

# SOFTWARE TESTING TEST CASES REPORT

MAR 26, 2025

## INTRODUCTION

This Test Case Report outlines the testing procedure for features or functionalities in [EDGES Reservation software]. The objective is to ensure that the features work as expected under various conditions. This test case is critical for security, user experience, and compliance. The report includes detailed test conditions, steps, inputs, expected outputs, and expected results to verify the correct behavior of the system.

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## TEST GROUPING SUMMARY

# Test Groups

The test suites are grouped into 12 test Clusters which belong to **3 main Groups**:

### Component-Based Clusters (1-4) - Unit Testing

### User-Centric Clusters (5-6) - System Testing

#### 1. DBM Component Test Cluster

- **Purpose:** Tests DBM functions
- **Test Cases:**
  - Verify adding a user successfully
  - Verify fulling DB successfully
  - Attempting to add more than Max Users
  - Verify deleting a user successfully
  - Verify deleting all user successfully
  - Attempting to delete BV users with user IDs (Max, Max +1, -1) as 0 was included in previous cases.
  - Adding a course using valid data
  - Adding max participants to a course
  - Adding the same user to a course more max course capacity
  - Deleting course reservation using valid data
  - Deleting course reservation using empty course
  - Deleting course reservation using invalid User
- **Goal:** Ensure the DBM functions correctly identifies DB and handles it appropriately.

#### 2. Course registration Component Test Cluster

- **Purpose:** Tests the core logic handling Course registration
- **Test Cases:**
  - Add student to a course using valid inputs
  - Adding student to a course using a full course id
  - Adding student to a course using already enrolled student id
  - Adding student to a course using invalid user id
- **Goal:** Ensure robust course registration. Confirm that the course registration logic processes requests accurately and interacts with the DBM as expected.

### 3. Create Account Test Cluster (BVA) (MC/DC)

- **Purpose:** Tests the account creation process for all user types.
- **Goal:** Verify that account creation and deletion is secure, validated, and properly stored.

### 4. Login Test Cluster (MC/DC)

- **Purpose:** Tests the account Login process.
- **Goal:** Verify that account login, As Admin, Normal User, or incorrect user are handled.

### 5. Admin Test Cluster

- **Purpose:** Tests all functionalities specific to the Admin user role.
- **Test Suites:**
  - Valid functionalities
  - Invalid functionalities
- **Test Cases:**
  - Registering new user accounts.
    - Valid
    - Invalid
  - Deleting existing user accounts.
    - Valid user
    - A invalid user ( $\geq$  Max)
  - Viewing all course registrations. - **Manually**
  - Printing all users' information. - **Manually**
  - Printing specific user information. - **Manually**
- **Goal:** Ensure that administrative tasks are performed correctly and that permissions are enforced.

### 6. Normal User Test Cluster

- **Purpose:** Tests the end-to-end user journey for Normal Users (e.g., Students).

- **Test Cases:**
  - Creating an account with personal information and login credentials.
    - Valid
    - Not Valid
  - Changing the password.
    - Valid Password change
    - Invalid Password change
  - Reserving a course from an available list.
  - Viewing personal information (excluding sensitive data like username/password). - **Manually**
  - Displaying enrolled courses. - **Manually**
- **Goal:** Verify a seamless user experience and correct functionality of user-facing features.

# TEST CASES

## 1. Test case 1

Test case no.	Test Case 1	
Test Condition	A valid user adding	
Steps	<ul style="list-style-type: none"><li>• Pass valid user data to Add_Account().</li><li>• Check that the user has been added successfully.</li><li>• Compare the data in the database with the initial user data passed.</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li><li>• Age</li><li>• DOB_day</li><li>• DOB_Month</li><li>• DOB_Year</li><li>• Educational_Status</li><li>• Gender</li><li>• UserName</li><li>• Password</li><li>• Password Recheck</li></ul>	<ul style="list-style-type: none"><li>-&gt; Ahmed</li><li>-&gt; 26</li><li>-&gt; 01</li><li>-&gt; 02</li><li>-&gt; 1999</li><li>-&gt; Masters_Student</li><li>-&gt; Male</li><li>-&gt; EdgesAcademy</li><li>-&gt; Edges123</li><li>-&gt; Edges123</li></ul>
Expected Outputs	The DB should be updated with the previous inputs correctly	
Actual Outputs	The DB has been updated with the previous inputs correctly	
Prerequisites	Database initialized	
Technique	Equivalence Partitioning (Unit test)	
Other info.		

## 2. Test case 2

Test case no.	Test Case 1	
Test Condition	An invalid user adding attempt	
Steps	<ul style="list-style-type: none"><li>• Call fcn Add_Account() and pass an invalid user data to it. (mismatch password)</li><li>• Print all users Data.</li><li>• Check that the user has not been added and compare the data in the database with the initial user data passed to the fcn.</li><li>• Print all users data.</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li><li>• Age</li><li>• DOB_day</li><li>• DOB_Month</li><li>• DOB_Year</li><li>• Educational_Status</li><li>• Gender</li><li>• UserName</li><li>• Password</li><li>• Password Recheck</li></ul>	<ul style="list-style-type: none"><li>-&gt; Rania</li><li>-&gt; 54</li><li>-&gt; 31</li><li>-&gt; 12</li><li>-&gt; 1970</li><li>-&gt; PHD_Holder</li><li>-&gt; Female</li><li>-&gt; EdgesAcademy2024</li><li>-&gt; <b>Edges_123_\$\$</b></li><li>-&gt; <b>Edges123</b></li></ul>
Expected Outputs	The DB should not be updated with the previous inputs.	
Actual Outputs	The DB has <b>not</b> been updated with the previous inputs.	
Prerequisites	Database initialized.	
Technique	Unit test: Equivalence Partitioning	
Other info.		

# DBM Component Test Cluster

## 3. Test case 3

Test case no.	Test Case 3	
Test Condition	Testing DBM Add User Component	
Steps	<ul style="list-style-type: none"><li>Call DMB_Add_User() and pass a valid user.</li></ul>	
Inputs	<ul style="list-style-type: none"><li>Name</li><li>Age</li><li>DOB_day</li><li>DOB_Month</li><li>DOB_Year</li><li>Educational_Status</li><li>Gender</li><li>UserName</li><li>Password</li><li>Password Recheck</li></ul>	<ul style="list-style-type: none"><li>-&gt; Alsinwar</li><li>-&gt; 62</li><li>-&gt; 29</li><li>-&gt; 10</li><li>-&gt; 1962</li><li>-&gt; Graduate</li><li>-&gt; Male</li><li>-&gt; Hamas123</li><li>-&gt; AllahAkbar123</li><li>-&gt; AllahAkbar123</li></ul>
Expected Outputs	The DB should be updated with the previous inputs correctly	
Actual Outputs	The DB has been updated with the previous inputs.	
Prerequisites	Database initialized.	
Technique	Unit test: Equivalence Partitioning	
Other info.		

## 4. Test case 4

Test case no.	Test Case 4	
Test Condition	Testing DBM Add More than max Users	
Steps	<ul style="list-style-type: none"><li>• Call DMB_Add_User() and pass a valid user until we reach max users</li><li>• Attempt adding another user</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Enter Test_Valid_User data until we reach max users</li><li>• Enter Test1_User after that</li></ul>	
Expected Outputs	The DB should not be updated with the last user adding attempt	
Actual Outputs	The DB has not been updated with the last user adding attempt	
Prerequisites	Database Reset to init state	
Technique	Unit test: BVA	
Other info.		



## 5. Test case 5

Test case no.	Test Case 5	
Test Condition	Testing DBM Adding users until the DB is full	
Steps	<ul style="list-style-type: none"><li>• Call DMB_Add_User() and pass a valid user until we reach max users</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Enter Test_Valid_User data until we reach max users</li></ul>	
Expected Outputs	The DB should be updated with all users data correctly	
Actual Outputs	The DB has been updated with all users data correctly	
Prerequisites	Database Reset to init state	
Technique	Unit test: BVA	
Other info.		

## 6. Test case 6

Test case no.	Test Case 6	
Test Condition	Testing DBM Delete User Functionality	
Steps	<ul style="list-style-type: none"><li>• Add a User</li><li>• Delete the user just before it</li><li>• Check database for correct actions</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User ID</li></ul>	-> current_user_test - 1
Expected Outputs	The DB should be updated without User 0 correctly User shall be shifted and IDs shall be updated accordingly	
Actual Outputs	User 0 has been deleted following users have been shifted but IDs have not been updated successfully.	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP	
Other info.		

## 7. Test case 7

Test case no.	Test Case 7	
Test Condition	Testing DBM Delete User Functionality until DB is empty	
Steps	<ul style="list-style-type: none"><li>• Loop and delete all user from current to user 0</li><li>• Check if user DB is empty</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User ID</li></ul>	-> Loop from current user until 0
Expected Outputs	The DB should be updated without any user (Empty)	
Actual Outputs	The DB has been updated without any user (Empty) but the ID section had the value 4	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP	
Other info.		

## 8. Test case 8

Test case no.	Test Case 8
Test Condition	Testing DBM Delete User functionality to delete max user

Steps	<ul style="list-style-type: none"> <li>• Loop and add all user from current to max</li> <li>• Delete last user</li> <li>• Check the database</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>• User ID</li> </ul>	-> max user id
Expected Outputs	The DB should be updated without the last user	
Actual Outputs	The DB has been updated without the last user (Empty) but the ID section had the value 4	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP, BVA	
Other info.		

## 9. Test case 9

Test case no.	Test Case 9
Test Condition	Testing DBM Delete User to delete (max + 1) user
Steps	<ul style="list-style-type: none"> <li>• Delete user with id (max +1)</li> </ul>

	<ul style="list-style-type: none"> <li>Check the database</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>User ID</li> </ul>	-> max user + 1 id
Expected Outputs	The function should do nothing and return FALSE The current_user variable should remain the same	
Actual Outputs	The (max +1) user which is out of the DB range has been deleted and the current_user counter has been decremented.	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP, BVA	
Other info.		

## 10. Test case 10

Test case no.	Test Case 10
Test Condition	Testing DBM Delete User to delete user (-1)
Steps	<ul style="list-style-type: none"> <li>Delete user with id (-1)</li> <li>Check the database</li> </ul>

Inputs	<ul style="list-style-type: none"> <li>User ID</li> </ul>	-> -1
Expected Outputs	The function should do nothing and return FALSE The current_user variable should remain the same	
Actual Outputs	The function has done nothing and returned FALSE The current_user variable has remained the same	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP, BVA	
Other info.		

## 11. Test case 11

Test case no.	Test Case 11
Test Condition	Testing DBM DBM_AddToCourse using valid user and Course IDs
Steps	<ul style="list-style-type: none"> <li>Add a valid course to valid user</li> </ul>

Inputs	<ul style="list-style-type: none"> <li>• User ID</li> <li>• Course ID</li> </ul>	-> 0 -> 1
Expected Outputs	The function should add the course to the Enrollments	
Actual Outputs	The function has added the course to the Enrollments	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP	
Other info.		

## 12. Test case 12

Test case no.	Test Case 12
Test Condition	Testing DBM Adding max participants to a course
Steps	<ul style="list-style-type: none"> <li>• Loop on an empty course and add max participants</li> </ul>

Inputs	<ul style="list-style-type: none"> <li>• User ID</li> <li>• Course ID</li> </ul>	->loop from 0 until max participants -> 2
Expected Outputs	The function should add the course to the Enrollments for all users	
Actual Outputs	The function did not add the last participant (still not full)	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP, BVA	
Other info.		

13. Test case 13: /\* This test case is commented because it will affect other cases\*/

Test case no.	Test Case 13
Test Condition	Testing DBM Adding the same user to a course more than max course capacity
Steps	<ul style="list-style-type: none"> <li>• Add the same user to the same course more than max course capacity</li> </ul>



Inputs	<ul style="list-style-type: none"> <li>• User ID</li> <li>• Course ID</li> </ul>	->0 -> 2
Expected Outputs	The function should add the course to the Enrollments and remain TRUE	
Actual Outputs	The function has added the course to the Enrollments but did not return true after several tries	
Prerequisites	Database Reset to init state	
Technique	Unit test: BVA	
Other info.		

## 14. Test case 14

Test case no.	Test Case 14
Test Condition	Testing DBM Deleting course reservation using valid data
Steps	<ul style="list-style-type: none"> <li>• Call DBM_DeleteReservation()</li> <li>• Set the valid inputs to be deleted.</li> </ul>

Inputs	<ul style="list-style-type: none"> <li>• User ID</li> <li>• Course ID</li> </ul>	->0 -> 6
Expected Outputs	The function should remove the course from the Enrollments for the user	
Actual Outputs	The function has not removed the course from the Enrollments for the user	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP	
Other info.		

## 15. Test case 15

Test case no.	Test Case 15	
Test Condition	Testing DBM Deleting course reservation using empty course	
Steps	<ul style="list-style-type: none"><li>• Call DBM_DeleteReservation()</li><li>• Set the inputs to be deleted.</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User ID</li><li>• Course ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 0</li><li>-&gt; 2</li></ul>
Expected Outputs	The function should do nothing and return TRUE	
Actual Outputs	The function has done nothing and returned TRUE	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP	
Other info.		

## 16. Test case 16

Test case no.	Test Case 16	
Test Condition	Testing DBM Deleting course reservation using invalid User	
Steps	<ul style="list-style-type: none"><li>• Call DBM_DeleteReservation()</li><li>• Set the inputs to attempt to be deleted.</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User ID</li><li>• Course ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 5</li><li>-&gt; 6</li></ul>
Expected Outputs	The function should do nothing and return Error	
Actual Outputs	The function has done nothing and returned Error	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP / BVA	
Other info.		

## Course registration Component Test Cluster

### 17. Test case 17

Test case no.	Test Case 17	
Test Condition	Testing Course registration Add student to course using valid data	
Steps	<ul style="list-style-type: none"><li>• Call AddStudentToCourse()</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Student ID</li><li>• Course ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 0</li><li>-&gt; 1</li></ul>
Expected Outputs	The function should add user to the courses and return Enrolled	
Actual Outputs	The project exits with code (process 11036) exited with code -1073741819 Which is Access violation	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP / BVA / (MC/DC)	
Other info.		

## 18. Test case 18

Test case no.	Test Case 18	
Test Condition	Testing Course registration Add first student to first course using valid data	
Steps	<ul style="list-style-type: none"><li>• Call AddStudentToCourse()</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Student ID</li><li>• Course ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 0</li><li>-&gt; 1</li></ul>
Expected Outputs	The function should add user to the courses and return Enrolled	
Actual Outputs	The function has added user to the courses and return Enrolled	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP / BVA / (MC/DC)	
Other info.		

## 19. Test case 19

Test case no.	Test Case 19	
Test Condition	Testing Course registration Add student to last course using valid data	
Steps	<ul style="list-style-type: none"><li>• Call AddStudentToCourse()</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Course ID</li><li>• Student ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 6</li><li>-&gt; 2</li></ul>
Expected Outputs	The function should add user to the courses and return Enrolled	
Actual Outputs	The function has added user to the courses and return Enrolled	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP / BVA / (MC/DC)	
Other info.		

## 20. Test case 20

Test case no.	Test Case 20	
Test Condition	Testing Course registration Add last student to a course	
Steps	<ul style="list-style-type: none"><li>• Call AddStudentToCourse()</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Course ID</li><li>• Student ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 1</li><li>-&gt; 4</li></ul>
Expected Outputs	The function should not add user to the courses and return Already Enrolled	
Actual Outputs	The function has added user to the courses and returned Enrolled	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP / BVA / (MC/DC)	
Other info.		



## 21. Test case 21

Test case no.	Test Case 21	
Test Condition	Testing Course registration Add already enrolled student to a course	
Steps	<ul style="list-style-type: none"><li>• Call AddStudentToCourse()</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Course ID</li><li>• Student ID</li></ul>	<ul style="list-style-type: none"><li>-&gt; 6</li><li>-&gt; 0</li></ul>
Expected Outputs	The function should not add user to the courses and return Already Enrolled	
Actual Outputs	The function has not added user to the courses and returned Already Enrolled	
Prerequisites	Database Reset to init state	
Technique	Unit test: EP / (MC/DC)	
Other info.		

## Create Account Test Cluster (BVA) (MC/DC)

### Add Account function

#### 22. Test case 22

Test case no.	Test Case 22	
Test Condition	Testing Add Account Functionality with Valid Data	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li><li>• Age</li><li>• DOB_day</li><li>• DOB_Month</li><li>• DOB_Year</li><li>• Educational_Status</li><li>• Gender</li><li>• UserName</li><li>• Password</li><li>• Password Recheck</li></ul>	<ul style="list-style-type: none"><li>-&gt; Alsinwar</li><li>-&gt; 62</li><li>-&gt; 29</li><li>-&gt; 10</li><li>-&gt; 1962</li><li>-&gt; Graduate</li><li>-&gt; Male</li><li>-&gt; Hamas123</li><li>-&gt; AllahAkbar123</li><li>-&gt; AllahAkbar123</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	EP /(MC/DC)	
Other info.		

## 23. Test case 23

Test case no.	Test Case 23	
Test Condition	Testing Add Account Functionality with Name length = 2	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li></ul>	-> Al
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 24. Test case 24

Test case no.	Test Case 24	
Test Condition	Testing Add Account Functionality with Name length = 33	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li></ul>	-> AlSinwarAlSiNwarAlSiNwarAlSiNwarr
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 25. Test case 25

Test case no.	Test Case 25	
Test Condition	Testing Add Account Functionality with Valid Data, Name length = 3	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li></ul>	-> Als
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 26. Test case 26

Test case no.	Test Case 26	
Test Condition	Testing Add Account Functionality with Valid Data, Name length = 32	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Name</li></ul>	-> ALSinwarALSiNwarALSiNwarALSiNwar
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 27. Test case 27

Test case no.	Test Case 27	
Test Condition	Testing Add Account Functionality with Age = -1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li></ul>	-> -1
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 28. Test case 28

Test case no.	Test Case 28	
Test Condition	Testing Add Account Functionality with Age = 101	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li></ul>	-> 101
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		



## 29. Test case 29

Test case no.	Test Case 29	
Test Condition	Testing Add Account Functionality with Valid Data, Age = 0	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li><li>• DOB_year</li></ul>	<ul style="list-style-type: none"><li>-&gt; 0</li><li>-&gt; CURRENT_YEAR</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 30. Test case 30

Test case no.	Test Case 30	
Test Condition	Testing Add Account Functionality with Valid Data, Age = 100	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li><li>• DOB_year</li></ul>	<ul style="list-style-type: none"><li>-&gt; 100</li><li>-&gt; CURRENT_YEAR - 100</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 31. Test case 31

Test case no.	Test Case 31	
Test Condition	Testing Add Account Functionality with $\text{DOB\_year diff} = \text{Age} + 2$	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li><li>• DOB_year</li></ul>	<ul style="list-style-type: none"><li>-&gt; 62</li><li>-&gt; CURRENT_YEAR - 64</li></ul>
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Add the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 32. Test case 32

Test case no.	Test Case 32	
Test Condition	Testing Add Account Functionality with DOB_year diff = Age-1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li><li>• DOB_year</li></ul>	<ul style="list-style-type: none"><li>-&gt; 62</li><li>-&gt; CURRENT_YEAR - 61</li></ul>
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Add the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

### 33. Test case 33

Test case no.	Test Case 33	
Test Condition	Testing Add Account Functionality with DOB_year diff = Age	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li><li>• DOB_year</li></ul>	<ul style="list-style-type: none"><li>-&gt; 62</li><li>-&gt; CURRENT_YEAR - 62</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 34. Test case 34

Test case no.	Test Case 34	
Test Condition	Testing Add Account Functionality with DOB_year diff = Age	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Age</li><li>• DOB_year</li></ul>	<ul style="list-style-type: none"><li>-&gt; 62</li><li>-&gt; CURRENT_YEAR - 62</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 35. Test case 35

Test case no.	Test Case 35	
Test Condition	Testing Add Account Functionality with DOB_day higher BV +1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_day</li><li>• DOB_month</li></ul>	<ul style="list-style-type: none"><li>-&gt; 31</li><li>-&gt; April = 4</li></ul>
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 36. Test case 36

Test case no.	Test Case 36	
Test Condition	Testing Add Account Functionality with DOB_day = lower BV - 1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_day</li></ul>	-> 0
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		



## 37. Test case 37

Test case no.	Test Case 37	
Test Condition	Testing Add Account Functionality with DOB_day = lower BV	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_day</li></ul>	-> 1
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 38. Test case 38

Test case no.	Test Case 38	
Test Condition	Testing Add Account Functionality with DOB_day = higher BV	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_day</li><li>• DOB_month</li><li>• DOB_year</li><li>• Age</li></ul>	<ul style="list-style-type: none"><li>-&gt; 29</li><li>-&gt; Feb = 2</li><li>-&gt; Year = 2000</li><li>-&gt; CURRENT_YEAR - 2000</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 39. Test case 39

Test case no.	Test Case 39	
Test Condition	Testing Add Account Functionality with DOB_month = 0 (Lowe BV-1)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_month</li></ul>	-> 0
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 40. Test case 40

Test case no.	Test Case 40	
Test Condition	Testing Add Account Functionality with DOB_month = 13 (higher BV + 1)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_month</li></ul>	-> 13
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 41. Test case 41

Test case no.	Test Case 41	
Test Condition	Testing Add Account Functionality with DOB_month = 1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_month</li></ul>	-> 1
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 42. Test case 42

Test case no.	Test Case 42	
Test Condition	Testing Add Account Functionality with DOB_month = 12	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_month</li></ul>	-> 12
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 43. Test case 43

Test case no.	Test Case 43	
Test Condition	Testing Add Account Functionality with DOB_year = CURRENT_YEAR +1 (higher BV +1)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_year</li><li>• Age</li></ul>	<ul style="list-style-type: none"><li>-&gt; CURRENT_YEAR +1</li><li>-&gt; 0</li></ul>
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 44. Test case 44

Test case no.	Test Case 44	
Test Condition	Testing Add Account Functionality with DOB_year = CURRENT_YEAR - 101 (lower BV -1)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_year</li><li>• Age</li></ul>	<ul style="list-style-type: none"><li>-&gt; CURRENT_YEAR - 101</li><li>-&gt; 100</li></ul>
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		



## 45. Test case 45

Test case no.	Test Case 45	
Test Condition	Testing Add Account Functionality with DOB_year = CURRENT_YEAR - 100 (lower BV)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_year</li><li>• Age</li></ul>	<ul style="list-style-type: none"><li>-&gt; CURRENT_YEAR - 100</li><li>-&gt; 100</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 46. Test case 46

Test case no.	Test Case 46	
Test Condition	Testing Add Account Functionality with DOB_year = CURRENT_YEAR (higher BV)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• DOB_year</li><li>• Age</li></ul>	<ul style="list-style-type: none"><li>-&gt; CURRENT_YEAR</li><li>-&gt; 0</li></ul>
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 47. Test case 47

Test case no.	Test Case 47	
Test Condition	Testing Add Account Functionality with Educational Status = DEFAULT (lower BV - 1)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• educational_status</li></ul>	-> DEFAULT_Status
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 48. Test case 48

Test case no.	Test Case 48	
Test Condition	Testing Add Account Functionality with Educational Status = higher BV +1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• educational_status</li></ul>	-> 7
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 49. Test case 49

Test case no.	Test Case 49	
Test Condition	Testing Add Account Functionality with Educational Status = PHD_Holder (higher BV)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• educational_status</li></ul>	-> PHD_Holder
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 50. Test case 50

Test case no.	Test Case 50	
Test Condition	Testing Add Account Functionality with Educational Status = Student (lower BV)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• educational_status</li></ul>	-> Student
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 51. Test case 51

Test case no.	Test Case 51	
Test Condition	Testing Add Account Functionality with gender = Max + 1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• gender</li></ul>	-> 3
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 52. Test case 52

Test case no.	Test Case 52	
Test Condition	Testing Add Account Functionality with gender = DEFAULT_Gender (Min - 1)	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• gender</li></ul>	-> DEFAULT_Gender
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		



## 53. Test case 53

Test case no.	Test Case 53	
Test Condition	Testing Add Account Functionality with gender = Min	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• gender</li></ul>	-> Male
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 54. Test case 54

Test case no.	Test Case 54	
Test Condition	Testing Add Account Functionality with gender = Max	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• gender</li></ul>	-> Female
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 55. Test case 55

Test case no.	Test Case 55	
Test Condition	Testing Add Account Functionality with username length = min -1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User_name</li></ul>	-> Hamas12
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 56. Test case 56

Test case no.	Test Case 56	
Test Condition	Testing Add Account Functionality with username length = max +1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User_name</li></ul>	-> HamasHamasHamasHamasHamasHamas123
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 57. Test case 57

Test case no.	Test Case 57	
Test Condition	Testing Add Account Functionality with username length = min	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User_name</li></ul>	-> Hamas123
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 58. Test case 58

Test case no.	Test Case 58	
Test Condition	Testing Add Account Functionality with username length = max	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• User_name</li></ul>	-> HamasHamasHamasHamasHamasHamas12
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 59. Test case 59

Test case no.	Test Case 59	
Test Condition	Testing Add Account Functionality with password length = min -1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password</li></ul>	-> Hamas12
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 60. Test case 60

Test case no.	Test Case 60	
Test Condition	Testing Add Account Functionality with password length = max +1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password</li></ul>	-> HamasHamasHamasHamasHamasHamas123
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		



## 61. Test case 61

Test case no.	Test Case 61	
Test Condition	Testing Add Account Functionality with password length = max	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password</li></ul>	-> HamasHamasHamasHamasHamasHamas12
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 62. Test case 62

Test case no.	Test Case 62	
Test Condition	Testing Add Account Functionality with password length = min	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password</li></ul>	-> Hamas123
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## 63. Test case 63

Test case no.	Test Case 63	
Test Condition	Testing Add Account Functionality with Password_Recheck length = min -1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password_Recheck</li></ul>	-> Hamas12
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 64. Test case 64

Test case no.	Test Case 64	
Test Condition	Testing Add Account Functionality with Password_Recheck length = max +1	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password_Recheck</li></ul>	-> HamasHamasHamasHamasHamasHamas123
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 65. Test case 65

Test case no.	Test Case 65	
Test Condition	Testing Add Account Functionality with Password mismatch	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Password</li><li>• Password_Recheck</li></ul>	<ul style="list-style-type: none"><li>-&gt; AllahAkbar</li><li>-&gt; Allahakbar1</li></ul>
Expected Outputs	The function should NOT Add the account to the database	
Actual Outputs	The function has NOT Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	MC/DC	
Other info.		

## 66. Test case 66

Test case no.	Test Case 66	
Test Condition	Testing Add Account Functionality with Educational Status = Faculty_Student	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• educational_status</li></ul>	-> Faculty_Student
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	MC/DC	
Other info.		

## 67. Test case 67

Test case no.	Test Case 66	
Test Condition	Testing DeleteAccount Functionality with Educational Status = PHD_Student	
Steps	<ul style="list-style-type: none"><li>• Add_Account(&amp;Test_Valid_User);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• educational_status</li></ul>	-> PHD_Student
Expected Outputs	The function should Add the account to the database	
Actual Outputs	The function has Added the account to the database	
Prerequisites	Database Reset to init state	
Technique	MC/DC	
Other info.		

## Delete Account Function

### 68. Test case 68

Test case no.	Test Case 68	
Test Condition	Testing Delete Account with Test user id = min -1	
Steps	<ul style="list-style-type: none"><li>Delete_Account(Test_id);</li><li>Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>Test_id</li></ul>	-> -1
Expected Outputs	The function should NOT affect the database and return false	
Actual Outputs	The function has NOT affected the database and return false	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		



## 69. Test case 69

Test case no.	Test Case 69	
Test Condition	Testing Delete Account with Test user id = max id + 1	
Steps	<ul style="list-style-type: none"><li>• Delete_Account(Test_id);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Test_id</li></ul>	-> MAX_USERS
Expected Outputs	The function should NOT affect the database and return false	
Actual Outputs	The function has affected the database and returned TRUE	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 70. Test case 70

Test case no.	Test Case 70	
Test Condition	Testing Delete Account with Test user id = max id + 2	
Steps	<ul style="list-style-type: none"><li>• Delete_Account(Test_id);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Test_id</li></ul>	-> MAX_USERS + 2
Expected Outputs	The function should NOT affect the database and return false	
Actual Outputs	The function has NOT affected the database and returned false	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 71. Test case 71

Test case no.	Test Case 71	
Test Condition	Testing Delete Account with Test user id = 0 (min)	
Steps	<ul style="list-style-type: none"><li>• Delete_Account(Test_id);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Test_id</li></ul>	->0
Expected Outputs	The function should NOT affect the database and return false	
Actual Outputs	The function has NOT affected the database and returned false	
Prerequisites	Database Reset to init state	
Technique	BVA / (MC/DC)	
Other info.		

## 72. Test case 72

Test case no.	Test Case 72	
Test Condition	Testing Delete Account with Test user id = Max	
Steps	<ul style="list-style-type: none"><li>• Delete_Account(Test_id);</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Test_id</li></ul>	->0
Expected Outputs	The function should affect the database and return TRUE	
Actual Outputs	The function has affected the database and returned TRUE	
Prerequisites	Database Reset to init state	
Technique	BVA	
Other info.		

## Login Test Cluster\_(MC/DC)

### Detect\_User\_Type Function

#### 73. Test case 73

Test case no.	Test Case 73	
Test Condition	Testing Detect_User_Type using AdminMohamedTarek	
Steps	<ul style="list-style-type: none"><li>Detect_User_Type();</li><li>Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>Console inputs</li></ul>	->0
Expected Outputs	The function should affect the database and return TRUE	
Actual Outputs	The function has returned AdminMohamedTarek	
Prerequisites		
Technique	MC/DC	
Other info.		

## 74. Test case 74

Test case no.	Test Case 74	
Test Condition	Testing Detect_User_Type using NormalUser	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Console inputs</li></ul>	->1
Expected Outputs	The function should return NormalUser	
Actual Outputs	The function has returned NormalUser	
Prerequisites		
Technique	MC/DC	
Other info.		

## 75. Test case 75

Test case no.	Test Case 75	
Test Condition	Testing Detect_User_Type using IncorrectLogin	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Console inputs</li></ul>	->2
Expected Outputs	The function should return IncorrectLogin	
Actual Outputs	The function has returned IncorrectLogin	
Prerequisites		
Technique	MC/DC	
Other info.		

## Verify\_Admin Function

### 76. Test case 76

Test case no.	Test Case 76	
Test Condition	Testing Verify_Admin using first time correctLogin	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Console inputs</li></ul>	->10203040\n
Expected Outputs	The function should return TRUE	
Actual Outputs	The function has returned TRUE	
Prerequisites		
Technique	MC/DC	
Other info.		



## 77. Test case 77

Test case no.	Test Case 77	
Test Condition	Testing Verify_Admin using second time correctLogin	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Console inputs</li></ul>	->10203041\n10203040\n
Expected Outputs	The function should return TRUE	
Actual Outputs	The function has returned TRUE	
Prerequisites		
Technique	MC/DC	
Other info.		

## 78. Test case 78

Test case no.	Test Case 78	
Test Condition	Testing Verify_Admin using second time correctLogin	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Console inputs</li></ul>	->10203041\n10203039\n10203040\n
Expected Outputs	The function should return TRUE	
Actual Outputs	The function should return TRUE	
Prerequisites		
Technique	MC/DC	
Other info.		

## 79. Test case 79

Test case no.	Test Case 79	
Test Condition	Testing Verify_Admin using three times wrong token	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Console inputs</li></ul>	->10203041\n10203039\n0203040\n
Expected Outputs	The function should return FALSE	
Actual Outputs	The function should return FALSE	
Prerequisites		
Technique	MC/DC	
Other info.		

## Verify\_User Function

### 80. Test case 80

Test case no.	Test Case 80	
Test Condition	Testing Verify_User with valid user and pass	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• UserName</li><li>• Password</li></ul>	<ul style="list-style-type: none"><li>-&gt; AdminUser3</li><li>-&gt; Edges_123</li></ul>
Expected Outputs	The function should return TRUE and return correct user id	
Actual Outputs	The function has returned TRUE and returned correct user id	
Prerequisites		
Technique	MC/DC	
Other info.		

## 81. Test case 81

Test case no.	Test Case 81	
Test Condition	Testing Verify_User with wrong user	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• UserName</li><li>• Password</li></ul>	<ul style="list-style-type: none"><li>-&gt; AdminUser10</li><li>-&gt; Edges_123</li></ul>
Expected Outputs	The function should return UserName_NotFound and return id = -1	
Actual Outputs	The function has returned UserName_NotFound and returned id = -1	
Prerequisites		
Technique	MC/DC	
Other info.		

## 82. Test case 82

Test case no.	Test Case 82	
Test Condition	Testing Verify_User with wrong pass	
Steps	<ul style="list-style-type: none"><li>• Detect_User_Type();</li><li>• Set the inputs provided</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• UserName</li><li>• Password</li></ul>	<ul style="list-style-type: none"><li>-&gt; AdminUser3</li><li>-&gt; Edges_1235</li></ul>
Expected Outputs	The function should return Password_incorrect and return id = -1	
Actual Outputs	The function has returned Password_incorrect and returned id = -1	
Prerequisites		
Technique	MC/DC	
Other info.		

# Admin Test Cluster

## 83. Test case 101

Test case no.	Test Case 101	
Test Condition	Admin register a valid User.	
Steps	<ul style="list-style-type: none"><li>• Start the application.</li><li>• Select Admin login.</li><li>• Enter the correct token.</li><li>• Enter add a new user</li><li>• Enter valid user data</li><li>• Quite the App</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Select Admin login</li><li>• Enter the correct token</li><li>• Enter add a new user</li><li>• Name</li><li>• Age</li><li>• DOB_day</li><li>• DOB_Month</li><li>• DOB_Year</li><li>• Educational_Status</li><li>• Gender</li><li>• UserName</li><li>• Password</li><li>• Password Recheck</li><li>• Enter Quit</li></ul>	<ul style="list-style-type: none"><li>-&gt; 0</li><li>-&gt; 10203040</li><li>-&gt; A</li><li>-&gt; Alsinwar</li><li>-&gt; 62</li><li>-&gt; 29</li><li>-&gt; 10</li><li>-&gt; 1962</li><li>-&gt; Graduate</li><li>-&gt; Male</li><li>-&gt; Testuser123</li><li>-&gt; TestPassword123</li><li>-&gt; TestPassword123</li><li>-&gt; Q</li></ul>
Expected Outputs	The DB should be updated with the previous inputs Correctly.	
Actual Outputs	The DB has been updated with the previous inputs Correctly.	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## 84. Test case 102

Test case no.	Test Case 101	
Test Condition	Admin Delete Existing User	
Steps	<ul style="list-style-type: none"><li>• Start the application.</li><li>• Select Admin login.</li><li>• Enter the correct token.</li><li>• Enter Delete a user</li><li>• Enter user ID</li><li>• Quite the App</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Select Admin login</li><li>• Enter the correct token</li><li>• Enter Delete a user</li><li>• Enter valid user ID</li><li>• Quite the App</li></ul>	<ul style="list-style-type: none"><li>-&gt; 0</li><li>-&gt; 10203040</li><li>-&gt; D</li><li>-&gt; 2</li><li>-&gt; Q</li></ul>
Expected Outputs	The DB should be updated without the deleted user.	
Actual Outputs	The DB has been updated without the deleted user.	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition.	
Other info.		



## 85. Test Case 103

Test case no.	Test Case 103	
Test Condition	Admin register an invalid User.	
Steps	<ul style="list-style-type: none"> <li>Start the application.</li> <li>Select Admin login.</li> <li>Enter the correct token.</li> <li>Enter add a new user</li> <li>Enter invalid User Data</li> <li>Quite the App</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>Select Admin login</li> <li>Enter the correct token</li> <li>Enter add a new user</li> <li>Name</li> <li>Age</li> <li>DOB_day</li> <li>DOB_Month</li> <li>DOB_Year</li> <li>Educational_Status</li> <li>Gender</li> <li>UserName</li> <li>Password</li> <li>Password Recheck</li> <li>Enter Quit</li> </ul>	-> 0 -> 10203040 -> A -> Alsinwar -> 62 -> 29 -> 10 -> 1962 -> Graduate -> Male -> Testuser123 -> <b>TestPassword123</b> -> <b>TestPassword</b> -> Q
Expected Outputs	The DB should not be updated with the previous inputs.	
Actual Outputs	The DB has not been updated with the previous inputs.	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## 86. Test Case 104

Test case no.	Test Case 104	
Test Condition	Admin register an non existent User.	
Steps	<ul style="list-style-type: none"> <li>• Start the application.</li> <li>• Select Admin login.</li> <li>• Enter the correct token.</li> <li>• Enter delete a user</li> <li>• Enter an invalid user ID</li> <li>• Quite the App</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>• Select Admin login</li> <li>• Enter the correct token</li> <li>• Enter Delete a user</li> <li>• Enter invalid user ID</li> <li>• Enter Quit</li> </ul>	-> 0 -> 10203040 -> D -> <b>5</b> -> Q
Expected Outputs	The DB should remain unchanged.	
Actual Outputs	The DB has not been changed.	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## Normal User Test Cluster

### 87. Test Case 105

Test case no.	Test Case 105	
Test Condition	Normal User Create a valid account..	
Steps	<ul style="list-style-type: none"><li>• Start the application.</li><li>• Select Normal User.</li><li>• Enter Create a new account</li><li>• Enter valid user data</li><li>• Quite the App</li></ul>	
Inputs	<ul style="list-style-type: none"><li>• Select Normal User login</li><li>• Enter Create a new account</li><li>• Name</li><li>• Age</li><li>• DOB_day</li><li>• DOB_Month</li><li>• DOB_Year</li><li>• Educational_Status</li><li>• Gender</li><li>• UserName</li><li>• Password</li><li>• Password Recheck</li><li>• Enter Quit</li></ul>	<ul style="list-style-type: none"><li>-&gt; 1</li><li>-&gt; C</li><li>-&gt; Alsinwar</li><li>-&gt; 62</li><li>-&gt; 29</li><li>-&gt; 10</li><li>-&gt; 1962</li><li>-&gt; Graduate</li><li>-&gt; Male</li><li>-&gt; Testuser123</li><li>-&gt; TestPassword123</li><li>-&gt; TestPassword123</li><li>-&gt; Q</li></ul>
Expected Outputs	The DB should be updated with the previous inputs Correctly.	
Actual Outputs	The DB has been updated with the previous inputs Correctly.	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## 88. Test Case 106

Test case no.	Test Case 105	
Test Condition	Normal User Create a valid account.	
Steps	<ul style="list-style-type: none"> <li>Start the application.</li> <li>Select Normal User.</li> <li>Enter Create a new account</li> <li>Enter invalid user data</li> <li>Quite the App</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>Select Normal User login</li> <li>Enter Create a new account</li> <li>Name</li> <li>Age</li> <li>DOB_day</li> <li>DOB_Month</li> <li>DOB_Year</li> <li>Educational_Status</li> <li>Gender</li> <li>UserName</li> <li>Password</li> <li>Password Recheck</li> <li>Enter Quit</li> </ul>	-> 1 -> C -> Alsinwar -> 62 -> 29 -> 10 -> 1962 -> Graduate -> Male -> Testuser123 -> TestPassword123 -> TestPassword -> Q
Expected Outputs	The DB should not be updated with the previous inputs.	
Actual Outputs	The DB has not been updated with the previous inputs.	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## 89. Test Case 107

Test case no.	Test Case 107	
Test Condition	Normal User Change Password.	
Steps	<ul style="list-style-type: none"> <li>• Start the Application</li> <li>• Select Normal login</li> <li>• Enter Login to your account</li> <li>• UserName</li> <li>• Password</li> <li>• Enter Change Your Password</li> <li>• Enter Your Current Password</li> <li>• Enter A new Password</li> <li>• Enter Password Recheck</li> <li>• Quit user menu</li> <li>• Quite the App</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>• Select Normal login</li> <li>• Enter Login to your account</li> <li>• UserName</li> <li>• Password</li> <li>• Enter Change Your Password</li> <li>• Enter Your Current Password</li> <li>• Enter A new Password</li> <li>• Password Recheck</li> <li>• Enter Quit user menu</li> <li>• Enter Quit</li> </ul>	-> 1 -> L -> AdminUser1 -> Edges123 -> C -> Edges123 -> Testing123 -> Testing123 -> Q -> Q
Expected Outputs	The DB should be updated with the new password correctly	
Actual Outputs	The DB has been updated with the new password correctly	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## 90. Test Case 108

Test case no.	Test Case 107	
Test Condition	Normal User attempts to change Password using invalid new password.	
Steps	<ul style="list-style-type: none"> <li>• Start the Application</li> <li>• Select Normal login</li> <li>• Enter Login to your account</li> <li>• UserName</li> <li>• Password</li> <li>• Enter Change Your Password</li> <li>• Enter Your Current Password</li> <li>• Enter A new Password</li> <li>• Enter mismatching Password Recheck</li> <li>• Enter Quit user menu</li> <li>• Enter Quit</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>• Select Normal Login</li> <li>• Enter Login to your account</li> <li>• UserName</li> <li>• Password</li> <li>• Enter Change Your Password</li> <li>• Enter Your Current Password</li> <li>• Enter A new Password</li> <li>• Password Recheck</li> <li>• Enter Quit user menu</li> <li>• Enter Quit</li> </ul>	-> 1 -> L -> AdminUser1 -> Edges123 -> C -> Edges123 -> <b>Testing123</b> -> <b>Testing</b> -> Q -> Q
Expected Outputs	The DB should not be updated with the new password	
Actual Outputs	The DB has not been updated with the new password	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		

## 91. Test Case 109

Test case no.	Test Case 109	
Test Condition	Normal User Login and Reserve Course	
Steps	<ul style="list-style-type: none"> <li>• Start the Application</li> <li>• Select Normal login</li> <li>• Enter Login to your account</li> <li>• UserName</li> <li>• Password</li> <li>• Enter Reserve a course</li> <li>• Choose a valid Course</li> <li>• Enter Quit user menu</li> <li>• Enter Quit</li> </ul>	
Inputs	<ul style="list-style-type: none"> <li>• Select Normal login</li> <li>• Enter Login to your account</li> <li>• UserName</li> <li>• Password</li> <li>• Enter Reserve a course</li> <li>• Choose a valid Course</li> <li>• Enter Quit user menu</li> <li>• Enter Quit</li> </ul>	-> 1 -> L -> AdminUser1 -> Edges123 -> R -> 1 -> Q -> Q
Expected Outputs	The DB should be updated with the new Reserved Course	
Actual Outputs	The DB has been updated with the new Reserved Course	
Prerequisites	Database initialized.	
Technique	System test: Equivalence Partitioning / State Transition	
Other info.		