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**Software Engineering IA 2**

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**Batch: D – 1**

**Q.1) Write Test Cases for Registration Form based on following Scenarios in the format shared:**

1. Verify that the Registration form contains Username, First Name, Last Name, Password, Confirm Password, Email Id, Phone number, Date of birth, Gender, Location, Terms of use, Submit, Login (If you already have an account)
2. Verify that tab functionality is working properly or not
3. Verify that Enter/Tab key works as a substitute for the Submit button
4. Verify that all the fields such as Username, First Name, Last Name, Password and other fields have a valid placeholder
5. Verify that the labels float upward when the text field is in focus or filled (In case of floating label)
6. Verify that all the required/mandatory fields are marked with \* against the field
7. Verify that clicking on submit button after entering all the mandatory fields, submits the data to the server
8. Verify that system generates a validation message when clicking on submit button without filling all the mandatory fields.
9. Verify that entering blank spaces on mandatory fields lead to validation error
10. Verify that clicking on submit button by leaving optional fields, submits the data to the server without any validation error
11. Verify that case sensitivity of Username (usually Username field should not follow case sensitivity – ‘rajkumar’ & ‘RAJKUMAR’ acts same)
12. Verify that system generates a validation message when entering existing username
13. Verify that the character limit in all the fields (mainly username and password) based on business requirement
14. Verify that the username validation as per business requirement (in some application, username should not allow numeric and special characters)
15. Verify that the validation of all the fields are as per business requirement
16. Verify that the date of birth field should not allow the dates greater than current date (some applications have age limit of 18 in that case you have to validate whether the age is greater than or equal to 18 or not)
17. Verify that the validation of email field by entering incorrect email id
18. Verify that the validation of numeric fields by entering alphabets and characters
19. Verify that leading and trailing spaces are trimmed after clicking on submit button
20. Verify that the “terms and conditions” checkbox is unselected by default (depends on business logic, it may be selected or unselected)
21. Verify that the validation message is displayed when clicking on submit button without selecting “terms and conditions” checkbox
22. Verify that the password is in encrypted form when entered
23. Verify whether the password and confirm password are same or not

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| **Step** | **Test Steps** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** | **Notes** |
| 1 | Verify that the Registration form contains all fields and buttons | |  | | --- | |  |  |  | | --- | | "username": "romill96", "firstname": "Romil", "lastname": "Lodaya", "password": "StrongPass@456", "confirmpassword": "StrongPass@456", "emailid": [romil96@gmail.com](mailto:romil96@gmail.com) ,  "phonenumber": "9876001122", "dateofbirth": "1998-08-12", | | User should be able to register and be redirected to the login page | User is registered successfully and navigated to login page | Pass | Verified all fields |
| 2 | Verify tab functionality | Press TAB | |  | | --- | |  |  |  | | --- | | Cursor should move sequentially to the next input fields | | Cursor moves to the next input field | Pass | Tab functionality works |
| 3 | Verify Enter/Tab key submits form | Press ENTER | Form should submit successfully when Enter is pressed in the last field | Form is submitted and user registers successfully | Pass | Submission successful |
| 4 | Verify all fields have valid placeholders | Check each input field for placeholder text | All fields should display relevant placeholder text, e.g., Username: "Enter your username" | |  | | --- | | Each field has a relevant placeholder |  |  | | --- | |  | | Pass | Placeholders are correct |
| 5 | Verify labels float upward on focus | Click on each input field | |  | | --- | | Label should float upward when the field is focused or filled |  |  | | --- | |  | | |  | | --- | | Label floats upward as expected |  |  | | --- | |  | | Pass | Floating labels verified |
| 6 | Verify required fields are marked with \* | N/A | Required fields are marked with a \* symbol | |  | | --- | | Required fields are marked correctly |  |  | | --- | |  | | Pass | All required fields marked |
| 7 | Verify submission with all mandatory fields | Valid data in all mandatory fields | |  | | --- | | Form data should be submitted to the server |  |  | | --- | |  | | |  | | --- | | Data submitted successfully |  |  | | --- | |  | | Pass | Submission confirmed |
| 8 | Verify validation message for missing mandatory fields | Leave fields like Username, Password, etc., blank | |  | | --- | | Appropriate validation messages should display for each missing field |  |  | | --- | |  | | |  |  |  | | --- | --- | --- | | |  | | --- | | Validation message prompts "Please fill out required fields" |  |  | | --- | |  | |  |  | | --- | |  | | Pass | Error messages are shown |
| 9 | Verify validation error with blank spaces | Spaces in mandatory fields | |  | | --- | | Validation error appears for each field with blank spaces |  |  | | --- | |  | | |  | | --- | | Validation message prompts "Required fields cannot be empty" |  |  | | --- | |  | | Pass | Error messages are shown |
| 10 | Verify submission with optional fields empty | |  | | --- | | Enter mandatory fields, leave Location and Gender blank |  |  | | --- | |  | | |  | | --- | | Form should submit without validation errors |  |  | | --- | |  | | |  | | --- | | Data submitted successfully |  |  | | --- | |  | | Pass | Successful submission |
| 11 | Verify case sensitivity of Username | |  | | --- | | Username: "Romill96" and then "ROMILL96" |  |  | | --- | |  | | |  | | --- | | Username is treated as identical, regardless of case |  |  | | --- | |  | | |  | | --- | | Username is accepted, case-insensitive check passes |  |  | | --- | |  | | Pass | Case insensitivity confirmed |
| 12 | Verify validation message for existing Username | |  | | --- | | Username: "existingUser" (already in use) |  |  | | --- | |  | | |  | | --- | | System displays "Username already exists" |  |  | | --- | |  | | |  | | --- | | System message prompts "Username already exists" |  |  | | --- | |  | | Pass | Existing username error shown |
| 13 | Verify character limits in all fields | Username: "romill1234567890" (if limit is 15), Password: "mypass123456789012345" (if limit is 20) | |  | | --- | | System displays validation message for exceeding character limit |  |  | | --- | |  | | |  | | --- | | Message prompts "Exceeds character limit" |  |  | | --- | |  | | Pass | Character limit enforced |
| 14 | Verify Username validation rules | |  | | --- | | Username: "romil123!", "123romil", "!romil@" |  |  | | --- | |  | | |  | | --- | | Validation message appears for disallowed characters |  |  | | --- | |  | | |  | | --- | | Message prompts "Username contains invalid characters" |  |  | | --- | |  | | Pass | Username rules enforced |
| 15 | Verify field validations as per business rules | Invalid inputs | |  | | --- | | Validation errors appear for each invalid entry |  |  | | --- | |  | | |  | | --- | | Message prompts "Please enter valid information" |  |  | | --- | |  | | Pass | All validations verified |
| 16 | Verify Date of Birth field validation | |  | | --- | | DOB: "2030-01-01" (future), DOB: "2012-10-15" (if age limit is 18) |  |  | | --- | |  | | |  | | --- | | Validation message for invalid date or age restriction |  |  | | --- | |  | | |  | | --- | | Error prompts, “Invalid date or age restriction” |  |  | | --- | |  | | Pass | Age limit enforced |
| 17 | Verify email validation | Email: "emailtest", "romil@com", "userdomain.com" | |  | | --- | | Validation error should appear for invalid email format |  |  | | --- | |  | | |  | | --- | | Prompts, “Please enter a valid email” |  |  | | --- | |  | | Pass | Email validation works |
| 18 | Verify numeric fields validation | |  | | --- | | Phone: "abc123!", Phone: "123abc" |  |  | | --- | |  | | |  | | --- | | Validation message should indicate numeric-only input required |  |  | | --- | |  | | |  | | --- | | Error prompts, “Only numbers allowed” |  |  | | --- | |  | | Pass | Numeric validation enforced |
| 19 | Verify leading/trailing spaces trimming | |  | | --- | | Username: " romil96 ", Email: " test@example.com " |  |  | | --- | |  | | |  | | --- | | Leading/trailing spaces should be removed automatically |  |  | | --- | |  | | |  | | --- | | Trailing spaces are removed successfully |  |  | | --- | |  | | Pass | Spaces trimmed as expected |
| 20 | Verify terms checkbox default state | N/A | |  | | --- | | Checkbox should be unselected initially |  |  | | --- | |  | | |  | | --- | | Checkbox is unselected on initial load |  |  | | --- | |  | | Pass | Default state verified |
| 21 | Verify validation message for terms checkbox | |  | | --- | | Leave "Terms of Use" unchecked and click Submit |  |  | | --- | |  | | |  | | --- | | Validation message should display to select terms |  |  | | --- | |  | | |  | | --- | | System prompts, “Please accept terms to proceed” |  |  | | --- | |  | | Pass | Terms error message shown |
| 22 | Verify password is encrypted | |  | | --- | | Password: "MyPassword321" |  |  | | --- | |  | | |  | | --- | | Password should be displayed as masked text |  |  | | --- | |  | | |  | | --- | | Password masking is effective |  |  | | --- | |  | | Pass | Password encryption confirmed |
| 23 | Verify Password and Confirm Password match | |  | | --- | | Password: "Password321", Confirm Password: "Password322" |  |  | | --- | |  | | |  | | --- | | Validation message should display for mismatch |  |  | | --- | |  | | |  | | --- | | System prompts, “Passwords do not match” |  |  | | --- | |  | | Pass | Passwords do not match error |
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**Q.2) Write test case using ECP testing technique for Order Cancellation and Refund module.**

**1. Order Age Partitions**

* **Valid Classes:**
  + **EC1:** Orders within cancellation window (0-24 hours) — Relevant for Test Case 1.
  + **EC2:** Orders eligible for partial refund (24-72 hours) — Relevant for Test Case 2.
* **Invalid Classes:**
  + **EC3:** Orders beyond cancellation period (>72 hours) — Relevant for Test Case 7.
  + **EC4:** Negative time values (system error) — Not directly tested, but important to consider.

**2. Order Status Partitions**

* **Valid Classes:**
  + **EC5:** Orders in "Placed" status — Relevant for Test Cases 1, 4.
  + **EC6:** Orders in "Processing" status — Relevant for Test Case 2.
  + **EC7:** Orders in "Shipped" status (but not delivered) — While not explicitly tested, this can relate to scenarios where cancellation may be considered before delivery.
* **Invalid Classes:**
  + **EC8:** Delivered orders — Relevant for Test Case 3.
  + **EC9:** Already cancelled orders — Relevant for Test Case 5.
  + **EC10:** Failed/Declined orders — Relevant for Test Case 6.

**3. Payment Method Partitions**

* **Valid Classes:**
  + **EC11:** Credit/Debit card payments — Relevant for Test Cases 1, 3, 4, and 6.
  + **EC12:** Digital wallet payments — Relevant for Test Case 2.
  + **EC13:** Net banking payments — Relevant for Test Case 5.
* **Invalid Classes:**
  + **EC14:** Cash on Delivery orders — Relevant for Test Case 4.
  + **EC15:** Failed payments — Relevant for Test Case 6.
  + **EC16:** Partial payments — Not directly tested, but important for completeness.

### Test Cases Based on Equivalence Classes

| **Test No** | **Test Scenario** | **Test Data** | **Preconditions** | **Expected Result** | **Actual Result** | **Status** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Cancel order within 24 hours | Order Age: 12 hours  Status: Placed  Payment: Credit Card | Valid order exists  Payment confirmed | Cancellation successful  Full refund initiated  Confirmation email sent | As expected | Pass | Valid EC1, EC5, EC11 |
| 2 | Cancel order after 24 hours but within 72 hours | Order Age: 50 hours  Status: Processing  Payment: Digital Wallet | Valid order exists  Processing started | Cancellation successful  Partial refund (80%)  Deductions explained | As expected | Pass | Valid EC2, EC6, EC12 |
| 3 | Cancel delivered order | Order Age: 12 hours  Status: Delivered  Payment: Credit Card | Order marked as delivered | Cancellation rejected  Return process suggested | As expected | Pass | Invalid EC8 |
| 4 | Cancel COD order | Order Age: 5 hours  Status: Placed  Payment: COD | Valid COD order | Cancellation successful  No refund needed | As expected | Pass | Valid EC1, EC5, Invalid EC14 |
| 5 | Cancel already cancelled order | Order Age: 10 hours  Status: Cancelled  Payment: Net Banking | Order already cancelled | Error message  No action taken | As expected | Pass | Invalid EC9 |
| 6 | Cancel failed order | Order Age: 1 hour  Status: Failed  Payment: Credit Card | Order failed | Cancellation rejected  Refund not applicable | As expected | Pass | Invalid EC10 |
| 7 | Cancel order older than 72 hours | Order Age: 100 hours  Status: Placed  Payment: Digital Wallet | Valid order exists | Cancellation rejected  Notification of period exceeded | As expected | Pass | Invalid EC3 |

**Boundary Value Test Cases**

| **Test No** | **Test Scenario** | **Test Data** | **Preconditions** | **Expected Result** | **Actual Result** | **Status** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| TC\_BV1 | Test cancellation at the exact 0-hour mark | Order Age: 0 hours, Order Status: "Placed", Payment Method: "Credit Card" | Order just placed | Order should be canceled successfully, refund processed | As expected | Pass | Valid EC1, EC5, EC11 |
| TC\_BV2 | Test cancellation at the 24-hour boundary | Order Age: 24 hours, Order Status: "Processing", Payment Method: "Digital Wallet" | Order is exactly 24 hours old | Cancellation successful, partial refund processed | As expected | Pass | Valid EC2, EC6, EC12 |
| TC\_BV3 | Test cancellation at the 72-hour boundary | Order Age: 72 hours, Order Status: "Processing", Payment Method: "Net Banking" | Order is exactly 72 hours old | System should display "Cancellation period expired" | As expected | Pass | Invalid EC3, EC6, EC13 |
| TC\_BV4 | Test cancellation with invalid age of -1 hour | Order Age: -1 hour, Order Status: "Processing", Payment Method: "Credit Card" | Invalid input for order age | System should display an error for invalid input | As expected | Pass | Invalid EC4 |