**Black Box testing**

**Search page**

**Equivalent Classes (EC) for Search Bar**

|  |  |
| --- | --- |
| Valid EC | 3 to 60 characters (Inclusive) |
| Invalid EC | 0, 1 or 2 characters  61 to 65 characters |

**Boundary Values (BV) for Search Bar**

|  |  |  |
| --- | --- | --- |
| Valid EC (3 to 50 characters) | Two Boundary Values | 3 (Lower Boundary) |
| 60 (Upper Boundary) |
| Lower Boundary (3) | ~~2~~, 3, ~~4~~ |
| Upper Boundary (50) | ~~59~~, 60, ~~61~~ |
| Invalid EC (0, 1, or 2 characters) | Two Boundary Values | 0 (Lower Boundary) |
| 2 (Upper Boundary) |
| Lower Boundary (0) | -1, 0, ~~1~~ |
| Upper Boundary (2) | ~~1~~, 2, ~~3~~ |
| Invalid EC (51 to 55 characters) | Two Boundary Values | 61 (Lower Boundary) |
| 65 (Upper Boundary) |
| Lower Boundary (51) | ~~60~~, 61, ~~62~~ |
| Upper Boundary (55) | ~~64~~, 65, 66 |

**Test Cases to be tested**

Valid EC: 3 and 60 characters

Invalid EC: 0, 2, 61, 65 and 66 characters

Note that -1 has been omitted as search term length cannot be negative

**Valid Test Cases**

|  |  |  |  |
| --- | --- | --- | --- |
| Search Term | Length | Expected Output | Actual Output |
| abc | 3 | System displays list of anime cards as search results | System displays list of anime cards as search results |
| Demon Slayer: Kimetsu no Yaiba Entertainment District Arc Ep | 60 | System displays list of anime cards as search results | System displays list of anime cards as search results |

**Invalid Test Cases**

|  |  |  |  |
| --- | --- | --- | --- |
| Search Term | Length | Expected Output | Actual Output |
|  | 0 | System display does not change from default or existing search results | System display does not change from default or existing search results |
| go | 2 | System prompts the user to enter more characters into the search results | System prompts the user to enter more characters into the search results |
| Demon Slayer: Kimetsu no Yaiba Entertainment District Arc Epi | 61 | System prompts the user to enter less characters into the search results | System prompts the user to enter more characters into the search results |
| Demon Slayer: Kimetsu no Yaiba Entertainment District Arc Episode | 65 | System prompts the user to enter more characters into the search results | System prompts the user to enter more characters into the search results |
| Demon Slayer: Kimetsu no Yaiba Entertainment District Arc Episodes | 66 | After 65 characters have been entered, the system will not enter any more characters that are typed in | After 65 characters have been entered, the system will not enter any more characters that are typed in |

**Log In page**

**Equivalent Classes (EC) for Email Addresses**

|  |  |
| --- | --- |
| Valid EC | A valid email address that can be located in our database  E.g. cooperloke@gmail.com |
| Invalid EC | Email address without the ‘@’ symbol  E.g. testinggmail.com  Email address without the ‘.com’  E.g. testing@gmail  Email address without the domain name  E.g. testing.com  Email is not registered in the system  E.g. [notinsidedatabase@gmail.com](mailto:notinsidedatabase@gmail.com)  Invalid character in email address  E.g. example.some@gmail.com |

**Test Cases to be tested**

Valid EC: cooperloke@gmail.com

Invalid EC: testinggmail.com, testing@gmail, testing.com, [notinsidedatabase@gmail.com](mailto:notinsidedatabase@gmail.com), [example.some@gmail.com](mailto:example.some@gmail.com)

**Equivalent Class (EC) for Password Length**

|  |  |
| --- | --- |
| **Valid EC** | * 8 to 16 |
| **Invalid EC** | * 0 to 7 * 17 to 20 |

**Boundary Values (BV) for Password Length**

|  |  |  |
| --- | --- | --- |
| **Valid EC (8 to 16)** | Two Boundary Values | 8 (Lower Boundary) |
| 16 (Upper Boundary) |
| Lower Boundary (8) | ~~7~~, 8, ~~9~~ |
| Upper Boundary (16) | ~~15~~, 16, ~~17~~ |
| **Invalid EC (0 to 7)** | Two Boundary Values | 8 (Lower Boundary) |
| 16 (Upper Boundary) |
| Lower Boundary (0) | -1, 0, ~~1~~ |
| Upper Boundary (7) | ~~6~~, 7, ~~8~~ |
| **Invalid EC (17 to 20)** | Two Boundary Values | 17 (Lower Boundary) |
| 20 (Upper Boundary) |
| Lower Boundary (17) | ~~16,~~ 17, ~~18~~ |
| Upper Boundary (20) | ~~19~~, 20, ~~21~~ |

**Test Cases to be tested**

Valid EC: 8 and 16 characters

Invalid EC: 0, 7, 17, 20, and 21 characters

Note that -1 has been omitted as password length cannot be negative

**For our subsequent test cases, we assume password is always correct.**

**Test Cases 1: Invalid Email + Valid Password Length**

|  |  |  |  |
| --- | --- | --- | --- |
| **Email** | **Password Length** | **Expected Result** | **Actual Output** |
| example.com | 8 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |
| example.com | 16 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |
| [example.some@mail.com](mailto:example.some@mail.com) | 8 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |
| [example.some@mail.com](mailto:example.some@mail.com) | 16 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| example@.com | 8 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |
| example@.com | 16 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |
| [notregistered@mail.com](mailto:notregistered@mail.com) | 8 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |
| [notregistered@mail.com](mailto:notregistered@mail.com) | 16 | System will flash error message “Invalid email address. Please try again” | System will flash error message “Invalid email address. Please try again” |

**Test Cases 2: Valid Email + Invalid Password Length**

|  |  |  |  |
| --- | --- | --- | --- |
| **Email** | **Password Length** | **Expected Result** | **Actual Output** |
| cooperloke@gmail.com | 0 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 7 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 17 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 20 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 21 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |

**Sign Up page**

**Equivalent Classes (EC) for Email Addresses**

|  |  |
| --- | --- |
| **Valid EC** | A valid email address  E.g. cooperloke@gmail.com |
| **Invalid EC** | Email address without the ‘@’ symbol  E.g. testinggmail.com  Email address without the ‘.com’  E.g. testing@gmail  Email address without the domain name  E.g. testing.com  Email is already registered in the system  E.g. [insidedatabase@gmail.com](mailto:notinsidedatabase@gmail.com)  Invalid character in email address  E.g. example.some@gmail.com |

**Test Cases to be tested**

Valid EC: cooperloke@gmail.com

Invalid EC: testinggmail.com, testing@gmail, testing.com, [notinsidedatabase@gmail.com](mailto:notinsidedatabase@gmail.com), [example.some@gmail.com](mailto:example.some@gmail.com)

**Equivalent Class (EC) for Password Length**

|  |  |
| --- | --- |
| **Valid EC** | * 8 to 16 |
| **Invalid EC** | * 0 to 7 * 17 to 20 |

**Boundary Values (BV) for Password Length**

|  |  |  |
| --- | --- | --- |
| **Valid EC (8 to 16)** | Two Boundary Values | 8 (Lower Boundary) |
| 16 (Upper Boundary) |
| Lower Boundary (8) | ~~7~~, 8, ~~9~~ |
| Upper Boundary (16) | ~~15~~, 16, ~~17~~ |
| **Invalid EC (0 to 7)** | Two Boundary Values | 8 (Lower Boundary) |
| 16 (Upper Boundary) |
| Lower Boundary (0) | -1, 0, ~~1~~ |
| Upper Boundary (7) | ~~6~~, 7, ~~8~~ |
| **Invalid EC (17 to 20)** | Two Boundary Values | 17 (Lower Boundary) |
| 20 (Upper Boundary) |
| Lower Boundary (17) | ~~16,~~ 17, ~~18~~ |
| Upper Boundary (20) | ~~19~~, 20, ~~21~~ |

**Test Cases to be tested**

Valid EC: 8 and 16 characters

Invalid EC: 0, 7, 17, 20, and 21 characters

Note that -1 has been omitted as password length cannot be negative

**Equivalent Class (EC) for “Confirm Password” Length**

|  |  |
| --- | --- |
| Valid EC | * Field entered in the “Confirm Password” section must be the same as the field entered in the “Password” section |
| Invalid EC | * Field entered in the “Confirm Password” section is not the same as the field entered in the “Password” section |

**Test Cases to be tested**

Valid EC: "password” entered in both the Password section and the Confirm Password section

Invalid EC: "password” entered in the Password section but “passw0rd” entered in the Confirm Password section

**For our subsequent test cases, we assume password is always correct.**

**For test cases 3, we assume email address is always correct.**

**Test Cases 1: Invalid Email + Valid Password Length**

|  |  |  |  |
| --- | --- | --- | --- |
| **Email** | **Password Length** | **Expected Result** | **Actual Output** |
| example.com | 8 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| example.com | 16 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| [example.some@mail.com](mailto:example.some@mail.com) | 8 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| [example.some@mail.com](mailto:example.some@mail.com) | 16 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| example@.com | 8 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| example@.com | 16 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| [notregistered@mail.com](mailto:notregistered@mail.com) | 8 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |
| [notregistered@mail.com](mailto:notregistered@mail.com) | 16 | System will flash error message “Authentication failed, check your email and password or sign up” | System will flash error message “Authentication failed, check your email and password or sign up” |

**Test Cases 2: Valid Email + Invalid Password Length**

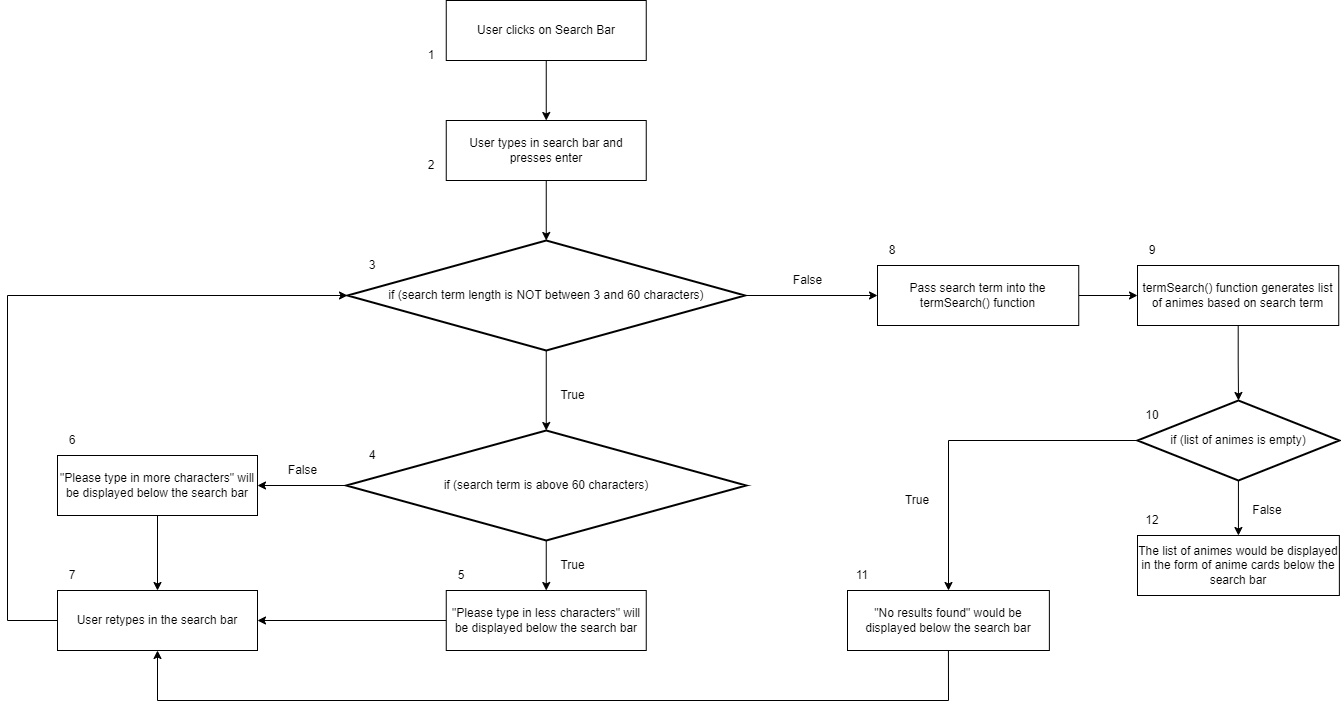
|  |  |  |  |
| --- | --- | --- | --- |
| **Email** | **Password Length** | **Expected Result** | **Actual Output** |
| cooperloke@gmail.com | 0 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 7 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 17 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 20 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |
| cooperloke@gmail.com | 21 | System will prompt the user to enter a password length of 8 to 16 | System will prompt the user to enter a password length of 8 to 16 |

**Test Cases 3: Valid Password + Different “Confirm Password”**

|  |  |  |  |
| --- | --- | --- | --- |
| **Password** | **"Confirm Password”** | **Expected Result** | **Actual Output** |
| password | passw0rd | System will prompt the user that the passwords entered are different | System will prompt the user that the passwords entered are different |

**White Box Testing**

**Search Page**

Cyclomatic Complexity

Taking Cyclomatic complexity: |decision points| + 1 = 3 + 1 = 4

Basic Paths

1. Baseline path: 1, 2, 3, 8, 9, 10, 12
2. Basic path 2: 1, 2, 3, 8, 9, 10, 11, 7, 3, 8, 9, 10, 12
3. Basic path 3: 1, 2, 3, 4, 5, 7, 3, 8, 9, 10, 12
4. Basic path 4: 1, 2, 3, 4, 6, 7, 3, 8, 9, 10, 12

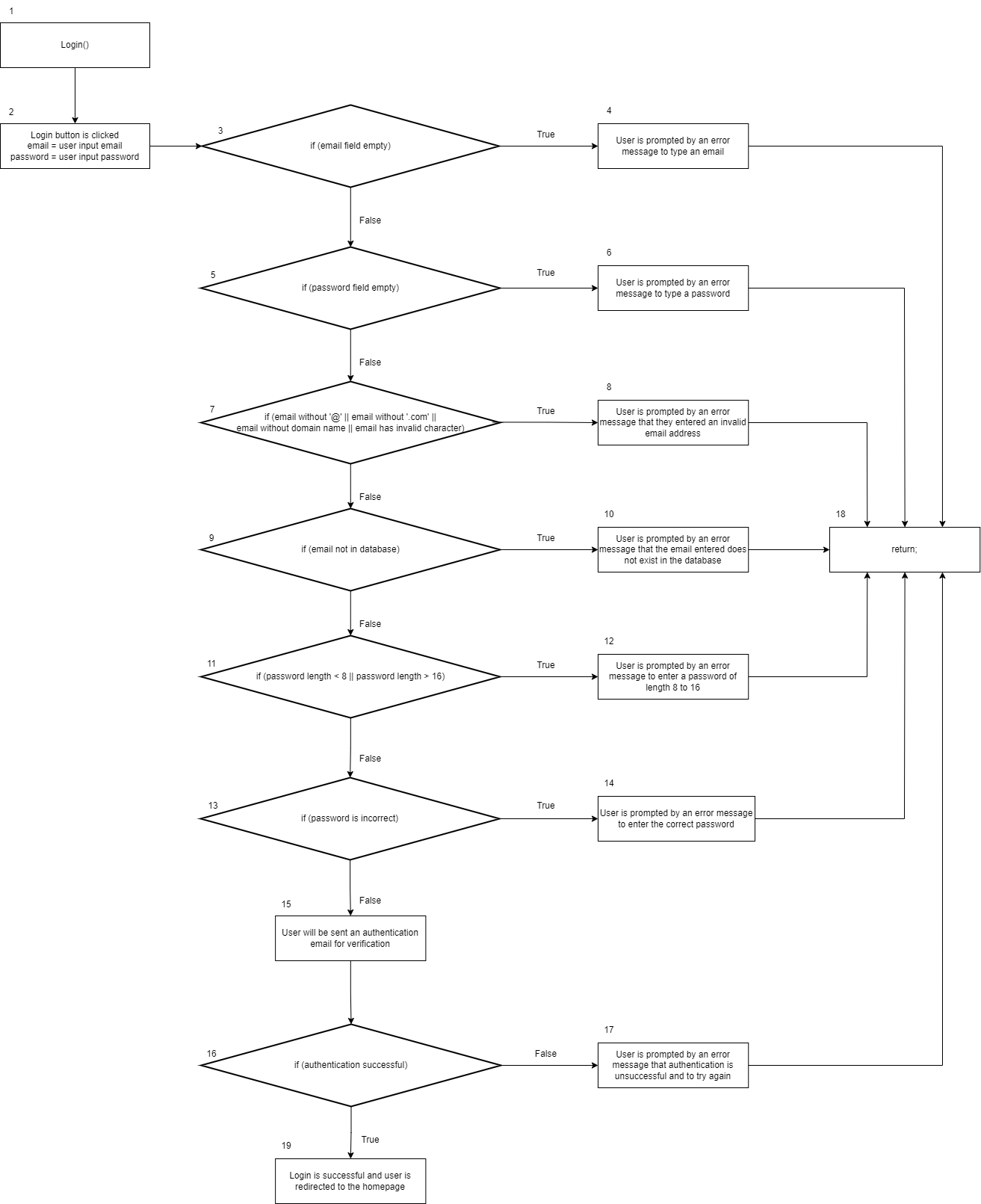
Test Cases

1. User types "Naruto” and press enter;
2. User types “abcdefghijklmnopqrstuvwxyz” and press enter;
3. User types “aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa” and press enter;
4. Use types “ab” and press enter;

Real Execution Paths

1. 1, 2, 3, 8, 9, 10, 12
2. 1, 2, 3, 8, 9, 10, 11, 7, 3, 8, 9, 10, 12
3. 1, 2, 3, 4, 5, 7, 3, 8, 9, 10, 12
4. 1, 2, 3, 4, 6, 7, 3, 8, 9, 10, 12

**Login Page**

Cyclomatic Complexity

Taking Cyclomatic complexity: |decision points| + 1 = 7 + 1 = 8

Basic Paths

1. Baseline path: 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 19
2. Basic path 2: 1, 2, 3, 4, 18
3. Basic path 3: 1, 2, 3, 5, 6, 18
4. Basic path 4: 1, 2, 3, 5, 7, 8, 18
5. Basic path 5: 1, 2, 3, 5, 7, 9, 10, 18
6. Basic path 6: 1, 2, 3, 5, 7, 9, 11, 12, 18
7. Basic path 7: 1, 2, 3, 5, 7, 9, 11, 13, 14, 18
8. Basic path 7: 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18

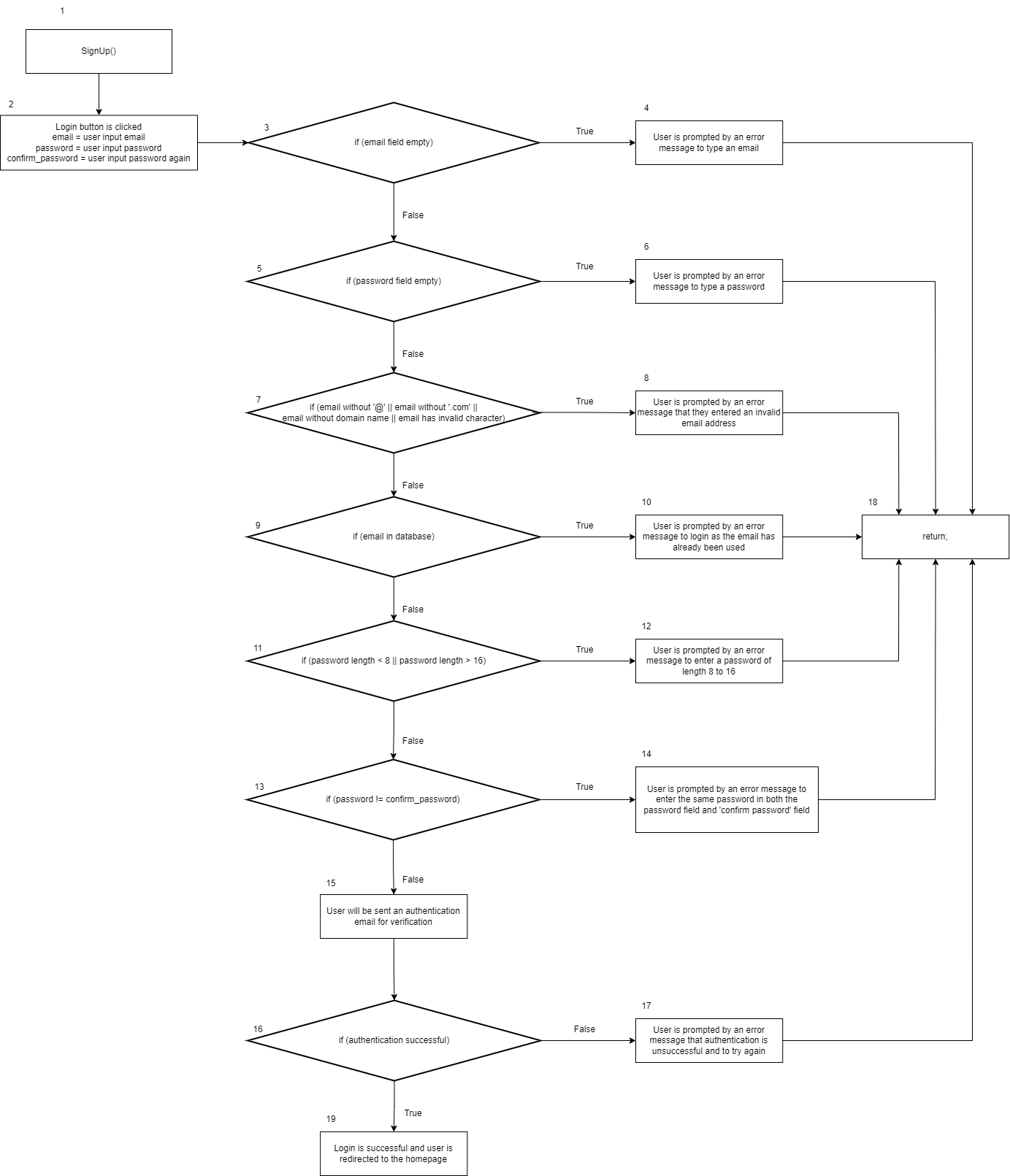
Test Cases

1. User types email: “cooperloke@gmail.com”, password: “12345678” (correct password), presses enter and clicks the authentication link;
2. User types email: “ ” and password: “12345678” and presses enter;
3. User types email: “cooperloke@gmail.com” and password: “ ” and presses enter;
4. User types email: “cooper.loke” and password: “12345678” and presses enter;
5. User types “notregistered@mail.com” and password: “12345678” press enter;
6. User types “cooperloke@gmail.com” and password: “1234” press enter;
7. User types “cooperloke@gmail.com”, password: “87654321” (wrong password) and presses enter;
8. User types email: “cooperloke@gmail.com”, password: “12345678” (correct password), presses enter but does not click the authentication link after 3 minutes;

Real Execution Paths

1. 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 19
2. 1, 2, 3, 4, 18
3. 1, 2, 3, 5, 6, 18
4. 1, 2, 3, 5, 7, 8, 18
5. 1, 2, 3, 5, 7, 9, 10, 18
6. 1, 2, 3, 5, 7, 9, 11, 12, 18
7. 1, 2, 3, 5, 7, 9, 11, 13, 14, 18
8. 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18

**Sign Up Page**

Cyclomatic Complexity

Taking Cyclomatic complexity: |decision points| + 1 = 7 + 1 = 8

Basic Paths

1. Baseline path: 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 19
2. Basic path 2: 1, 2, 3, 4, 18
3. Basic path 3: 1, 2, 3, 5, 6, 18
4. Basic path 4: 1, 2, 3, 5, 7, 8, 18
5. Basic path 5: 1, 2, 3, 5, 7, 9, 10, 18
6. Basic path 6: 1, 2, 3, 5, 7, 9, 11, 12, 18
7. Basic path 7: 1, 2, 3, 5, 7, 9, 11, 13, 14, 18
8. Basic path 7: 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18

Test Cases

1. User types email: “cooperloke@gmail.com”, password: “12345678”, confirm\_password: “12345678” presses enter and clicks the authentication link within 3 minutes;
2. User types email: “ ” and password: “12345678” and presses enter;
3. User types email: “cooperloke@gmail.com” and password: “ ” and presses enter;
4. User types email: “cooper.loke” and password: “12345678” and presses enter;
5. User types “notregistered@mail.com” and password: “12345678” press enter;
6. User types “cooperloke@gmail.com” and password: “1234” press enter;
7. User types “cooperloke@gmail.com”, password: “12345678”, confirm\_password: “87654321” and presses enter;
8. User types email: “cooperloke@gmail.com”, password: “12345678” (correct password), presses enter but does not click the authentication link after 3 minutes;

Real Execution Paths

1. 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 19
2. 1, 2, 3, 4, 18
3. 1, 2, 3, 5, 6, 18
4. 1, 2, 3, 5, 7, 8, 18
5. 1, 2, 3, 5, 7, 9, 10, 18
6. 1, 2, 3, 5, 7, 9, 11, 12, 18
7. 1, 2, 3, 5, 7, 9, 11, 13, 14, 18
8. 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18