Question 1

Part 1

The booking flow is integral to Ezra's business operation. Please go through the first three steps of the booking process including payment and devise 15 test cases throughout the entire process you think are the most important. When submitting the assignment, please return the test cases from the most important to the least important.

Answer

TC1: Complete "Select your Scan" page with scan details

- Preconditions:
  - User is logged in
  - User is on "Booking" page
- Steps:
  - Enter a valid "Date of birth"
  - Select a sex from the dropdown
  - Select a scan type
  - Click on "Continue" button
- Expected results:
  - Selected scan type is highlighted
  - "Continue" button is enabled
  - Clicking on the "Continue" button navigates to "Schedule your scan" page
  - No errors or blank screen occur during navigation

TC2: Complete "Schedule your scan" page with valid details

- Preconditions:
  - User is logged in
  - User is on the "Schedule your scan" page
- Steps:
  - Select a location
  - Choose a valid date
  - Choose a valid time
  - Click on "Continue" button
- Expected results:
  - Selected location is highlighted
  - "Continue" button is enabled
  - Clicking on "Continue" button navigates to "Reserve your appointment" page
  - No errors or blank screen occur during navigation

TC3: Complete "Reserve your appointment" page with valid credit card details

- Preconditions:
  - User is logged in
  - User is on "Reserve your appointment" page
- Steps:

- Choose “Card” as payment method
- Enter a valid 16 digit card number
- Enter a valid expiration month and year
- Enter a valid card 3 digit security code
- Choose a country from the dropdown
- Enter a valid zip code
- Click on the “Continue” button

❖ Expected results:
- “Continue” button is enabled
- Clicking on “Continue” button navigates to “Begin Medical Questionnaire” page
- No errors or blank screen occur during navigation

TC4: Complete “Reserve your appointment” page with valid bank details

❖ Preconditions:
- User is logged in
- User is on “Reserve your appointment” page

❖ Steps:
- Choose “Bank” as payment method
- Choose a bank from the list
- Complete the next steps
- Click on the “Continue” button

❖ Expected results:
- “Continue” button is enabled
- Clicking on “Continue” button navigates to “Begin Medical Questionnaire” page
- No errors or blank screen occur during navigation

TC5: Complete “Reserve your appointment” page with valid affirm details

❖ Preconditions:
- User is logged in
- User is on “Reserve your appointment” page

❖ Steps:
- Choose “Affirm” as payment method
- Complete the next steps
- Click on the “Continue” button

❖ Expected results:
- “Continue” button is enabled
- Clicking on “Continue” button navigates to “Begin Medical Questionnaire” page
- No errors or blank screen occur during navigation

TC6: Complete “Select your Scan” page with scan details and add-on

❖ Preconditions:
- User is logged in
- User is on “Booking” page

❖ Steps:
- Enter a valid “Date of birth”
- Select a sex from the dropdown
- Select a scan type

- Observe any add-on options
- Select an add-on
- Click on “Continue” button

- Expected results:
  - Selected scan type is highlighted
  - Selected add-on is highlighted
  - “Continue” button is enabled
  - Clicking on the “Continue” button navigates to “Schedule your scan” page
  - No errors or blank screen occur during navigation

TC7: Verify appointment details on “Begin Medical Questionnaire” page

- Preconditions:
  - User is logged in
  - User is on “Begin Medical Questionnaire” page
- Steps:
  - Observe the appointment details on LHS
- Expected results:
  - Scan type is correct
  - Location is correct
  - Date is correct
  - Time is correct

TC8: Verify “Book a scan” button on “Home” page

- Preconditions:
  - User is logged in
  - User is on “Home” page
- Steps:
  - Observe “Book a scan” button
  - Click on “Book a scan” button
  - Observe the resulting flow
- Expected results:
  - “Book a scan” button is visible and enabled
  - Clicking on “Book a scan” button navigates to “Booking” page
  - No errors or blank screen occur during navigation

TC9: Verify user cannot proceed without filling required fields on “Select your Scan” page

- Preconditions:
  - User is logged in
  - User is on “Booking” page
- Steps:
  - “Date of birth” field is blank
  - “Sex” field is deselected
  - No scan type is selected
- Expected results:
  - “Continue” button is grayed out
  - User is not allowed to proceed

TC10: Verify user cannot proceed without filling required fields on "Schedule your scan” page

- Preconditions:
  - User is logged in
  - User is on “Schedule your scan” page
- Steps:
  - No location is selected
  - No date is chosen
  - No time is chosen
- Expected results:
  - “Continue” button is grayed out
  - User is not allowed to proceed

TC11: Verify user cannot proceed without filling required fields on "Reserve your appointment” page

- Preconditions:
  - User is logged in
  - User is on “Reserve your appointment” page
- Steps:
  - All required credit card details are blank
  - Affirm details not completed
  - Bank details not completed
- Expected results:
  - “Continue” button is grayed out
  - User is not allowed to proceed

TC12: Verify “Date of birth” field on “Select your Scan” page

- Preconditions:
  - User is logged in
  - User is on “Booking” page
- Steps:
  - Enter an invalid month for the “Date of birth” field
  - Enter an invalid day for the “Date of birth” field
  - Enter a future year for the “Date of birth” field
- Expected results:
  - Error message “Please enter a valid date.” is displayed
  - Error message “Please enter a valid date.” is displayed
  - Error message “Please enter a date either on or before today.” is displayed
  - “Continue” button is grayed out

TC13: Verify “State” field on “Schedule your scan” page

- Preconditions:
  - User is logged in.
  - User is on “Schedule your scan” page
- Steps:
  - Select a state from the dropdown
- Expected results:
  - All available locations for the state are displayed
  - “Continue” button is grayed out

TC14: Verify “Date” field on “Schedule your scan” page

- Preconditions:
  - User is logged in
  - User is on “Schedule your scan” page
- Steps:
  - Select a location
  - Observe the date fields
- Expected results:
  - Selected location is highlighted
  - Past dates are grayed out
  - Unavailable dates are grayed out
  - Available dates are enabled
  - “Continue” button is grayed out

TC15: Verify “Time” field on “Schedule your scan” page

- Preconditions:
  - User is logged in
  - User is on “Schedule your scan” page
- Steps:
  - Select a location
  - Select a date
  - Observe the time fields
- Expected results:
  - Selected location is highlighted
  - Selected date is highlighted
  - Available times are enabled
  - “Continue” button is grayed out

Part 2

For the top 3 test cases from part 1, please provide a description explaining why they are indicated as your most important.

Answer

The top 3 test cases validate the core workflow for booking a scan. These steps are essential as the booking process cannot be completed without them. For the payment section, credit payment is given priority as it represents the most frequently used payment method.

Question 2

Part 1

Being privacy focused is integral to our culture and business model. Please devise an integration test case that prevents members from accessing other's medical data.
Hint: Begin Medical Questionnaire.

Answer

TC: Enforce patient-specific access control on medical records

- Objective: Confirm that the application enforces patient-specific authorization, so a member can only view their own medical data (scan appointments, reports, invoices, PHI (Protected Health Information) and cannot access another member's records by ID manipulation, deep links, or any other path.
- Preconditions:
  - Member A with one scan appointment
  - Member B with one scan appointment
- Steps:
  - Log in as Member A and start medical questionnaire
  - Log in as Member B and start medical questionnaire
  - Don't log in as Member A and start medical questionnaire
  - Log in as Member A and start Member B's medical questionnaire
  - Log in as Member A and start invalid medical questionnaire
- Expected results:
  - Member A's medical questionnaire is displayed
  - Member B's medical questionnaire is displayed
  - Member A is redirected to login page
  - Error message "You are not authorized to view this resource" message is displayed
  - Error message "Page not found" displayed

Part 2

Please devise HTTP requests from Part 1 to implement your test case. Submitting written HTTP requisitions is fine, you do not need to submit a postman project.

Answer

TC: Enforce patient-specific access control on medical records

- Preconditions:
  - Member A medical questionnaire URL: https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-A-ID%22}
  - Member B medical questionnaire URL:

https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-B-ID%22}

- Steps:
  - Log in as Member A and go to https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-A-ID%22}
  - Log in as Member B and go to https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-B-ID%22}
  - Don't log in as Member A and go to https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-A-ID%22}
  - Log in as Member A and go to https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-B-ID%22}
  - Log in as Member A and go to https://myezra-staging.ezra.com/medical-questionnaire?direct=true&clearData=true&extraData={%22encounterId%22:%22Member-A-ID%22}
- Expected results:
  - Member A's medical questionnaire is displayed
  - Member B's medical questionnaire is displayed
  - Member A is redirected to login page
  - Member A is redirected to login page
  - Member A is redirected to login page

Part 3

At Ezra, we have over 100 endpoints that transfer sensitive data. What is your thought process around managing the security quality of these endpoints? What are the tradeoffs and potential risks of your solution?

Answer

I would build the security quality of those 100+ sensitive endpoints around four pillars: inventory, continuous testing, monitoring and governance.

1) Build an accurate API inventory and classification

- Thought process:
  - You can't secure what you don't know
- Approach:
  - Maintain a single, versioned set of specs for all endpoints
  - Mark with data classification (PHI (Protected Health Information), PII (Personally Identifiable Information), financial, public)
  - Use stricter controls and deeper testing on PHI-carrying endpoints and simpler controls on low-risk endpoints
- Tradeoffs & risks:

- ➢ Over-classification (calling everything “high risk”) simplifies governance but makes it harder to prioritize
- ➢ Under-classification or stale specs can lead to real-world breach

2) Continuous security testing embedded in CI/CD

- ❖ Thought process:
  - ➢ Move from ad-hoc pen-tests to repeatable, automated security checks that run whenever an endpoint or policy changes
- ❖ Approach:
  - ➢ Build fails if an endpoint is added without auth, schema or TLS (Transport Layer Security)
  - ➢ Run OWASP (Open Web Application Security Project) focused API security tests on every merge
- ❖ Tradeoffs & risks:
  - ➢ More CI checks mean longer pipelines
  - ➢ If security gates routinely block releases for low-severity issues, product velocity and trust suffer

3) Production monitoring, anomaly detection, and auditability

- ❖ Thought process:
  - ➢ Detect and contain anomaly quickly
- ❖ Approach:
  - ➢ Implement centralized logging of all sensitive endpoint access
  - ➢ Enforce robust audit trails
  - ➢ Maintain clear playbook for incident response
- ❖ Tradeoffs & risks:
  - ➢ Deep logging and analytics increase storage and infra costs
  - ➢ Strong audit retention may conflict with data-minimization principles

4) Governance, ownership, policies

- ❖ Thought process:
  - ➢ Security quality is as much organizational discipline as it is tooling
- ❖ Approach:
  - ➢ Define clear ownership and accountability for each endpoint
  - ➢ Maintain security requirements baseline
  - ➢ Define tests and configs at design review time
- ❖ Tradeoffs & risks:
  - ➢ Too much process can slow product delivery and encourage workarounds
  - ➢ Too little process leads security holes

Automation

Use PlayWrite to automate 2–3 of the test cases you ranked highest for the booking flow. Please include:

- Trade-offs and assumptions.
- Include a short README.md with setup steps and your explanation notes.
- Comments or a README.md explaining assumptions, scalability, and what you would implement in the future.
- Submit a GitHub repo link containing all tests and documentation.
- Structure your automation scripts using a scalable model (preferably Page Object Model). Your submission must demonstrate architecture, coding, and design decisions required for production-level.

Answer

GitHub repository: https://github.com/anjankundu/function-health