

## Appendix B:

### Index.php:

```
<?php
$conn = mysqli_connect("localhost","hashem","","questionbank");
if(!$conn){
    echo "connection unsuccessful" . mysqli_connect_error();
```

```
}
?>
```

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>Login</title>
<link rel="shortcut icon" type="image/x-icon" href="favicon.ico" />
<style>
    form {
        width: 300px;
        margin: 50px auto;
        text-align: center;
    }
    input[type="text"], input[type="password"] {
        padding: 10px;
        margin: 10px;
        width: 250px;
        font-size: 16px;
        border: 1px solid #ccc;
    }
    input[type="submit"] {
        padding: 10px 20px;
        background-color: lightblue;
        color: white;
        border: none;
        cursor: pointer;
        border-radius: 5px;
        margin-top: 10px;
    }
    input[type="submit"]:hover {
        background-color: blue;
    }
}
```

```

</style>
</head>
<body>
    <!-- script to not submit on refresh -->
    <script>
        if ( window.history.replaceState ) {
            window.history.replaceState( null, null, window.location.href );
        }
    </script>
    <form method="POST">
        <!-- text input to log in -->
        <input type='text' name='UsernameEmail' value="" placeholder='Username /
Email' required>

        <input type='password' name='Password' value="" placeholder='Password'
required>

        <br><br><input type='submit' name='submit' value='login'>
    <?php
    // select all users from user database and save in 2D array
    $sql = 'SELECT * FROM user';

    $result = mysqli_query($conn, $sql);

    $array = mysqli_fetch_all($result, MYSQLI_ASSOC);
    // receiving value from form
    if (isset($_POST['submit']) and ! empty($_POST['submit'])) {
        session_start(); // start session to save username of user that will log in
        $inputUsernameEmail = $_POST['UsernameEmail'];
        $inputPassword = $_POST['Password'];
        $_SESSION['username'] = 0; // define SESSION variable to save username
        foreach ($array as $row) { // for loop to take each row of 2D array individually
            if ($inputUsernameEmail == $row['Username'] or $inputUsernameEmail ==
$row['UserEmail']) { // if either username or email match that of database
                $_SESSION['username'] = $row['Username']; // save username in session
variable
                $result = mysqli_query($conn, "SELECT Password FROM user WHERE
Username='{$_SESSION['username']}'"); // select password matching username
                $resultArray = mysqli_fetch_all($result, MYSQLI_ASSOC);
                $databasePassword = $resultArray[0]['Password']; // fetch database
password
                if ($inputPassword == $databasePassword) { // check if inputted password
matches db password

```

```

        header("Location: http://localhost/questionbank/firstpage.php", true, 301);
// if true send to first page
        exit();
    }else{
        echo "incorrect password, please try again"; // if not ask to try again
    }
    break;
}

}
if ($_SESSION['username'] == 0) { // if username does not exist in database
refer user to registration page
    echo "username/email is not registered. <a
href='http://localhost/questionbank/register.php'>register?</a>";
}
}

```

```

?></form>

```

```

</body>
</html>

```

### **register.php:**

```

<?php
$conn = mysqli_connect("localhost","hashem","","questionbank");
if(!$conn){
    echo "connection unsuccessful" . mysqli_connect_error();
}

```

```

// print_r($array);
?>

```

```

<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>Register</title>
<link rel="shortcut icon" type="image/x-icon" href="favicon.ico" />
<style>
form {
    display: flex;
    flex-direction: column;

```

```

    align-items: center;
    padding: 20px;
}

input[type="text"],
input[type="password"],
input[type="email"] {
    width: 50%;
    padding: 10px;
    margin-bottom: 20px;
    font-size: 16px;
    border: 1px solid gray;
    border-radius: 5px;
}

input[type="submit"] {
    padding: 10px 20px;
    background-color: blue;
    color: white;
    border: none;
    border-radius: 5px;
    cursor: pointer;
}
</style>
</head>
<body>
    <!-- script to not submit on refresh -->
    <script>
        if ( window.history.replaceState ) {
            window.history.replaceState( null, null, window.location.href );
        }
    </script>
    <form method="POST">
    <!-- input texts for user registration -->
    <input type='text' name='Username' value="" placeholder='Username' required>
    <input type='password' name='Password' value="" placeholder='Password'
required>
    <input type='email' name='UserEmail' value=""
placeholder='example@email.com' required>
    <input type='text' name='FirstName' value="" placeholder='firstname' required>
    <input type='text' name='LastName' value="" placeholder='lastname' required>
    <br><br><input type='submit' name='submit' value='Register'>
    <?php

```

```

// receiving value from form
if (isset($_POST['submit'])) {
    $username = $_POST['Username'];
    $password = $_POST['Password'];
    $email = $_POST['UserEmail'];
    $first = $_POST['FirstName'];
    $last = $_POST['LastName'];
    // insert values into user database
    $insertsql = "INSERT INTO user (UserEmail, Username, FirstName,
LastName, Password) VALUES('$email','$username','$first','$last','$password')";
    $runquery = mysqli_query($conn, $insertsql);
    echo "<br><br>User registered" . "<a href='index.php'> login</a>";
}

```

```

?></form><a href="#"></a>
</body>
</html>

```

### **firstpage.php:**

```

<?php
// start session to save username across tabs
session_start();

// if username does not exist destroy session and log user out
if(!isset($_SESSION['username'])){
    session_destroy();
    header("Location: http://localhost/questionbank/", true, 301);
    exit();
}

$questionID = 0; // define variable to prevent duplicating questions

// establish connection with database
$conn = mysqli_connect("localhost","hashem","","questionbank");
if(!$conn){
    echo "connection unsuccessful" . mysqli_connect_error();
}

// fetch all database rows and save in 2D array
$sql = 'SELECT * FROM question';

$result = mysqli_query($conn, $sql);

```

```
$array = mysqli_fetch_all($result, MYSQLI_ASSOC);

// define unit and section variable in empty string
$unit_ = "";
$section = "";

//method to print questions given an 2D array of questions from the database
function printQuestion($array)
{
    foreach ($array as $key) { // foreach loop taking each row individually
        $conn = mysqli_connect("localhost","hashem","","questionbank"); // reestablish
        database connection

        // select units matching questionID from many to many relationship joint table

        $sql = "SELECT UnitID FROM question_unit WHERE QuestionID =
        '{$key['QuestionID']}'";

        $result = mysqli_query($conn, $sql);
        //fetch units as a 2D array
        $unitarray = mysqli_fetch_all($result, MYSQLI_ASSOC);
        // define variable containing size of array of units
        $unitArraySize = count($unitarray);
        // define counter variable to help in printing correct number of commas between
        units
        $commaCounter = 0;

        echo "<div class='question'";
        echo "    <h3 style='margin-top: 10px; margin-bottom: 10px;'>Section
        {$key['QuestionSection']}</h3>";
        echo "    <h3 style='margin-top: 10px; margin-bottom: 10px;'>Unit(s):";

        // foreach loop to print unitIDs
        foreach ($unitarray as $unitkey) {
            echo "{$unitkey['UnitID'][0]} " . " . " {$unitkey['UnitID'][1]}; // separate string into
            two characters with dot in between
            $commaCounter++; // increment commaCounter
            if ($commaCounter < $unitArraySize) { // if commaCounter less than size of
            array print a comma, removing comma from end of display
                echo ", " . " ";
            }
        }
    }
}
```

```

        echo "</h3>";
    // end of selecting and outputting unit
    echo "<h4 style='margin-top: 10px; margin-bottom: 10px;'>Title:
    {$key['QuestionName']}</h4>";
    // retrieve question img source and markscheme image source and use explode
    function if there are multiple sources to put them in arrays
    $questionArray = (explode(',', $key['QuestionSrc']));
    $markschemeArray = (explode(',', $key['MarkschemeSrc']));
    foreach ($questionArray as $question) {
        echo "<img src='{$question}' id='question'></img>";
    }
    $markschemeCounter = 0; //counter to output order of markscheme being
    displayed
    foreach ($markschemeArray as $markscheme) {
        $markschemeCounter = $markschemeCounter + 1;
        echo "<a href='{$markscheme}'><button type='button' name='button' id =
        'button' href=>Markscheme ( " . $markschemeCounter . ")</button></a>";

    }
    echo "</div>";
}
}

```

```

// print_r($array);
?>

```

```

<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>CS Questionbank</title>
<link rel="shortcut icon" type="image/x-icon" href="favicon.ico" />
<link rel="stylesheet" href="firstpage.css">
<script src="https://kit.fontawesome.com/989573e242.js"
crossorigin="anonymous"></script>
<style>
.question {
margin: 20px;
border: 1px solid black;
padding: 10px;

```

```
}
```

```
#question {  
  width: 500px;  
  height: auto;  
  margin-bottom: 10px;  
}
```

```
#button {  
  background-color: lightblue;  
  padding: 7px 10px;  
  border-radius: 5px;  
  border: none;  
  font-weight: bold;  
  text-decoration: none;  
  color: white;  
  margin-top: 10px;  
}
```

```
input[type='submit'] {  
  position: absolute;  
  left: 990px;  
  top: 100px;  
  padding: 12px 20px 15px;  
  background-color: blue;  
  color: white;  
  border-radius: 4px;  
  border: none;  
  font-size: 16px;  
  cursor: pointer;  
}
```

```
#unitidbruv, #sectionid {  
  font-size: 16px;  
  padding: 10px;  
  border-radius: 5px;  
  border: 2px solid gray;  
  width: 200px;  
  height: 40px;  
  margin: 10px 0;  
}
```

```
#searchQuestion{  
  position: relative;  
  left: 0px;
```



```

top: 0px;
}
</style>
</head>

<body>
  <!-- <div class="nav-bar">
    <div class="items">
      <i class="fa-solid fa-house"></i>
      <p>Home</p>
    </div>
    <div class="items">
      <i class="fa-solid fa-address-card"></i>
      <p>About</p>
    </div>
    <div class="items">
      <i class="fa-light fa-file-circle-plus"></i>
      <p>Test</p>
    </div>
    <div class="items">
      <i class="fa-solid fa-user"></i>
      <p>User</p>
    </div>
  </div> -->
  <form method="POST">
    <input style = 'position:relative; left:1300px; top:1px;' type='submit'
name='logout' value='Logout'>
    <?php if (isset($_POST['logout'])) { // if logout button is pressed destroy session
and take user to login page
      session_destroy();
      header("Location: http://localhost/questionbank/", true, 301);
      exit();
    }
    ?>
  </form>
  <form method="POST">
    <input style = 'position:relative; left:1290px; top:20px;' type='submit'
name='test' value='Create practice test'>
    <?php if (isset($_POST['test'])) { // if test button is pressed move user to test
page
      header("Location: test.php", true, 301);
    }
    ?>
  </form>

```

```

</form>
<script>
    if ( window.history.replaceState ) {
        window.history.replaceState( null, null, window.location.href );
    }
</script>
<?php echo "<p style='font-family: Arial, sans-serif; font-size: 16px; font-weight:
bold; text-align: center;'>Welcome to the questionbank, " .
$_SESSION['username'] . "!<br><br> </p>"; ?>

<?php
// retrieve all units as 2D array
$unitSql = 'SELECT * FROM unit';
$unitResult = mysqli_query($conn, $unitSql);
$unitArray = mysqli_fetch_all($unitResult, MYSQLI_ASSOC);
?>
<!-- // print_r($unitArray); -->
<!-- create form with method post -->
<form method="POST">
<div style="text-align: center;">
    <?php

        echo "Unit: <br> <select name='unit' id='unitidbruv' style='text-align:
center;'>";

        echo "<option value='ALL'>ALL</option>";
        // foreach loop to create options for user to select units from database
        foreach ($unitArray as $unit) {
            echo "<option value='{ $unit['UnitID']}'>{ $unit['UnitName']}</option>";
        }
        echo "</select>";
        echo "<br> <br>Section: <br> <select name='section' id='sectionid'
style='text-align: center;'>";
        echo "<option value='ALL'> ALL </option>";
        echo "<option value='A'> A </option>";
        echo "<option value='B'> B </option>";
        echo "</select>";

        echo "<br><br><input type='submit' id='searchQuestion' name='submit'
value='Search Questionbank' style='text-align: center;'>";

?></div><?php

```

```

// receiving value from options
if (isset($_POST['submit'])) {
    $unit_=$_POST['unit'];
    $section=$_POST['section'];
    if($unit_=="ALL"){ // if all units are selected
        echo '<br><br><p style = "text-align: center"; > The selected unit is: ' . $unit_ .
'<br>Selected Section: ' . $section . '</p>'; // display to the user the unit and section
they chose
        echo "<hr>";
    }else { // if not all units are selected
        echo '<br><br>The selected unit is: ' . $unit_[0] . '.' . $unit_[1] . '<br>Selected
Section: ' . $section; // output unitID with dot in between
        echo "<hr>";
    }
}
}

```

```

?></form>
<!-- questions -->
<?php

```

```

if($unit_!="" and $section != ""){ // if unit and section are not empty
    if ($unit_ == 'ALL' and $section == 'ALL') { // if unit and section are both set to
all
        printQuestion($array); // print all questions from database
    }
}

```

```

elseif ($unit_ == 'ALL' and $section != 'ALL'){ //if unit is set to all and section is
not all, either A or B
    foreach ($array as $question) {
        if ($question['QuestionID'] != $questionID) { // condition to make sure no
duplicates
            $finalQuestionResult = mysqli_query($conn, "SELECT * FROM question
WHERE QuestionID='{$question['QuestionID']}' AND
QuestionSection='{$section}'");
            $finalQuestionArray = mysqli_fetch_all($finalQuestionResult,
MYSQLI_ASSOC);
            printQuestion($finalQuestionArray);
        }
        $questionID = $question['QuestionID'];
    }
}

```

```

    }elseif ($unit_ != 'ALL' and $section == 'ALL') { // if specific unit is selected and
section is all
        $questionunitResult = mysqli_query($conn, "SELECT QuestionID FROM
question_unit WHERE UnitID='{ $unit_}'");
        $questionunitArray      =      mysqli_fetch_all($questionunitResult,
MYSQLI_ASSOC);
        // print_r($questionunitArray);
        // fetch questions matching UnitID
        foreach ($questionunitArray as $question) {
            $finalQuestionResult = mysqli_query($conn, "SELECT * FROM question
WHERE QuestionID='{ $question['QuestionID']}'");
            $finalQuestionArray      =      mysqli_fetch_all($finalQuestionResult,
MYSQLI_ASSOC);
            printQuestion($finalQuestionArray);
        }
    } else{ // if specific unit is selected and specific section is selected
        $questionunitResult = mysqli_query($conn, "SELECT QuestionID FROM
question_unit WHERE UnitID='{ $unit_}'");
        $questionunitArray      =      mysqli_fetch_all($questionunitResult,
MYSQLI_ASSOC);
        // print_r($questionunitArray);
        // fetch questions matching UnitID
        foreach ($questionunitArray as $question) {
            $finalQuestionResult = mysqli_query($conn, "SELECT * FROM question
WHERE          QuestionID='{ $question['QuestionID']}'          AND
QuestionSection='{ $section}'");
            $finalQuestionArray      =      mysqli_fetch_all($finalQuestionResult,
MYSQLI_ASSOC);
            printQuestion($finalQuestionArray);
        }
    }
}

?>
</body>
</html>
<!-- <?php
echo "<marquee>";
?> -->

```

### **Test.php:**

```

<?php
$questionID = 0;

```

```

$questions = array();
$conn = mysqli_connect("localhost","hashem","","questionbank");
?>
<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>Practice test</title>
<link rel="shortcut icon" type="image/x-icon" href="favicon.ico" />
<style>
form {
display: flex;
flex-direction: column;
align-items: center;
justify-content: center;
height: 100vh;
}
select {
margin: 20px;
padding: 10px;
font-size: 18px;
border: 1px solid gray;
border-radius: 5px;
}
input[type="submit"] {
margin: 20px;
padding: 10px 20px;
font-size: 18px;
border: none;
border-radius: 5px;
background-color: lightblue;
color: white;
cursor: pointer;
}
</style>
<script type="text/javascript">
if ( window.history.replaceState ) {
window.history.replaceState( null, null, window.location.href );
}
</script>
</head>
<body>

```

```

<form method="post" action="practicetest.php"> <!-- refer information from form
to practicetest.php-->
    <?php
    // retrieve all units and save in 2D array
    $abitofsql = 'SELECT * FROM unit';
    $unitResult = mysqli_query($conn, $abitofsql);
    $unitArray = mysqli_fetch_all($unitResult, MYSQLI_ASSOC);
    ?>
    <select name='units[]' multiple style="height:175px"> <!-- multiple selection for
units -->
    <?php
    foreach ($unitArray as $unit) { // loop through 2D array as individual rows
        echo " <option value='{ $unit['UnitID']}'>{ $unit['UnitName']}</option>"; //
display unit options for user to choose
    }
    ?>
    </select>
    <select name="testtime"> <!-- display options to allow users to select test time
-->
        <option value="30">30 Minutes</option>
        <option value="45">45 Minutes</option>
        <option value="60">1 hr</option>
        <option value="90">1hr 30 min</option>
        <option value="120">2hr</option>
    </select>
    <input type="submit" name="submit" value="Start test!">
</form>
</body>
</html>

```

### **Practicetest.php:**

```

<?php
session_start(); // start session to save information from user test.php form

if(empty($_SESSION)){
    header("Location: index.php");
}

$conn = mysqli_connect("localhost","hashem","","questionbank"); // establish
connection with database
$questionID = 0; // define questionID
$questions = array(); // define questions array
$test = array(); // define test questions array

```

```

$testtime = 0; // define variable with test time
function printQuestion($array) // same printQuestion function from firstpage.php
without the markscheme
{
    foreach ($array as $key) {
        $conn = mysqli_connect("localhost","hashem","","questionbank");
        $COUNTER = 0;
        echo "<p>Section <b>{$key['QuestionSection']}</b></p>";

        // select unit matching // question
        // print_r($key);

        $sql = "SELECT UnitID FROM question_unit WHERE QuestionID =
'{$key['QuestionID']}'";

        $result = mysqli_query($conn, $sql);

        $unitarray = mysqli_fetch_all($result, MYSQLI_ASSOC);

        $unitArraySize = count($unitarray);

        $counterTwo = 0;

        echo "<p>Unit(s): <b>";

        foreach ($unitarray as $unitkey) {
            echo "{$unitkey['UnitID'][0]} . " . " . "{$unitkey['UnitID'][1]}";
            $counterTwo = $counterTwo + 1;
            if ($counterTwo < $unitArraySize) {
                echo ", ";
            }
        }

        echo "</b></p>";
    }
}

// end of selecting and outputting unit
echo "<p>Title: <b>{$key['QuestionName']}</b></p>";
$questionArray = (explode(',',$key['QuestionSrc']));
foreach ($questionArray as $question) {
    echo "<img src='{$question}' height='20%' width='40%'><br>";
}
// foreach ($markschemeArray as $markscheme) {
//     $COUNTER = $COUNTER + 1;
//     echo "<br><a href='{$markscheme}'>Markscheme</a> . "(" . $COUNTER .
")";
}

```

```
// }

echo "<br><br><hr>";
}

}
?>

<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
    <meta charset="utf-8">
    <title>Practice test</title>
    <link rel="shortcut icon" type="image/x-icon" href="favicon.ico" />
    <style>
body{
  font-family: Arial, sans-serif;
  background-color: white;
  text-align: center;
}
.container{
  max-width: 1200px;
  margin: 0 auto;
  padding: 20px;
  background-color: white;
  border-radius: 5px;
  box-shadow: 0px 0px 10px rgba(0,0,0,0.3);
}
h1{
  text-align: center;
  font-size: 36px;
  margin-bottom: 20px;
}
p{
  font-size: 18px;
  margin-bottom: 10px;
}
img{
  display: block;
  margin: 20px auto;
}
hr{
  border: 1px solid gray;
```



```

    margin: 20px 0;
}
</style>

</head>
<body>
<?php
    if (isset($_POST['submit'])) { // if start test button is pressed continue
        if(isset($_POST['units'])){ // if specific units are selected continue
            foreach ($_POST['units'] as $unit) { // select each unit chosen individually
                $questionunitResult = mysqli_query($conn, "SELECT QuestionID FROM
question_unit WHERE UnitID='{$unit}'"); // select questionID that matches unit
                $questionunitArray = mysqli_fetch_all($questionunitResult,
MYSQLI_ASSOC);

                foreach ($questionunitArray as $question) { // take every individual question
matching unit
                    if ($question['QuestionID'] != $questionID) {
                        $finalQuestionResult = mysqli_query($conn, "SELECT * FROM question
WHERE QuestionID='{$question['QuestionID']}'");
                        $finalQuestionArray = mysqli_fetch_all($finalQuestionResult,
MYSQLI_ASSOC);
                        array_push($questions, $finalQuestionArray[0]); // push questions into
$questions array
                    }
                    $questionID = $question['QuestionID']; // prevent duplication of questions
                }
            }
            $selectedQuestionsArray = array_map("unserialize",
array_unique(array_map("serialize", $questions))); // make sure duplicates are
removed
            // echo "<pre>";
            // print_r($selectedQuestionsArray);

            if (isset($_POST['testtime'])) { // if test time is chosen by user loop until
number of questions minutes match test time then print array

                while ($testtime <= $_POST['testtime']) {
                    if(!empty($selectedQuestionsArray)){
                        $key = array_rand($selectedQuestionsArray);
                        $testtime += $selectedQuestionsArray[$key]['time'];
                        array_push($test, $selectedQuestionsArray[$key]);
                        unset($selectedQuestionsArray[$key]);
                    }
                }
            }
        }
    }
}

```

```

    }else{
        break;
    }
}

```

```

for($i=0; $i<count($test); $i++) {
    $min_idx = $i;

    for($j=$i+1; $j<count($test); $j++) {
        if($test[$j]['time'] < $test[$min_idx]['time']){
            $min_idx = $j;
        }
    }
    $temp1 = $test[$min_idx];
    $test[$min_idx] = $test[$i];
    $test[$i] = $temp1;
}

```

```

printQuestion($test);

```

```

?>
<form action="recent.php" method="post">
    <input type="submit" name="end" value="END PRACTICE TEST">
    <?php
        $_SESSION['doneTest'] = $test; // save completed test in session variable
    ?>
</form>
<?php
}
}else{ // if no units are selected, redirect user test page
    echo "Please select at least 1 unit to start your exam! You will be redirected
in 3 seconds.";
    header("refresh:3;url=test.php");
}
}
?>

```

```
</body>
</html>
```

### Recent.php:

```
<?php
session_start();
$questions = array();
if (empty($_SESSION)) {
    header("Location: index.php");
}
?>
<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>Recent tests</title>
<link rel="shortcut icon" type="image/x-icon" href="favicon.ico" />
<style>
    body {
        text-align: center;
    }

    h1 {
        font-size: 36px;
        font-weight: bold;
    }

    button {
        font-size: 18px;
        font-weight: bold;
        padding: 10px 20px;
        border-radius: 10px;
    }
</style>
</head>
<body>
<h1>Congratulations on completing the test <?php echo
($_SESSION['username']); ?></h1>
<br><br><br><br><br>
<?php array_push($questions, $_SESSION['doneTest']); ?>
<form method="POST">
    <button type='submit' name='back'>Take me back</button>
    <?php if (isset($_POST['back'])) {
```

```
        header("Location: firstpage.php", true, 301);
    }
    ?>
</form>
</body>
</html>
```