All Database Columns

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| User Name | Password | First Name | Last Name | Status | Is Playing | Saved Game | Score | Opponent |

* UserName : is the primary key of the table, it has a text data type.
* Password : is a text attribute with no constrains at it.
* FirstName : is the first name of the player and it has a text data type.
* LastName : is the last name of the player and it has a text data type.
* Status : it’s the player status whither is Online or Offline and it has a Boolean data type.
* Is Playing : it’s the player indicator so it represent the current status of the player whither he plays a game or not, it has a Boolean data type.
* SavedGame : it represents the last saved game of the player and it contains of the moves of the two players, the data type is array of characters.
* Score : it represents the score of the player, and the data type of this variable is integer.
* Opponent : it’s represents the opponent of the user when he plays a game to make it easy to save the game with the contributors of it, the data type of the attribute is text.

The Database Table

Players Table

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| userName | password | firstName | lastName | status | score | isPlaying | gameId |
| PK, Text | Text | Text | Text | Boolean | Integer | Boolean | FK,Integer |

GameLog Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Game\_Id | homePlayer | opponentPlayer | startGameDate | endGameDate | isFinished | savedGame |
| PK,Integer | Text | Text | Timestamp | Timestamp | Boolean | int[9] |

Functions

1. To retrieve all player data :

CREATE OR REPLACE FUNCTION retrieveplayers () RETURNS TABLE ( userplayer text , statusOfPlayer boolean , scoreOfPlayer int) AS $$

DECLARE

BEGIN

RETURN QUERY SELECT username,status,score from players;

END;

$$ LANGUAGE plpgsql;

1. To Check of Player Status

CREATE OR REPLACE FUNCTION isPlayerOnline (NameOfUser text) RETURNS boolean AS $$

DECLARE

statusOfPlayer boolean;

BEGIN

SELECT status INTO statusOfPlayer FROM players WHERE username = NameOfUser;

RETURN statusOfPlayer;

END ;

$$ LANGUAGE plpgsql;

1. To update player score after winning an offline game

CREATE OR REPLACE FUNCTION updatescoreoffline (nameOfUser text) RETURNS VOID AS $$

DECLARE

BEGIN

UPDATE players SET score = score + 5 WHERE username = nameOfUser;

END;

$$ LANGUAGE plpgsql;

1. To update player score after winning an online game

CREATE OR REPLACE FUNCTION updatescoreonline (nameOfUser text) RETURNS VOID AS $$

DECLARE

BEGIN

UPDATE players SET score = score + 20 WHERE username = nameOfUser;

END;

$$ LANGUAGE plpgsql;

1. To Check if player is playing a game

CREATE OR REPLACE FUNCTION isPlaying ( nameOfUser text ) RETURNS BOOLEAN AS $$

DECLARE

isPlayingNow boolean;

BEGIN

SELECT isPlaying INTO isPlayingNow FROM players WHERE username = nameofuser;

RETURN isPlayingNow;

END;

$$ LANGUAGE plpgsql;

1. To create a new user

CREATE OR REPLACE FUNCTION createplayer (nameofuser text ,playerpassword text, firstname text, lastname text) RETURNS VOID AS $$

DECLARE

BEGIN

INSERT INTO players VALUES (nameofuser,playerpassword,firstname,lastname,false,0,false,NULL);

END;

$$ LANGUAGE plpgsql;

1. To add two player to a game

CREATE OR REPLACE FUNCTION createagame (firstuser text , seconduser text) RETURNS int AS $$

DECLARE

Numberofgames int;

BEGIN

SELECT COUNT (game\_id) INTO Numberofgames from gamelog;

Numberofgames = Numberofgames + 1;

INSERT INTO gamelog (game\_id, homePlayer,opponentplayer, startGameDate, isFinished,savedgame) VALUES ( Numberofgames , firstuser,seconduser,now(),false,ARRAY[45,45,45,45,45,45,45,45,45]);

Update players set gameId = Numberofgames where username in (firstuser,seconduser);

RETURN Numberofgames;

END;

$$ LANGUAGE plpgsql;

1. To end game

CREATE OR REPLACE FUNCTION endgame (gamenumber int) RETURNS VOID AS $$

DECLARE

Nowtime timestamp;

BEGIN

Update players set gameId = NULL WHERE gameid = gamenumber;

Nowtime = now();

Update gamelog set endGameDate = nowtime , isFinished = true where game\_id = gamenumber;

End;

$$ LANGUAGE plpgsql;

1. To check in the login

CREATE OR REPLACE FUNCTION loginCheck (nameofuser text ,playerpassword text) RETURNS boolean AS $$

DECLARE

numberOFRows int;

BEGIN

SELECT COUNT (\*) INTO numberOFRows FROM players WHERE username = nameofuser AND password = playerpassword;

IF numberOFRows = 1 THEN RETURN true;

ELSE RETURN false;

END IF;

END;

$$ LANGUAGE plpgsql;

1. To set a game move

CREATE OR REPLACE FUNCTION setmove (fieldNumber int, sign int,gamenumber int) RETURNS void AS $$

DECLARE

BEGIN

UPDATE gamelog SET savedgame[fieldnumber] = sign where game\_id = gamenumber;

END ;

$$ LANGUAGE plpgsql;

1. To get savedGame

CREATE OR REPLACE FUNCTION getSavedData (newgameId int,name0fHome text, nameOfOpponent text) RETURNS TABLE (Field1 int,Field2 int,field3 int, field4 int, field5 int, field6 int, field7 int, field8 int, field9 int) AS $$

DECLARE

gamenumber int;

BEGIN

SELECT game\_id INTO gamenumber FROM gamelog WHERE isFinished = false and homeplayer = name0fHome and opponentPlayer = nameOfOpponent OR homeplayer = nameOfOpponent and opponentPlayer = name0fHome LIMIT 1;

DELETE FROM gamelog WHERE game\_id = newgameId;

UPDATE players set gameid = newgameId WHERE username IN (name0fHome, nameOfOpponent);

RETURN QUERY SELECT savedGame[1], savedGame[2], savedGame[3], savedGame[4], savedGame[5], savedGame[6], savedGame[7], savedGame[8], savedGame[9] FROM gamelog WHERE game\_id = gamenumber;

END;

$$ LANGUAGE plpgsql;

1. To check the if userName Available of not

CREATE OR REPLACE FUNCTION checkNewPlayer (nameofuser text) RETURNS boolean AS $$

DECLARE

numberOFRows int;

BEGIN

SELECT COUNT(\*) INTO numberOFRows FROM players WHERE username = nameofuser;

IF numberOfRows = 1 THEN RETURN false;

ELSE RETURN true;

END IF;

END;

$$ LANGUAGE plpgsql;

1. To retrive player’s data

CREATE OR REPLACE FUNCTION retriveplayerdata (nameofuser text)

RETURNS TABLE (firstName text, lastName text , statusOfPlayer boolean , scoreOfPlayer int) AS $$

DECLARE

BEGIN

RETURN QUERY SELECT fname,lname,status,score from players WHERE username = nameofuser;

END;

$$ LANGUAGE plpgsql;

1. To make Player status online

CREATE OR REPLACE FUNCTION makePlayerOnline (nameOfUser text) RETURNS boolean AS $$

DECLARE

BEGIN

UPDATE players SET status = true WHERE username = nameofuser;

RETURN true;

END;

$$ LANGUAGE plpgsql;

1. To Make Player Is Playing Now

CREATE OR REPLACE FUNCTION setIsPlayerPlaying (nameOfUser text) RETURNS boolean AS $$

DECLARE

BEGIN

UPDATE players SET isplaying = true WHERE username = nameOfUser;

RETURN true;

END;

$$ LANGUAGE plpgsql;

1. To Return The User Score

CREATE OR REPLACE FUNCTION returnScorePlayer (nameOfUser text) RETURNS int AS $$

DECLARE

playerScore int;

BEGIN

SELECT score INTO playerScore FROM players WHERE username = nameOfUser;

RETURN playerScore;

END;

$$ LANGUAGE plpgsql;

17 – Make all Players Offline

CREATE OR REPLACE FUNCTION makeAllPlayersOffline () RETURNS boolean AS $$

DECLARE

BEGIN

UPDATE players SET status = false , isPlaying = false;

RETURN true;

END;

$$ LANGUAGE plpgsql;