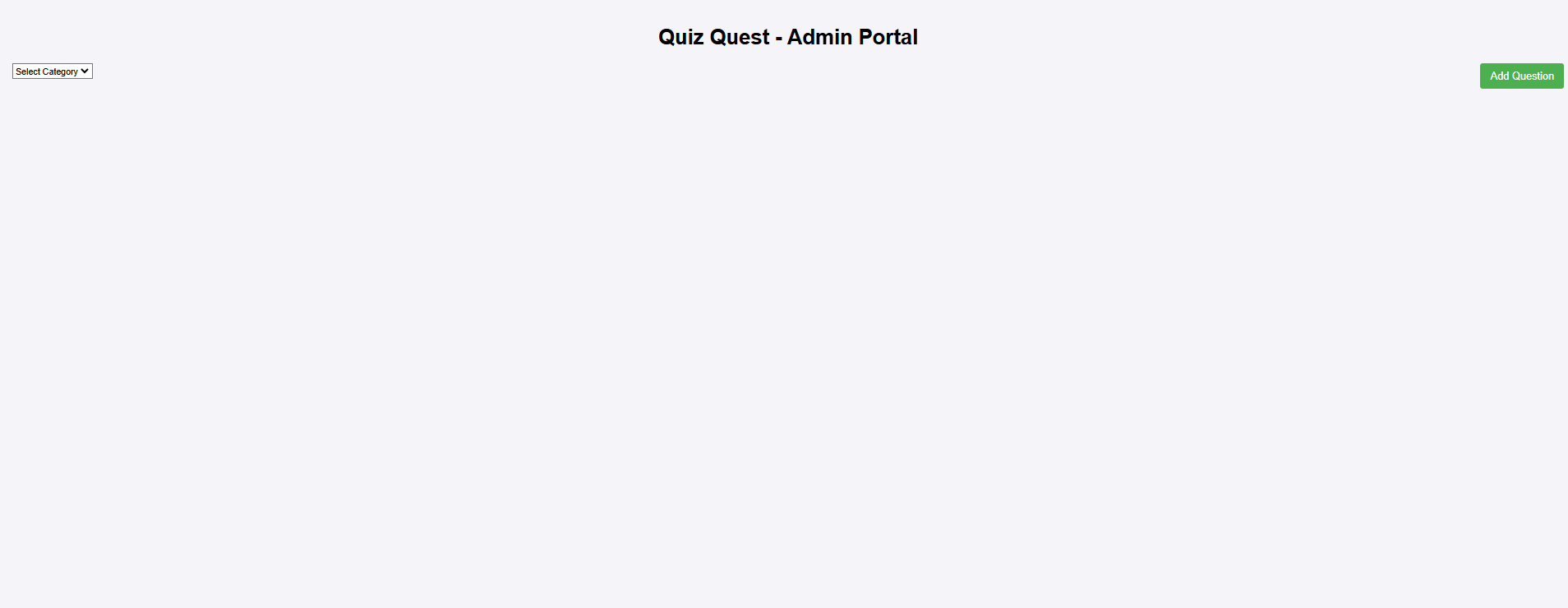
* **Login admin**

****

**First the admin should login with the credentials**

**Email : admin and password :123 , when the admin enters the credentials and presses the login button , it will direct him to the admin control panel,**

* **Feadmin-controlpanel:**

****

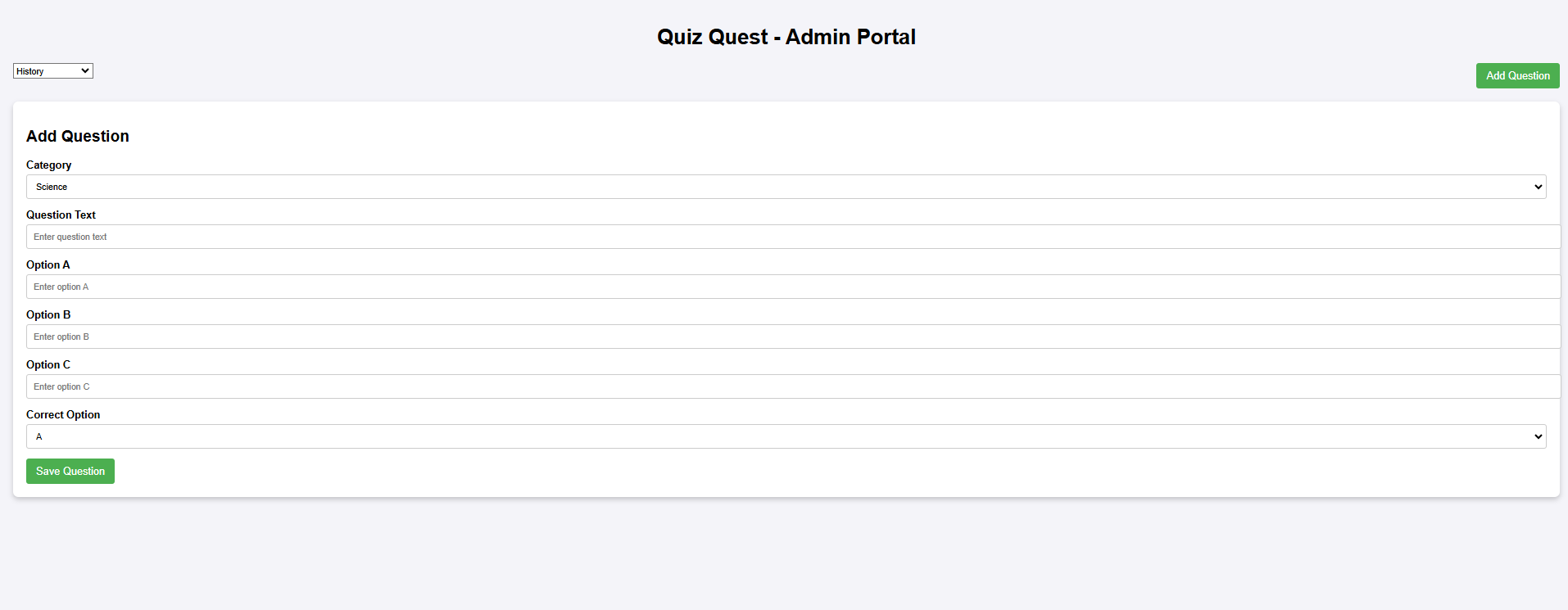
**In which when the admin selects a category from the dropdown menu , all questions that in the database who have the same selected category will be displayed :**

**A screenshot of a computer

Description automatically generated**

**Next to each displayed question , there is a delete button where the admin can delete the question from the database.**

**However,when the admin presses the add question button, this form will be displayed,**

****

**In which the admin should fill the required fields to add a new question to the database , and the admin is obliged to pick one of the six categories.**

**When the save button is pressed , the new question will be inserted in the database.**

THE END OF THE DOCUMENTATION