**REQUIREMENT:**

**Identify the equivalence class partitions and boundary values for the following requirements:**

(1) log in – email (min 6 characters – max 31 characters)

(2) log in – password (min 6 characters – max 20 characters)

(3) log in – attemps (min 1 attept – max 3 attempts)

(4) item - number of total quantity per item (min 1 item – max 50 items)

(5) shopping bag – total items per shopping bag (min 1 item – max 100 items).

**SOLUTION:**

**1) LOG IN – EMAIL ADDRESS**

1. The classes will be as follows:

Class I: length < 6 => The email address is less than 6 characters in length (invalid)

Class II: length between [6,31] => The email address is 6 to 31 characters in length (valid)

Class III: length > 31 => The email address is greater than 31 characters in length (invalid)

2. Test data

|  |  |  |
| --- | --- | --- |
| The length of the email address | Expected results | Scenario |
| 4 | The email address is less than 6 characters in length | a |
| 8 | No change | b |
| 35 | The email address is greater than 31 characters in length | c |
| …….@yahoo.com | Error message | d |
|  | Error message | e |
| firstname.lastname@yahoo.com | No change | f |
| alina+pretrescu@yahoo.com | No change | g |
| 123456@gmail.com | No change | h |
| \_\_\_\_\_\_\_@yahoo.com | No change | i |
| alisa-ionescu@yahoo.com | No change | j |
| “abcdef”@yahoo.com | Error message | k |
| grigorieefersss | Error message | l |
| #@%^%#$@#@#.com | Error message | m |
| @yahoo.com | Error message | n |
| alina@gurbici@yahoo.com | Error message | o |
| alinagurbici@yahoo | Error message | p |
| alinffffsfsfsf@yahoo..com | Error message | q |
| ALINA.BH@yahoo.com | No change | r |
| jfwfwciinknknknn@yahoo.com | No change | s |

3. Boundaries:

[0, 5] [6, 31] [32, ]

|  |  |
| --- | --- |
| Boundary | Expected results |
| 5 | The email address is less than 6 characters in length |
| 6 | No change |
| 31 | No change |
| 32 | The email address is greater than 31 characters in length |

**2) LOG IN - PASSWORD**

1. The classes will be as follows:

Class I: length < 6 => The password is less than 6 characters in length (invalid)

Class II: length between [6, 20] => The password is 6 to 20 characters in length (valid)

Class III: length > 20 => The password is greater than 20 characters in length (invalid)

2. Test data

|  |  |  |
| --- | --- | --- |
| The length of the password | Expected results | Scenario |
| 3 | The password is less than 6 characters in length | a |
| 10 | No change | b |
| 26 | The password is greater than 20 in length | c |
| …….. | Error message | d |
|  | Error message | e |
| 123..fsfwfwfw | No change | f |
| efwfw+5545 | No change | g |
| 234567 | No change | h |
| \_\_\_\_\_\_\_ | No change | i |
| ---3newkffw | No change | j |
| “234567” | No change | k |
| $$%%^^&&## | No change | l |
| ABCDEFERDS | No change | m |
| ffsfjdnvsdkvndlvnf | No change | n |

3. Boundaries:

[0, 5] [6, 20] [21, ]

|  |  |
| --- | --- |
| Boundary | Expected results |
| 5 | The password is less than 6 characters in length |
| 6 | No change |
| 20 | No change |
| 21 | The password is greater than 20 characters in length |

**3) LOG IN -ATTEMPTS**

1. The classes will be as follows:

Class I: number attempts < 1 => The number of attempts is less than 1 (valid)

Class II: number attempts between [1,3] => The number of attempts is 1 to 3 (valid)

Class III: number attempts > 3 => The number of attempts is greater than 3 (invalid)

2. Test data

|  |  |  |
| --- | --- | --- |
| The number of attempts | Expected results | Scenario |
| 0 | The number of attempts is less than 1 | a |
| 2 | No change | b |
| 5 | The number of attempts is greater than 3 | c |

3. Boundaries:

[0, 1) [1, 3] [4, ]

|  |  |
| --- | --- |
| Boundary | Expected results |
| 0 | The number of attempts is less than 1 |
| 1 | No change |
| 3 | No change |
| 4 | The number of attempts is greater than 3 |

**4) ITEM – QUANTITY / ITEM**

1. The classes will be as follows:

Class I: quantity/item < 1 => The quantity/item is less than 1 (invalid)

Class II: quantity/item between [1,50] => The quantity/item is 1 to 50 (valid)

Class III: quantity/item > 50 => The quantity/item is greater than 50 (invalid)

2. Test data

|  |  |  |
| --- | --- | --- |
| The quantity/item | Expected results | Scenario |
| 0 | The quantity/item is less than 1 | a |
| 26 | No change | b |
| 59 | The quantity/item is greater than 50 | c |
| 2,5 | Error message | d |
| Ibd | Error message | e |

3. Boundaries:

[0, 1) [1, 50] [51, ]

|  |  |
| --- | --- |
| Boundary | Expected results |
| 0 | The quantity/item is less than 1 |
| 1 | No change |
| 50 | No change |
| 51 | The quantity/item is greater than 50 |

**5) SHOPPING BAG – TOTAL ITEMS / SHOPPING BAG**

1. The classes will be as follows:

Class I: total items/shopping bag < 1 => Total items/shopping bag is less than 1 (valid)

Class II: total items/shopping bag between [1,100] => Total items/shopping bag is 1 to 100 (valid)

Class III: total items/shopping bag > 100 => Total items/shopping bag is greater than 100 (invalid)

2. Test data

|  |  |  |
| --- | --- | --- |
| Total items/shopping bag | Expected results | Scenario |
| 0 | Total items/shopping bag is less than 1 | a |
| 88 | No change | b |
| 116 | Total items/shopping bag is greater than 100 | c |

3. Boundaries:

[0, 1) [1, 100] [101, ]

|  |  |
| --- | --- |
| Boundary | Expected results |
| 0 | Total items/shopping bag is less than 1 |
| 1 | No change |
| 100 | No change |
| 101 | Total items/shopping bag is greater than 100 |

**6) SUMMARY**

|  |  |  |
| --- | --- | --- |
| Scenario | Derived Equivalence classes | Test Data |
| 1. | The email address is less than 6 characters in length (invalid) | abc@yahoo.com |
| 2. | The email address is 6 to 31 characters in length (valid) | abcdefg12@yahoo.com |
| 3. | The email address is greater than 31 characters in length (invalid) | fjfjfjfjfjddjdjdjdjdjajajajjssdjdjdjdjdjsjsjsjsj@yahoo.com |
| 4. | The email address with special characters (invalid) | ……..@yahoo.com |
| 5. | No email address entered (invalid) |  |
| 6. | The email address contains dot in the address field (valid) | firstname.lastname@yahoo.com |
| 7. | The email address contains plus sign (valid) | alina+pretrescu@yahoo.com |
| 8. | The email address contains digits (valid) | 123456@gmail.com |
| 9. | The email address contains underscore (valid) | \_\_\_\_\_\_\_@yahoo.com |
| 10. | The email address contains dash (valid) | alisa-ionescu@yahoo.com |
| 11. | The email address with quotes around (invalid) | “abcdef”@yahoo.com |
| 12. | The email address with missing @ sign (invalid) | grigorieefersss |
| 13. | The email address contains garbage (invalid) | #@%^%#$@#@#.com |
| 14. | The email address with missing username (invalid) | @yahoo.com |
| 15. | The email address contains 2 @ signs (invalid) | alina@gurbici@yahoo.com |
| 16. | The email address with missing top level domain(.com, .net, .org) (invalid) | alinagurbici@yahoo |
| 17. | The email address with multiple dot in the domain portion (invalid) | alinffffsfsfsf@yahoo..com |
| 18. | The email address with uppercase (valid) | ALINA.BkdfqH@yahoo.com |
| 19. | The email address with lowercase (valid) | jfwfwciinknknknn@yahoo.com |
| 20. | The password is less than 6 characters in length (invalid) | 12345 |
| 21. | The password is 6 to 20 characters in length (valid) | 123456789 |
| 22. | The password is greater than 20 characters in length (invalid) | 123456789123456789121dddfdfdf |
| 23. | The password with special characters (invalid) | …….. |
| 24. | No password entered (invalid) |  |
| 25. | The password contains dot in the password field (valid) | 123..fsfwfwfw |
| 26. | The password contains plus sign (valid) | efwfw+5545 |
| 27. | The password contains digits (valid) | 234567 |
| 28. | The password contains underscore (valid) | \_\_\_\_\_\_\_\_ |
| 29. | The password contains dash (valid) | ---3newkffw |
| 30. | The password contains quotes around (valid) | “234567” |
| 31. | The password contains garbage (valid) | $$%%^^&&## |
| 32. | The password with uppercase (valid) | ABCDEFERDS |
| 33. | The password with lowercase (valid) | ffsfjdnvsdkvndlvnf |
| 34. | The number of attempts is less than 1 (valid) | 0 |
| 35. | The number of attempts is 1 to 3 (valid) | 2 |
| 36. | The number of attempts is greater than 3 (invalid) | 7 |
| 37. | The quantity/item is less than 1 (invalid) | 0 |
| 38. | The quantity/item is 1 to 50 (valid) | 42 |
| 39. | The quantity/item is greater than 50 (invalid) | 77 |
| 40. | The quantity with decimal value (invalid) | 2,5 |
| 41. | The quantity with character (invalid) | ibd |
| 42. | Total items/shopping bag is less than 1 (valid) | 0 |
| 43. | Total items/shopping bag is 1 to 100 (valid) | 56 |
| 44. | Total items/shopping bag is greater than 100 (invalid) | 111 |