Database Create Table Scripts

```
CREATE TABLE assignment (
      assignmentID int(11) NOT NULL AUTO_INCREMENT,
      title varchar(100) NOT NULL,
      details longtext NOT NULLL.
      due date datetime NOT NULL,
      userID varchar(9) NOT NULL,
      fileID int(11),
      PRIMARY KEY (assignmentID),
      FOREIGN KEY (userID) REFERENCES user(userID),
      FOREIGN KEY (fileID) REFERENCES assignment_file(file_id)
);
CREATE TABLE assignment_file (
      file_id int(11) NOT NULL,
      file_url varchar(100) NOT NULL,
      file_name varchar(100) NOT NULL,
      PRIMARY KEY (file_id)
);
CREATE TABLE avatar (
      avatarID int(11) NOT NULL.
      avatarURL varchar(100) NOT NULL,
      PRIMARY KEY (avatarID)
);
CREATE TABLE comment (
      commentID int(11) NOT NULL AUTO_INCREMENT,
      time_created datetime NOT NULL,
      content longtext NOT NULL,
      postedBy varchar(9) NOT NULL,
      threadID int(11) NOT NULL,
      PRIMARY KEY (commentID),
      FOREIGN KEY (postedBy) REFERENCES user(userID),
      FOREIGN KEY (threadID) REFERENCES thread(threadID)
);
```

```
CREATE TABLE group (
      groupID varchar(50) NOT NULL,
      teacherID varchar(9),
      PRIMARY KEY (groupID),
      FOREIGN KEY (teacherID) REFERENCES user(userID)
);
CREATE TABLE group_has_assignment (
      groupID varchar(50) NOT NULL,
      assignmentID int(11) NOT NULL,
      PRIMARY KEY (groupID, assignmentID),
      FOREIGN KEY (groupID) REFERENCES group(groupID),
      FOREIGN KEY (assignmentID) REFERENCES assignment(assignmentID)
);
CREATE TABLE level (
      levelID int(11) NOT NULL,
      levelStage varchar(45) NOT NULL,
      levelName varchar(45) NOT NULL,
      levelDescription longtext NOT NULL,
      worldID varchar(10) NOT NULL,
      PRIMARY KEY (levelID, worldID),
      FOREIGN KEY (worldID) REFERENCES world(worldID)
);
CREATE TABLE powerup (
      powerID int(11) NOT NULL AUTO_INCREMENT,
      cost int(11) NOT NULL,
      description varchar(100) NOT NULL,
      name varchar(45) NOT NULL,
      PRIMARY KEY (powerID)
);
```

```
CREATE TABLE question (
      worldID varchar(10) NOT NULL,
      levelID int(11) NOT NULL,
      questionID int(11) NOT NULL AUTO_INCREMENT,
      questionTitle longtext NOT NULL,
      option1 longtext NOT NULL,
      option2 longtext NOT NULL,
      option3 longtext NOT NULL,
      option4 longtext NOT NULL,
      difficulty int(11) NOT NULL,
      correctOption int(11) NOT NULL,
      PRIMARY KEY (worldID, levelID, questionID),
      FOREIGN KEY (worldID) REFERENCES world(worldID),
      FOREIGN KEY (levelID) REFERENCES level(levelID)
);
CREATE TABLE thread (
      threadID int(11) NOT NULL AUTO_INCREMENT,
      time_created datetime NOT NULL,
      title varchar(100) NOT NULL,
      details longtext NOT NULL,
      userID varchar(9) NOT NULL,
      PRIMARY KEY (threadID),
      FOREIGN KEY (userID) REFERENCES user(userID)
);
CREATE TABLE UCL (
      uclID int(11) NOT NULL,
      userId varchar(45) NOT NULL,
      questionId varchar(45) NOT NULL,
      uclName varchar(45) NOT NULL,
      uclDesc varchar(100) NOT NULL,
      questionTitle varchar(45) NOT NULL,
      option1 varchar(45) NOT NULL,
      option2 varchar(45) NOT NULL,
      option3 varchar(45) NOT NULL,
      option4 varchar(45) NOT NULL,
      correctOption int(11) NOT NULL,
      PRIMARY KEY (uclID, userId, questionId)
);
```

```
CREATE TABLE user (
      userID varchar(9) NOT NULL,
      name varchar(50) NOT NULL.
      email varchar(100) NOT NULL,
      password varchar(50) NOT NULL,
      role varchar(50) NOT NULL,
      avatarID int(11) NOT NULL DEFAULT 1,
      userGroup varchar(10),
      currency int(11),
      PRIMARY KEY (userID)
);
CREATE TABLE user_has_powerup (
      userID varchar(9) NOT NULL,
      powerID int(11) NOT NULL,
      quantity int(11),
      PRIMARY KEY (userID, powerID),
      FOREIGN KEY (userID) REFERENCES user(userID),
      FOREIGN KEY (powerID) REFERENCES powerup(powerID)
);
CREATE TABLE user_unlock_level (
      userID varchar(9) NOT NULL,
      levelID int(11) NOT NULL,
      worldID varchar(10) NOT NULL,
      unlock int(11) NOT NULL DEFAULT 0,
      score int(11) NOT NULL DEFAULT 0,
      PRIMARY KEY (userID, levelID, worldID),
      FOREIGN KEY (userID) REFERENCES user(userID),
      FOREIGN KEY (levelID) REFERENCES level(levelID),
      FOREIGN KEY (worldID) REFERENCES world(worldID)
);
```

```
CREATE TABLE user_unlock_world (

userID varchar(9) NOT NULL,
worldID varchar(10) NOT NULL,
unlock int(11) NOT NULL DEFAULT 0,
score int(11) NOT NULL DEFAULT 0,
PRIMARY KEY (userID, worldID),
FOREIGN KEY (userID) REFERENCES user(userID),
FOREIGN KEY (worldID) REFERENCES world(worldID)
);
CREATE TABLE world (

worldID varchar(10) NOT NULL,
worldName varchar(45) NOT NULL,
PRIMARY KEY (worldID)
);
```

Database Query Scripts

Account Manager

1. Verify users by their userID and password to handle user login

2. Get all the information of the user from the database once the user is logged in

3. Update the password of the user when the user changes his/her password

4. Send an email to the user when the user forgets his/her password

```
public function resetPasswordLink($id){
        if (Users::where('userID', $id)->exists()) {
                $user = Users::find($id);
                $url = "https://learnez.a2hosted.com/public/api/user/resetpassword/link/reset/".$id;
                 $data = array( 'email' => $user->email, 'url' => $url);
                 Mail::send([],$data, function ($message) use ($data) {
                         $message->to($data['email'])
                                 ->subject('Reset Password Request')
                                 ->setBody('Please Click on this link to reset your password: '.
                                         $data['url']);
                });
                 return response()->json([
                         "message" => $user->email
                ], 200);
        } else {
                return response()->json([
                         "message" => "User xneot found"
                ], 404);
        }
}
```

5. Update the password of the user when the user clicks on the password reset link sent to his/her email

```
public function resetPassword($id){
        if (Users::where('userID', $id)->exists()) {
                $user = Users::find($id);
                $characters =
                '0123456789abcdefghijklmnopgrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ';
                $charactersLength = strlen($characters);
                $randomString = ";
                for (\$i = 0; \$i < 5; \$i++) {
                        $randomString .= $characters[rand(0, $charactersLength - 1)];
                $user->password = $randomString;
                $user->timestamps = false;
                $user->save():
                $data = array( 'email' => $user->email, 'password' => $randomString);
                Mail::send([],$data, function ($message) use ($data) {
                        $message->to($data['email'])
                                ->subject('Password has been reset')
                                ->setBody('Your New Password is: '.$data['password']);
                        });
                return response()->json([
                        "message" => "A New Password Has been Sent to your Email"
               ], 200);
       } else {
                return response()->json([
                        "message" => "User not found"
               ], 404);
       }
}
```

6. Update the avatar of the user

7. Update the currency of the user when the user completes a level or purchase powerups

Performance Analytics

8. Get all the groups that the teacher is in charge of

9. Get all the students that are in a selected group

```
public function getStudentsInGroup($groupID){
    $students = Users::where('userGroup',$groupID)->get();
    return response()->json($students, 200);
}
```

10. Get the score of all the students that are in a selected group

11. Generate performance report for a selected group

```
public function generateReport($groupID){
        $reportFront = strval($groupID);
        $reportEnd = "-Performance-Report.csv";
        $reportName = $reportFront.$reportEnd;
        $headers = array(
                "Content-type" => "text/csv",
                "Content-Disposition" => "attachment; filename=".$reportName,
                "Pragma" => "no-cache",
                "Cache-Control" => "must-revalidate, post-check=0, pre-check=0",
                "Expires" => "0"
        $score = Users::where('userGroup',$groupID)->join('user_unlock_level as ul','ul.userID', '=',
                'user.userID')->join("world as w","ul.worldID","=","w.worldID")->join("level as
                I","ul.levelID","=","l.levelID")->groupBy('w.worldName','l.levelName')-
                >selectRaw('sum(ul.score) as score,l.levelName,w.worldName')->get();
        $columns = array('World Name', 'Level Name', 'Total Score');
        $callback = function() use ($score, $columns) {
                $file = fopen('php://output', 'w');
                fputcsv($file, $columns);
                foreach($score as $score) {
                        fputcsv($file, array($score->worldName,$score->levelName,$score->score));
                fclose($file);
        };
        return response()->stream($callback, 200, $headers);
}
```

12. Get all the world score for a selected student

13. Generate performance report for a selected student

```
public function generateStudentReport($userID){
        $reportFront = strval($userID);
        $reportEnd = "-Performance-Report.csv";
        $reportName = $reportFront.$reportEnd;
        $headers = array(
                "Content-type" => "text/csv",
                "Content-Disposition" => "attachment; filename=".$reportName,
                "Pragma" => "no-cache",
                "Cache-Control" => "must-revalidate, post-check=0, pre-check=0",
                "Expires" => "0"
        $score = Users::join('user_unlock_level as ul', 'ul.userID', '=', 'user.userID')->join("world as
                w","ul.worldID","=","w.worldID")->join("level as I","ul.levelID","=","l.levelID")-
                >where('user.userID',$userID)->selectRaw('ul.score,l.levelName,w.worldName')->get();
        $columns = array('World Name', 'Level Name', 'Total Score');
        $callback = function() use ($score, $columns) {
                $file = fopen('php://output', 'w');
                fputcsv($file, $columns);
                foreach($score as $score) {
                        fputcsv($file, array($score->worldName,$score->levelName,$score->score));
                fclose($file);
        };
        return response()->stream($callback, 200, $headers);
}
```

User Creations

14. Get all the information of all the user-created levels

```
public function getAllUCL(){
    $UCLList = UCL::all();
    return response()->json($UCLList, 200);
}
```

15. Get the detailed information of a selected user-created level

16. Create a user-created level

```
public function postUCL(Request $request, $id){
       $UCL = new UCL;
       $UCL->userId = $id:
       $UCL->uclID = $request->uclID;
       $UCL->questionId = $request->questionId;
       $UCL->uclName = $request->uclName;
       $UCL->uclDesc = $request->uclDesc;
       $UCL->questionTitle = $request->questionTitle;
       $UCL->option1 = $request->option1;
       $UCL->option2 = $request->option2;
       $UCL->option3 = $request->option3;
       $UCL->option4 = $request->option4;
       $UCL->correctOption = $request->correctOption;
       $UCL->timestamps = false;
       $UCL->save();
       return response()->json([
               "message" => "UCL Created"
       ], 200);
}
```

Discussion Board

17. Get all the information of all the discussion

18. Get the detailed information of a selected discussion

19. Get the number of comments on a selected discussion

20. Get all all the comments on a selected discussion

21. Post a discussion

22. Post a comment on a selected discussion

Assignment Manager

23. Get all the assignment that a student in a group have

24. Get all the assignment that a teacher posted

25. Get all the assignment that a teacher posted for a selected group

26. Get all the file of assignments that is in the database

```
public function getAllFile(){
    $file = AssignmentFile::all();
    return response()->json($file, 200);
}
```

27. Post an assignment

```
public function postAssignment(Request $request, $id){
       $fileID = AssignmentFile::where('assignment_file.file_name', $request->file_id)-
               >pluck('assignment_file.file_id');
       $assignment = new Assignment;
       $assignment->title = $request->title;
       $assignment->details = $request->details;
       $assignment->due_date = $request->due_date;
       $assignment->userID = $id;
       $assignment->fileID = $fileID[0];
       $assignment->timestamps = false;
       $assignment->save();
       $assignmentID = Assignment::orderBy('assignmentID', 'DESC')->take(1)-
               >pluck('assignment.assignmentID');
       $groupAssignment = new GroupAssignment;
       $groupAssignment->groupID = $request->group_id;
       $groupAssignment->assignmentID = $assignmentID[0];
       $groupAssignment->timestamps = false;
       $groupAssignment->save();
       $fileURL = AssignmentFile::where('assignment_file.file_name', $request->file_id)-
               >pluck('assignment_file.file_url');
       return response()->json([
               "message" => $fileURL
       ], 200);
}
```

Game Manager

28. Get all the information of all the world

```
public function getAllWorlds(){
    $world = World::all();
    return response()->json($world, 200);
}
```

29. Get all the world that a user has unlocked

```
public function getUserUnlockedWorlds($id){
    $user_unlocked_worlds = UserUnlockWorld::where('userID', $id)->get();
    return response()->json($user_unlocked_worlds, 200);
}
```

30. Get all the levels in a selected world

```
public function getLevelsInWorld($id){
    $level = Level::where('worldID', $id)->get();
    return response()->json($level, 200);
}
```

31. Get all the levels that a user has unlocked in a selected world

```
public function getUserUnlockedLevels($userID,$worldID){
    $user_unlocked_levels = UserUnlockLevel::where('userID', $userID)->where('worldID',
    $worldID)->get();
    return response()->json($user_unlocked_levels, 200);
}
```

32. Get all the information of the powerups in the game

33. Get the user inventory

34. Update the user inventory when he buy a powerup

35. Update the user inventory after a game

36. Get the level leaderboard when a user selects a level

37. Get the user highest level cleared

```
public function getUserHighestLvl($userID){
        $highest_lvl = UserUnlockLevel::where('userID',$userID)->where('unlock',1)->where('score',0)-
                >join('level', 'user_unlock_level.levelID', '=', 'level.levelID')->get();
        if(sizeof($highest_lvl) == 0){
                $highest IvI = UserUnlockLevel::where('userID',$userID)->where('unlock',1)-
                         >join('level', 'user_unlock_level.levelID', '=', 'level.levelID')-
                         >orderBy('level.levelID', 'DESC')->first();
                $totalScore = UserUnlockLevel::where('userID',$userID)->sum('score');
                $highest IvI["totalscore"] = $totalScore;
                return response()->json($highest_lvl, 200);
        }else{
                $totalScore = UserUnlockLevel::where('userID',$userID)->sum('score');
                $highest_lvl[0]["totalscore"] = $totalScore;
                return response()->json($highest_lvl[0], 200);
        }
}
```

38. Get all the information of the questions in a selected level

```
public function getQuestions($levelID,$worldID){
     $questions = Question::where('levelID',$levelID)->where('worldID',$worldID)->get();
     return response()->json($questions,200);
}
```

```
public function updateUserGameClear(Request $request,$userID){
        $newScore = $request->score;
        $user = Users::find($userID);
        $user->currency += $newScore;
        $user->timestamps = false;
        $user->save();
        $user curr unlock level = UserUnlockLevel::where('userID',$userID)->where('levelID',$request-
               >levelID)->first()'
        $curr Score = $user curr unlock level->score;
        if($newScore > $curr Score){
               $user curr unlock level->score = $newScore;
               $user_curr_unlock_level->timestamps = false;
               $user_curr_unlock_level->save();
               $user curr unlock world = UserUnlockWorld::where('userID',$userID)-
                       >where('worldID',$request->worldID)->first();
               $newCalcScore = UserUnlockLevel::where('userID',$userID)->groupBy('worldID')-
                       >where('worldID',$request->worldID)->sum('score');
               $user curr unlock world->score = $newCalcScore;
               $user_curr_unlock_world->timestamps = false;
               $user_curr_unlock_world->save();
        }
        $curr_level_id = intval($request->levelID);
        $next_level = strval($curr_level_id+=1);
        if($next_level != '31'){
               $user next unlock level = UserUnlockLevel::where('userID',$userID)->where('leveIID',
               $next level)->first();
               $user next unlock level->unlock = 1;
               $user_next_unlock_level->timestamps = false;
               $user_next_unlock_level->save();
        }
        $curr_level_id = intval($request->levelID);
        $curr_world_id = $request->worldID;
        $worldName = substr($curr world id, 0, 5);
        $worldNum = intval(substr($curr world id, 5));
        $worldNum++;
        if(\$worldNum < 7 \&\& (\$curr level id\%5 == 0))
               $worldName .= strval($worldNum);
               $user_next_unlock_world = UserUnlockWorld::where('userID',$userID)-
                       >where('worldID',$worldName)->first();
               $user_next_unlock_world->unlock = 1;
               $user_next_unlock_world->timestamps = false;
               $user_next_unlock_world->save();
        }
        return response()->json([
                "message" => $newCalcScore
        ], 200);
}
```

Leaderboard

40. Get all the information of the leaderboard

```
public function getLeaderboard(Request $request,$worldID){
        if($request->type == "class"){
                $ldrboard = Users::where('userGroup',$request->group)-
                        >join('user_unlock_world', 'user_unlock_world.userID', '=', 'user.userID')-
                        >where('worldID',$worldID)->orderBy('score','DESC')->take(5)->get();
                $rank = Users::where('userGroup',$request->group)->join('user_unlock_world')
                        u1', 'u1.userID', '=', 'user.userID')->where("u1.worldID", $worldID)->get();
                $userRank = Users::where('user.userID', $request->userID)->ioin('user unlock world as
                        u1','u1.userID', '=','user.userID')->where("u1.worldID",$worldID)->get();
                count = 1;
                foreach ($rank as $i) {
                        if((int)$userRank[0]['score'] < (int)$i['score']){
                                 count+= 1;
                        }
                }
                $user = UserUnlockWorld::where('worldID',$worldID)->where('userID',$request-
                        >userID)->get();
                suser[0][rank] = scount;
                $ldrboard->push($user[0]);
                return response()->json($ldrboard, 200);
        }else{
                $Idrboard = Users::join('user_unlock_world', 'user_unlock_world.userID',
                        '=','user.userID')->where('worldID',$worldID)->orderBy('score','DESC')-
                        >take(5)->get();
                $rank = UserUnlockWorld::where('user_unlock_world.userID', $request->userID)-
                        >join('user unlock world as u1','u1.userID','<>','user unlock world.userID')-
                        >where('u1.worldID',$worldID)->where('user_unlock_world.worldID',$worldID)-
                        >join('user_unlock_world as u2', 'u2.score', '>', 'user_unlock_world.score')-
                        >where('u2.worldID',$worldID)->distinct('u2.userID')->count('u2.userID');
                $rank += 1;
                $len = sizeof($ldrboard)-1;
                $user = UserUnlockWorld::where('worldID',$worldID)->where('userID',$request-
                        >userID)->get();
                $user[0]['rank'] = $rank;
                $ldrboard->push($user[0]);
                return response()->json($ldrboard, 200);
        }
}
```