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| **NAME : M SHERYAR ROLL NO : 21F-9419 CLASS : BSE-5B SQE PHASE # 2** |
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**TASK 1:**

**TASK 2:**

**Equivalence Class Partitioning (ECP)**

Input Parameter: Report Format

**ECP:**

Valid Equivalence Class: {PDF, CSV, Excel}

Invalid Equivalence Class: {Null, XLS, DOC}

Input Parameter: Data Range

**ECP:**

Valid Equivalence Class: {2023-01-01 to 2023-12-31, 2022-06-15 to 2022-07-15}

Invalid Equivalence Class: {Null, 2023-12-31 to 2023-01-01, 2022-07-15 to 2022-06-15}

Input Parameter: Data Filters

**ECP:**

Valid Equivalence Class: {Sales, Region, Date}

Invalid Equivalence Class: {Null, Customer, Product}

Boundary Value Analysis (BVA)

Input Parameter: Report Format

**BVA:**

Valid Boundary Values: {PDF, CSV, Excel}

Invalid Boundary Values: {Null, XLS, DOC}

Input Parameter: Data Range

**BVA:**

Valid Boundary Values: {2023-01-01, 2023-12-31, 2022-06-15, 2022-07-15}

Invalid Boundary Values: {Null, 2023-01-01 - 1 day, 2023-12-31 + 1 day, 2022-06-15 - 1 day, 2022-07-15 + 1 day}

Input Parameter: Data Filters

**BVA:**

Valid Boundary Values: {First value in the list, Last value in the list}

Invalid Boundary Values: {Null, Values not in the list}

**Risk Analysis**

Security Risk: Unauthorized Access

Risk Level: High

Mitigation: Implement robust authentication and authorization mechanisms.

Performance Risk: Heavy Load

**Risk Level: Medium**

Mitigation: Conduct thorough load testing and optimize the code for better performance.

Data Integrity Risk: Inaccurate Data Filtering

Risk Level: Low

**Mitigation:** Implement data validation checks and ensure proper error handling for data filtering operations.

1. **GUI TEST CASES**

**Authentication Test**

ID: 1

Test Case: User logged in

Precondition: -

Test Steps: Navigate to the report generation section

Test Data: Valid user credentials

Expected Output: Report generation page is accessible

Post Condition: User can access the report generation section

Actual Output: Report generation page is accessible

Status: Pass

Comments: -

**Report Format Selection**

ID: 2

Test Case: Report generation page loaded

Precondition: -

Test Steps: Choose the desired report format

Test Data: PDF

Expected Output: Selected format is highlighted

Post Condition: User can select the preferred report format

Actual Output: Selected format is highlighted

Status: Pass

Comments: -

**Data Range Selection**

ID: 3

Test Case: Report generation page loaded

Precondition: -

Test Steps: Select the desired date range

Test Data: Start Date: 2023-01-01, End Date: 2023-12-31

Expected Output: Selected date range is displayed

Post Condition: User can choose the specific date range

Actual Output: Selected date range is displayed

Status: Pass

Comments: -

**Data Filters Application**

ID: 4

Test Case: Report generation page loaded

Precondition: -

Test Steps: Apply filters for specific data parameters

Test Data: Filter by category: Sales, Region: North

Expected Output: Data is filtered based on the selected parameters

Post Condition: User can filter data for targeted analysis

Actual Output: Data is filtered based on the selected parameters

Status: Pass

Comments: -

**Generate Report**

ID: 5

Test Case: All necessary information provided

Precondition: -

Test Steps: Click on the 'Generate Report' button

Test Data: -

Expected Output: Report generation process is initiated

Post Condition: User is informed that the report is being generated

Actual Output: Report generation process is initiated

Status: Pass

Comments: -

**Report Preview**

ID: 6

Test Case: Report generation completed

Precondition: -

Test Steps: View the preview of the generated report

Test Data: -

Expected Output: Preview displays the report accurately

Post Condition: User can review the report content

Actual Output: Preview displays the report accurately

Status: Pass

Comments: -

**Download Report**

ID: 7

Test Case: Report preview available

Precondition: -

Test Steps: Click on the 'Download' button

Test Data: -

Expected Output: Report is downloaded in the selected format

Post Condition: User can access the downloaded report

Actual Output: Report is downloaded in the selected format

Status: Pass

Comments: -

**Error Handling**

ID: 8

Test Case: Insufficient data for the report

Precondition: -

Test Steps: Generate a report without necessary data

Test Data: -

Expected Output: Error message is displayed indicating insufficient data

Post Condition: User is prompted to provide additional data

Actual Output: Error message is displayed indicating insufficient data

Status: Pass

Comments: -

**Multiple Reports Handling**

ID: 9

Test Case: Generate multiple reports simultaneously

Precondition: -

Test Steps: Initiate the generation of multiple reports

Test Data: -

Expected Output: Each report is generated without interfering with others

Post Condition: User can generate multiple reports simultaneously

Actual Output: Each report is generated without interfering with others

Status: Pass

Comments: -

**Report Customization**

ID: 10

Test Case: Customize report layout and design

Precondition: -

Test Steps: Access report customization options

Test Data: -

Expected Output: Customization options allow changes in layout and design

Post Condition: User can modify the report appearance

Actual Output: Customization options allow changes in layout and design

Status: Pass

Comments: -

**Report Sharing**

ID: 11

Test Case: Share generated report with other users

Precondition: -

Test Steps: Use the 'Share' functionality to send the report

Test Data: Email: example@example.com

Expected Output: Report is shared with the specified user

Post Condition: User can share the report seamlessly

Actual Output: Report is shared with the specified user

Status: Pass

Comments: -

**API TEST CASES :**

**Authentication Test**

ID: 1

Test Case: Valid authentication token

Precondition: -

Test Steps: Call the Report Generation API endpoint

Test Data: Valid authentication token

Expected Output: Successful API response

Post Condition: API request is authenticated

Actual Output: Successful API response

Status: Pass

Comments: -

**Invalid Token Handling**

ID: 2

Test Case: Invalid authentication token

Precondition: -

Test Steps: Call the Report Generation API endpoint with an invalid token

Test Data: Invalid authentication token

Expected Output: Error response with appropriate error code

Post Condition: API request is rejected

Actual Output: Error response with appropriate error code

Status: Pass

Comments: -

**Report Format Selection**

ID: 3

Test Case: Requesting report generation

Precondition: -

Test Steps: Send a request to the API for a specific report format

Test Data: PDF, CSV, Excel

Expected Output: API responds with the chosen report format

Post Condition: User receives the report in the selected format

Actual Output: API responds with the chosen report format

Status: Pass

Comments: -

**Data Range Selection**

ID: 4

Test Case: Defining the data range for the report

Precondition: -

Test Steps: Specify the date range in the API request

Test Data: Start Date: 2023-01-01, End Date: 2023-12-31

Expected Output: API returns data within the specified date range

Post Condition: User receives the report data for the defined period

Actual Output: API returns data within the specified date range

Status: Pass

Comments: -

**Data Filters**

ID: 5

Test Case: Applying filters to the report

Precondition: -

Test Steps: Include specific parameters in the API request

Test Data: Filter by category: Sales, Region: North

Expected Output: API returns data filtered based on the provided parameters

Post Condition: User receives the filtered data in the report

Actual Output: API returns data filtered based on the provided parameters

Status: Pass

Comments: -

**Error Handling**

ID: 6

Test Case: Insufficient data for the report

Precondition: -

Test Steps: Request a report without sufficient data

Test Data: -

Expected Output: Error response with appropriate error code and message

Post Condition: API informs the user about the insufficient data

Actual Output: Error response with appropriate error code and message

Status: Pass

Comments: -

**Multiple Reports Handling**

ID: 7

Test Case: Concurrent report generation

Precondition: -

Test Steps: Initiate the generation of multiple reports simultaneously

Test Data: -

Expected Output: API processes each request independently without interference

Post Condition: User receives all requested reports without issues

Actual Output: API processes each request independently without interference

Status: Pass

Comments: -

**Report Customization**

ID: 8

Test Case: Customizing report parameters

Precondition: -

Test Steps: Include customization options in the API request

Test Data: -

Expected Output: API generates the report with the customized parameters

Post Condition: User receives the report with the desired customization

Actual Output: API generates the report with the customized parameters

Status: Pass

Comments: -

**Report Sharing**

ID: 9

Test Case: Sharing the generated report through API

Precondition: -

Test Steps: Implement the 'Share' functionality in the API

Test Data: Email: example@example.com

Expected Output: API sends the report to the specified email address

Post Condition: User receives the report at the provided email address

Actual Output: API sends the report to the specified email address

Status: Pass

Comments: -

**Report Archival**

ID: 10

Test Case: Storing generated reports for future reference

Precondition: -

Test Steps: Utilize the archival feature in the API

Test Data: -

Expected Output: API stores the generated report for future retrieval

Post Condition: User can access archived reports when needed

Actual Output: API stores the generated report for future retrieval

Status: Pass

Comments: -

**API Response Format**

ID: 11

Test Case: Response format validation

Precondition: -

Test Steps: Check the format of the response data

Test Data: -

Expected Output: API returns data in the expected format (JSON/XML)

Post Condition: User can process the API response easily

Actual Output: API returns data in the expected format

Status: Pass

Comments: -

**Rate Limiting Test**

ID: 12

Test Case: API rate limiting

Precondition: -

Test Steps: Send multiple requests within a short time frame

Test Data: Multiple requests

Expected Output: System enforces rate limits on the API

Post Condition: API enforces rate limits and prevents excessive requests

Actual Output: API enforces rate limits and prevents excessive requests

Status: Pass

Comments: -

**TASK 3:**

**Feature: Report Generation Module GUI**

**Scenario:** Authentication Test

Given the user is logged in

When the user navigates to the report generation section

Then the report generation page should be accessible

**Scenario:** Report Format Selection

Given the report generation page is loaded

When the user chooses the desired report format as "PDF"

Then the selected format should be highlighted

**Scenario:** Data Range Selection

Given the report generation page is loaded

When the user selects the date range from "2023-01-01" to "2023-12-31"

Then the selected date range should be displayed

**Scenario:** Data Filters Application

Given the report generation page is loaded

When the user applies filters for specific data parameters like "Sales" and "Region: North"

Then the data should be filtered based on the selected parameters

**Scenario:** Generate Report

Given all necessary information is provided

When the user clicks on the 'Generate Report' button

Then the report generation process should be initiated

**Scenario:** Report Preview

Given the report generation is completed

When the user views the preview of the generated report

Then the preview should display the report accurately

**Feature: Report Generation API**

**Scenario:** Authentication Test

Given a valid authentication token

When the user calls the Report Generation API endpoint with the valid authentication token

Then the API should respond with a successful authentication

**Scenario:** Invalid Token Handling

Given an invalid authentication token

When the user calls the Report Generation API endpoint with the invalid token

Then the API should respond with an error message and the appropriate error code

**Scenario:** Report Format Selection

Given the request for report generation

When the user sends a request to the API for a specific report format like "PDF", "CSV", or "Excel"

Then the API should respond with the chosen report format and the user should receive the report in the selected format

**Scenario:** Data Range Selection

Given the need to define the data range for the report

When the user specifies the date range in the API request from "2023-01-01" to "2023-12-31"

Then the API should return data within the specified date range and the user should receive the report data for the defined period

**Scenario:** Data Filters

Given the requirement to apply filters to the report

When the user includes specific parameters in the API request such as filtering by category "Sales" and "Region: North"

Then the API should return data filtered based on the provided parameters and the user should receive the filtered data in the report

**Scenario:** Error Handling

Given the case of insufficient data for the report

When the user requests a report without sufficient data

Then the API should respond with an appropriate error message and code to inform the user about the insufficient data