## **Black Box**

### UC1 – User Account Creation

Input parameters: First name, Last name, Email address, Password

**Black Box Input Value Types**

| Input field | Valid cases | Invalid cases |
| --- | --- | --- |
| First name | Alphanumeric (e.g. user123) | Empty |
| Last name | Alphanumeric (e.g. user123) | Empty |
| Email address | Valid format (e.g. user@mail.com) | Missing “@”, missing domain, email address is already registered |
| Password | Meets criteria (e.g. 12+ characters, uppercase letter, lowercase letter, number and a special character: Password123!) | Too short, all lowercase/ all uppercase, no special characters or numbers |

**Example Black Box Test Cases**

| Test case no. | Test Input | Expected Output | Actual Output | Pass |
| --- | --- | --- | --- | --- |
| 1 | **(All valid inputs)**  First name: “test”  Last name: “user1”  Email: “user1@mail.com  Password: “Password123!” | Send verification code to email address | Send verification code to email address | Yes |
| 2 | **(All valid except First name or Last name)**  Username: “” | System notify “Please fill out this field” | System notify “Please fill out this field” | Yes |
| 3 | **(All valid except Email address)**  Email: “user1mail.com” | System notify “Please match the requested format” | System notify “Please match the requested format” | Yes |
| 4 | **(All valid except Password)**  Password: “short” | System notify “Your password must contain 12 or more characters” | System notify “Your password must contain 12 or more characters” | Yes |

### UC2 – User Login

Input parameters: Email address, Password

Maximum failed attempts allowed: 3

**Black Box Input Value Types**

| Input field | Valid cases | Invalid cases |
| --- | --- | --- |
| Email address | Registered email address | Not registered, invalid format |
| Password | Matches the password stored in the database | Incorrect password |

**Example Black Box Test Cases**

| Test case no. | Test Input | Expected Output | Actual Output | Pass |
| --- | --- | --- | --- | --- |
| 1 | **(Both valid inputs)**  Email address: “user1@gmail.com”  Password: “Password123!” | Successful login attempt | Successful login attempt | Yes |
| 2 | **(Invalid Email Address)**  Email address: “user1mail.com” | System notify “Please match the requested format.” | System notify “Please match the requested format.” | Yes |
| 3 | **(Unregistered Email Address)**  Email address: “nonexistentuser@mail.com” | System notify “No account found with this identifier. Please check and try again.” | System notify “No account found with this identifier. Please check and try again.” | Yes |
| 4 | **(Invalid Password)**  Password: “Wrongpassword” | System notify “The password you entered is incorrect. Please try again.” | System notify “The password you entered is incorrect. Please try again.” | Yes |
| 5 | **(After the 4th failed attempt)**  Password: “wrongpasswordx3” | System notify “Too many requests. Please try again in a bit.” | System notify “Too many requests. Please try again in a bit.” | Yes |

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### UC3 – Name Change

Input parameters: First name, Last name

**Black box input value types**

| Input field | Valid cases | Invalid cases |
| --- | --- | --- |
| First name | Alphanumeric (e.g. user123) | Empty |
| Last name | Alphanumeric (e.g. user123) | Empty |

**Example Black Box Test Cases**

| Test case no. | Test Input | Expected Output | Actual Output | Pass |
| --- | --- | --- | --- | --- |
| 1 | **(Both valid inputs)**  First name: “test”  Last name: “user2” | Name successfully changed | Name successfully changed | Yes |
| 2 | **(Either field is empty)**  First name: “test”  Last name: “”  **OR**  First name: “”  Last name: “user2” | User is unable to click “Continue”. | User is unable to click “Continue”. | Yes |
| 3 | **(Both fields are exactly the same as before)** First name: “test”  Last name: “user1” | User is unable to click “Continue”. | User is unable to click “Continue”. | Yes |

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### UC4 – Password Change

Input parameters: New Password, Confirm New Password

**Black Box Input Value Types**

| Input field | Valid cases | Invalid cases |
| --- | --- | --- |
| New password | Meets criteria | Empty, does not meet criteria |
| Confirm new password | Matches new password | Mismatch with new password |

**Example Black Box Test Cases**

| Test case no. | Test Input | Expected Output | Actual Output | Pass |
| --- | --- | --- | --- | --- |
| 1 | **(All valid inputs)**  New Password: “Password123!”  Confirm New Password: “Password123!” | Password updated  successfully! | Password updated  successfully! | Yes |
| 2 | **(All valid except New Password)**  New Password: “short” | System notify “Failed to update password” | System notify “Failed to update password” | Yes |
| 3 | **(All valid except Confirm New Password)**  New Password: “Password123!”  Confirm New Password: “Password321!” | System notify “New passwords do not match” | System notify “New passwords do not match” | Yes |

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### UC5 - Password reset

Input parameters: Email Address, New password, Confirm password

| Input field | Valid input types | Invalid input types |
| --- | --- | --- |
| Email Address | Valid format (e.g. user@mail.com) | Missing “@”, missing domain |
| New password | Meets criteria | Empty, does not meet criteria |
| Confirm password | Matches new password | Mismatch with new password |

| No | Test Input | Expected Output | Actual Output | Pass |
| --- | --- | --- | --- | --- |
| 1 | **(All valid inputs)**  Email Address: user1@mail.com  New Password: “Password123!”  Confirm Password: “Password123!” | Password updated  successfully! | Password updated  successfully! | Yes |
| 2 | **(All valid except Email Address)**  Email Address: “user1mail.com” | System notify “Please match the requested format.” | System notify “Please match the requested format.” | Yes |
| 3 | **(All valid except New Password)**  New Password: “short” | System display error based on requirement that has not been met | System display error based on requirement that has not been met | Yes |
| 4 | **(All valid except Confirm New Password)**  New Password: “Password123!”  Confirm New Password: “Password321!” | System notify “Passwords don’t match” | System notify “Passwords don’t match” | Yes |

## White Box

### UC001 - User Account Creation

Basis set of paths:

Path 1: 1, 2, 3, 6, 8, 9

Path 2: 1, 2, 4, 1

Path 3: 1, 2, 3, 5, 1

Path 4: 1, 2, 3, 6, 7, 1

Path 5: 1, 2, 3, 6, 8, 10, 1

Test cases:

Path 1: User is able to sign up a new account into the database successfully

Path 2: User tried submitting form without filling out “First name” or “Last name”

Path 3: Format of Email Address inputted is invalid

Path 4: Email Address inputted has already been registered

Path 5: Password inputted does not meet necessary requirements

Cyclomatic Complexity: |decision points| + 1 = 4 + 1 = 5

### UC002 - User Login

Basis set of paths:

Path 1: 1, 2, 3, 6, 8, 9

Path 2: 1, 2, 5, 1

Path 3: 1, 2, 3, 7, 1

Path 4: 1, 2, 3, 6, 8, 10, 1

Path 5: 1, 2, 3, 6, 8, 10, 11

Test cases:

Path 1: Successful login. Redirect to application home screen

Path 2: Format of Email Address inputted is invalid

Path 3: Email Address inputted has not been registered before

Path 4: Incorrect password inputted (Less than 3 failed attempts)

Path 5: Incorrect password inputted (After 3rd failed attempt)

Cyclomatic Complexity: |decision points| + 1 = 4 + 1 = 5

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### UC003 - Name Change

Basis set of paths:

Path 1: 1, 2, 4, 6, 7

Path 2: 1, 2, 3, 1

Path 3: 1, 2, 4, 5, 1

Test cases:

Path 1: Name successfully changed

Path 2: “First name” is not filled out

Path 3: “Last name” is not filled out

Cyclomatic Complexity: |decision points| + 1 = 2 + 1 = 3

### UC004 - Password Change

Basis set of paths:

Path 1: 1, 2, 4, 6

Path 2: 1, 2, 3, 1

Path 3: 1, 2, 4, 5, 1

Test cases:

Path 1: Password successfully changed

Path 2: New Password inputted does not meet the requirements

Path 3: “New Password” and “Confirm New Password” fields do not match

Cyclomatic Complexity: |decision points| + 1 = 2 + 1 = 3

### UC005 - Password Reset

Basis set of paths:

Path 1: 1, 2, 3, 4, 5, 6, 7, 8, 13, 14, 15

Path 2: 1, 2, 3, 16, 1

Path 3: 1, 2, 3, 4, 5, 6, 7, 9, 10, 1

Path 4: 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 1

Test cases:

Path 1: Password successfully changed

Path 2: Format of Email Address inputted is invalid

Path 3: New Password inputted does not meet the requirements

Path 4: “New Password” and “Confirm New Password” fields do not match

Cyclomatic Complexity: |decision points| + 1 = 3 + 1 = 4

### UC006 - Search for Car Park

Basis set of paths:

Path 1: 1, 2, 3, 4, 5, 1

Path 2: 1, 2, 3, 4, 6

Test cases:

Path 1: User’s search criteria are valid

Path 2: User’s search criteria are invalid

Cyclomatic Complexity: |decision points| + 1 = 1 + 1 = 2

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