**QA Engineer Industry Playbook**

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**1. E-Commerce – 15 Steps Deep Dive**

**Step 1 – Product Search & Filters**

**What it is: The feature that lets customers find products quickly.
Why it matters: Bad search = lost customers.
How it’s done:**

* **Test exact, partial, and misspelled search terms.**
* **Check filters (price, color, brand) and sorting (low-high, newest).**
* **Verify response speed and accuracy.
Tools: Selenium, Postman, JMeter.
Example: Searching “red dress” should only return red dresses in the right price range.**

**Step 2 – Product Details Page (PDP)**

**What it is: The page showing item details, price, reviews.
Why it matters: Wrong info causes returns and bad reviews.
How it’s done:**

* **Match PDP data to backend records.**
* **Test image and price updates on size/color change.**
* **Verify “Add to Cart” works.
Tools: Selenium, BrowserStack.
Example: Choosing “M” size must show correct image and stock.**

**Step 3 – Cart Functionality**

**What it is: Virtual basket for chosen products.
Why it matters: Cart errors kill sales.
How it’s done:**

* **Add/remove/update quantities.**
* **Apply coupons and check totals.**
* **Test persistence across sessions.
Tools: Selenium, Postman.
Example: Adding 3 × $10 items must show $30, removing 1 changes it to $20.**

**Step 4 – Checkout Process**

**What it is: The payment and delivery info stage.
Why it matters: If it fails, orders can’t complete.
How it’s done:**

* **Validate forms and payments (credit card, PayPal).**
* **Simulate failed payments.**
* **Ensure no double charges.
Tools: Selenium, payment sandbox.
Example: Expired card must fail with a clear error message.**

**Step 5 – Order Tracking**

**What it is: Shows shipping status to customers.
Why it matters: Tracking failures cause frustration.
How it’s done:**

* **Check tracking number generation and updates.**
* **Test multiple packages.**
* **Verify email/SMS updates.
Tools: Postman, email/SMS testing.
Example: Two-package orders must display both tracking numbers.**

**Step 6 – Returns & Refunds**

**What it is: Customer process for returning goods.
Why it matters: Smooth returns = trust.
How it’s done:**

* **Check return eligibility and instructions.**
* **Verify refund amounts and payment method.**
* **Confirm stock updates.
Tools: Selenium, payment sandbox.
Example: $50 item with $10 discount must refund $40.**

**Step 7 – User Account Management**

**What it is: Customer profile and order history.
Why it matters: Broken accounts frustrate users.
How it’s done:**

* **Test registration, login, password reset.**
* **Update profile info and check consistency.**
* **Review order history accuracy.
Tools: Selenium, Postman.
Example: Changed phone number must update everywhere.**

**Step 8 – Admin & Seller Dashboards**

**What it is: Back-end panels for store owners and sellers.
Why it matters: Errors here break business operations.
How it’s done:**

* **Add/update products.**
* **Manage orders.**
* **Check role permissions.
Tools: Selenium, SQL.
Example: Seller should not see other sellers’ orders.**

**Step 9 – Promotions & Discounts**

**What it is: Sales offers and coupon codes.
Why it matters: Wrong discounts can cost revenue.
How it’s done:**

* **Test percentage and fixed discounts.**
* **Check expiry rules.**
* **Test stacking rules.
Tools: Selenium, Postman.
Example: 20% off $50 must be exactly $40.**

**Step 10 – Notifications & Emails**

**What it is: Order updates and promotional messages.
Why it matters: Poor communication confuses customers.
How it’s done:**

* **Check content, timing, personalization.**
* **Test triggers for each event.
Tools: Mailtrap, Selenium.
Example: Order confirmation email should arrive within 5 minutes.**

**Step 11 – Payment Gateway Integration**

**What it is: Connection to payment providers.
Why it matters: Payment errors cause revenue loss.
How it’s done:**

* **Test multiple payment types.**
* **Simulate failed payments.**
* **Verify currency conversion.
Tools: Payment sandbox, Selenium.
Example: USD $10 must convert correctly to local currency.**

**Step 12 – Security Testing**

**What it is: Protecting site from attacks.
Why it matters: Breaches damage trust.
How it’s done:**

* **Test for SQL injection, XSS, CSRF.**
* **Check encryption.
Tools: Burp Suite, OWASP ZAP.
Example: Special characters in input should not break the site.**

**Step 13 – Performance Testing**

**What it is: Load/stress testing for speed and stability.
Why it matters: Slow sites lose customers.
How it’s done:**

* **Simulate high traffic.**
* **Measure load times.
Tools: JMeter, BlazeMeter.
Example: Checkout must load in under 3 seconds.**

**Step 14 – Cross-Browser & Device Testing**

**What it is: Ensuring site works everywhere.
Why it matters: Broken layouts hurt sales.
How it’s done:**

* **Test on Chrome, Firefox, Safari, Edge.**
* **Test on iOS, Android.
Tools: BrowserStack, Selenium.
Example: Product grid must align correctly on all devices.**

**Step 15 – Accessibility Testing**

**What it is: Making site usable for all.
Why it matters: Legal and ethical requirement.
How it’s done:**

* **Test screen reader support.**
* **Check keyboard navigation and color contrast.
Tools: Axe, WAVE.
Example: Images must have alt text.**

**2. Banking & Finance – 15 Steps Deep Dive**

**Step 1 – Login & Authentication**

**What it is:** Secure user login to bank accounts.
**Why it matters:** Weak login security can lead to account theft.
**How it’s done:**

* Test login with valid/invalid credentials.
* Check MFA via SMS, email, authenticator app.
* Test account lockouts after failed attempts.
**Tools:** Selenium, Postman, Burp Suite.
**Example:** Wrong password 5 times → account locks, alert sent.

**Step 2 – Account Dashboard**

**What it is:** Displays balances, transactions, account type.
**Why it matters:** Incorrect data causes panic.
**How it’s done:**

* Match displayed balances with backend DB.
* Test multiple account types.
* Check transaction ordering.
**Tools:** Selenium, SQL.
**Example:** $1,000 in DB must match $1,000 on screen.

**Step 3 – Fund Transfers**

**What it is:** Sending money between accounts.
**Why it matters:** Transfer errors cause financial loss.
**How it’s done:**

* Test same-bank, interbank, international transfers.
* Verify limits and OTP security.
**Tools:** Postman, payment sandbox.
**Example:** $500 sent must reflect immediately in both accounts.

**Step 4 – Bill Payments**

**What it is:** Pay utilities or credit card bills.
**Why it matters:** Failures lead to penalties.
**How it’s done:**

* Add/remove billers.
* Test one-time and scheduled payments.
**Tools:** Selenium, Postman.
**Example:** A due bill should process on the scheduled date automatically.

**Step 5 – Loan Applications**

**What it is:** Online application for loans.
**Why it matters:** Wrong calculations = legal issues.
**How it’s done:**

* Test eligibility rules, interest calculations.
* Verify document uploads.
**Tools:** Selenium, SQL.
**Example:** 5% interest on $10,000 = $500 exactly.

**Step 6 – Statements & History**

**What it is:** Transaction history and downloadable statements.
**Why it matters:** Serves as legal proof.
**How it’s done:**

* Match transaction details with backend.
* Check download formats.
**Tools:** Selenium, PDF checkers.
**Example:** January transactions must appear in January’s statement.

**Step 7 – Credit Card Management**

**What it is:** Manage limits, blocks, requests.
**Why it matters:** Errors cause fraud or declined payments.
**How it’s done:**

* Test blocking/unblocking.
* Check limit changes.
**Tools:** Selenium, Postman.
**Example:** Blocked card should fail all transactions instantly.

**Step 8 – Alerts & Notifications**

**What it is:** Security and transaction alerts.
**Why it matters:** Delays allow fraud to go unnoticed.
**How it’s done:**

* Trigger alerts for large transactions.
* Test SMS, push, email delivery.
**Tools:** Mailtrap, SMS test tools.
**Example:** $1,000 withdrawal alert within seconds.

**Step 9 – Profile Management**

**What it is:** Update personal info securely.
**Why it matters:** Wrong data impacts communication.
**How it’s done:**

* Test identity verification before updates.
* Check changes reflect everywhere.
**Tools:** Selenium, SQL.
**Example:** New phone must update for OTP delivery immediately.

**Step 10 – Mobile Banking App**

**What it is:** Full-feature banking on mobile.
**Why it matters:** Most users bank on phones.
**How it’s done:**

* Test features on Android/iOS.
* Check fingerprint/face ID.
**Tools:** BrowserStack, Appium.
**Example:** Fingerprint login must unlock in under 2 seconds.

**Step 11 – Security & Compliance**

**What it is:** Protect data, follow PCI DSS, AML rules.
**Why it matters:** Breaches can cause fines.
**How it’s done:**

* Test encryption, secure sessions.
* Scan for vulnerabilities.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** Session should auto-logout after inactivity.

**Step 12 – Payment Gateway**

**What it is:** Connects to Visa, Mastercard, UPI.
**Why it matters:** Payment failures block transactions.
**How it’s done:**

* Test sandbox and live modes.
* Simulate failures and verify rollback.
**Tools:** Payment sandbox, Postman.
**Example:** Failed payment must not deduct money.

**Step 13 – Fraud Detection**

**What it is:** Identify suspicious activity.
**Why it matters:** Prevents theft.
**How it’s done:**

* Simulate abnormal transactions.
* Verify system flags them.
**Tools:** API testing, security logs.
**Example:** New $10,000 transfer flagged for review.

**Step 14 – Performance Testing**

**What it is:** Test under peak load.
**Why it matters:** Prevents slowdowns on salary days.
**How it’s done:**

* Simulate thousands of users.
* Measure response times.
**Tools:** JMeter.
**Example:** Fund transfer page must load in under 3 seconds.

**Step 15 – Accessibility**

**What it is:** Make app usable for all.
**Why it matters:** Legal compliance.
**How it’s done:**

* Test with screen readers, high-contrast modes.
**Tools:** Axe, WAVE.
**Example:** Screen reader must read transaction details clearly.

**3. Healthcare – 15 Steps Deep Dive**

**Step 1 – Patient Registration**

**What it is:** Create new patient records.
**Why it matters:** Incorrect data affects care.
**How it’s done:**

* Validate required fields.
* Check data encryption.
**Tools:** Selenium, SQL.
**Example:** Invalid insurance ID must be rejected.

**Step 2 – Appointment Booking**

**What it is:** Schedule doctor visits.
**Why it matters:** Prevents double booking.
**How it’s done:**

* Book/cancel/reschedule.
* Verify reminders.
**Tools:** Selenium, Postman.
**Example:** Two patients can’t book same slot.

**Step 3 – Doctor Search & Profile**

**What it is:** Find specialists.
**Why it matters:** Quick search improves care.
**How it’s done:**

* Test filters (specialty, location).
**Tools:** Selenium, Postman.
**Example:** Search “Cardiologist” must only show relevant results.

**Step 4 – Medical Record Access**

**What it is:** View patient history.
**Why it matters:** Must be secure and correct.
**How it’s done:**

* Role-based access control.
* File download checks.
**Tools:** Selenium, SQL.
**Example:** Doctor sees only assigned patients.

**Step 5 – Prescription Management**

**What it is:** Upload/manage prescriptions.
**Why it matters:** Wrong prescriptions can harm.
**How it’s done:**

* Test linking to patient.
* Check edit/renewal.
**Tools:** Selenium, Postman.
**Example:** 10 pills × 2/day = 5-day course.

**Step 6 – Billing & Payment**

**What it is:** Pay for services.
**Why it matters:** Errors cause disputes.
**How it’s done:**

* Test different payment types.
* Verify receipts.
**Tools:** Payment sandbox, Selenium.
**Example:** $200 service with 10% discount = $180.

**Step 7 – Telemedicine Calls**

**What it is:** Online consultations.
**Why it matters:** Poor quality disrupts care.
**How it’s done:**

* Test audio/video on multiple devices.
**Tools:** Selenium, network throttling tools.
**Example:** On low internet, switch to low quality.

**Step 8 – Lab Results Integration**

**What it is:** Upload lab reports.
**Why it matters:** Wrong linking affects treatment.
**How it’s done:**

* Upload and match to patient.
**Tools:** Selenium, Postman.
**Example:** Patient A’s result must not appear for Patient B.

**Step 9 – Insurance Verification**

**What it is:** Confirm coverage.
**Why it matters:** Prevents unexpected costs.
**How it’s done:**

* Test valid/invalid IDs.
**Tools:** API testing, Selenium.
**Example:** Uncovered procedure must warn before booking.

**Step 10 – Alerts & Reminders**

**What it is:** Appointment/test reminders.
**Why it matters:** Reduces no-shows.
**How it’s done:**

* Verify timing and delivery.
**Tools:** Mailtrap, SMS test tools.
**Example:** Reminder must arrive 24 hours before.

**Step 11 – Role-Based Access**

**What it is:** Different permissions for staff.
**Why it matters:** Protects patient privacy.
**How it’s done:**

* Test each role’s allowed actions.
**Tools:** Selenium, SQL.
**Example:** Nurse can’t delete patient records.

**Step 12 – Emergency Contact**

**What it is:** Connect to emergency support.
**Why it matters:** Saves lives.
**How it’s done:**

* Test emergency call and chat.
**Tools:** Selenium.
**Example:** “Call Emergency” must dial instantly.

**Step 13 – Performance Testing**

**What it is:** Handle high booking load.
**Why it matters:** Prevents crashes.
**How it’s done:**

* Simulate peak load.
**Tools:** JMeter.
**Example:** Appointment booking stays fast in flu season.

**Step 14 – Security & Compliance**

**What it is:** Follow HIPAA, protect data.
**Why it matters:** Legal and ethical need.
**How it’s done:**

* Test encryption and timeouts.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** Data must be encrypted end-to-end.

**Step 15 – Accessibility**

**What it is:** Usable for disabled patients.
**Why it matters:** Improves inclusivity.
**How it’s done:**

* Test screen reader, keyboard navigation.
**Tools:** Axe, WAVE.
**Example:** Blind user can book appointments with screen reader.

**6. Auto Insurance – 15 Steps Deep Dive**

**Step 1 – Customer Registration & Login**

**What it is:** New customers sign up for auto insurance accounts.
**Why it matters:** Incorrect sign-up flows can block customers or create duplicate records.
**How it’s done:**

* Test email/phone registration, social logins.
* Validate required fields (name, DOB, driver’s license).
* Ensure login security with MFA.
**Tools:** Selenium, Postman, Burp Suite.
**Example:** Wrong license number should prevent registration.

**Step 2 – Quote Generation**

**What it is:** System calculates insurance costs based on customer data.
**Why it matters:** Wrong quotes cause revenue loss or customer drop-off.
**How it’s done:**

* Test quote requests for different car types, locations, and driver histories.
* Validate premium calculations against rules.
**Tools:** Selenium, Postman, SQL.
**Example:** Premium for high-risk drivers must be higher than low-risk ones.

**Step 3 – Policy Purchase**

**What it is:** Customer buys the chosen policy.
**Why it matters:** Errors here lose sales.
**How it’s done:**

* Test payment methods and installment plans.
* Verify policy document generation.
**Tools:** Selenium, payment sandbox.
**Example:** Paid policy should appear instantly in the account.

**Step 4 – Vehicle Data Management**

**What it is:** Adding or updating insured vehicle details.
**Why it matters:** Wrong vehicle info affects claims.
**How it’s done:**

* Add multiple vehicles, check VIN validation.
* Test photo/document upload.
**Tools:** Selenium, SQL.
**Example:** VIN must match standard format.

**Step 5 – Claims Submission**

**What it is:** Customer submits accident or damage claims.
**Why it matters:** Errors delay payments.
**How it’s done:**

* Submit claims with required documents.
* Test eligibility checks.
**Tools:** Selenium, Postman.
**Example:** Missing police report should block claim submission.

**Step 6 – Claims Processing Workflow**

**What it is:** Internal handling of submitted claims.
**Why it matters:** Wrong processing can cause disputes.
**How it’s done:**

* Verify adjuster assignment.
* Test approval/rejection paths.
**Tools:** Selenium, SQL.
**Example:** Approved claims must trigger payout in payment system.

**Step 7 – Premium Payment Management**

**What it is:** Handling recurring monthly or yearly payments.
**Why it matters:** Late payments can cause policy cancellation.
**How it’s done:**

* Test auto-pay setup, manual payments.
* Check late payment penalties.
**Tools:** Payment sandbox, Selenium.
**Example:** Late payment must apply fee automatically.

**Step 8 – Renewal Process**

**What it is:** Extending the policy before expiry.
**Why it matters:** Keeps customers insured without gaps.
**How it’s done:**

* Test renewal reminders.
* Verify updated documents are issued.
**Tools:** Selenium, Mailtrap.
**Example:** Renewal should update the policy’s start and end date.

**Step 9 – Policy Cancellation**

**What it is:** Customer or insurer ends policy early.
**Why it matters:** Incorrect cancellations cause coverage gaps.
**How it’s done:**

* Test voluntary and forced cancellations.
* Check refund calculations.
**Tools:** Selenium, SQL.
**Example:** Cancelled policy must show inactive in dashboard.

**Step 10 – Driver Management**

**What it is:** Adding/removing drivers on a policy.
**Why it matters:** Wrong driver data affects claims and premiums.
**How it’s done:**

* Test adding drivers with license checks.
* Verify risk-based premium changes.
**Tools:** Selenium, SQL.
**Example:** Adding a young driver should increase the premium.

**Step 11 – Incident Reporting**

**What it is:** Reporting accidents without filing full claims.
**Why it matters:** Keeps history accurate.
**How it’s done:**

* Test quick report submission.
* Ensure incidents link to correct policy.
**Tools:** Selenium, Postman.
**Example:** Incident must appear in claim history.

**Step 12 – Document Management**

**What it is:** Uploading policy, claim, or legal documents.
**Why it matters:** Missing documents delay processing.
**How it’s done:**

* Test file upload types and sizes.
* Verify secure storage and retrieval.
**Tools:** Selenium, file storage testing tools.
**Example:** Uploading an unsupported file format should fail.

**Step 13 – Customer Support Integration**

**What it is:** Chat, email, or call center help.
**Why it matters:** Poor support impacts retention.
**How it’s done:**

* Test chatbots, ticket creation, escalation paths.
**Tools:** Selenium, API testing.
**Example:** Chat must create a support ticket if unresolved.

**Step 14 – Performance Testing**

**What it is:** Checking speed during high traffic.
**Why it matters:** Policy renewals spike near deadlines.
**How it’s done:**

* Simulate peak load during end-of-month.
**Tools:** JMeter, BlazeMeter.
**Example:** Renewal must stay under 3s load time with 1,000 concurrent users.

**Step 15 – Security Testing**

**What it is:** Protecting sensitive driver and vehicle data.
**Why it matters:** Legal compliance and trust.
**How it’s done:**

* Test for SQL injection, XSS, data encryption.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** Policy PDFs must only be accessible to authorized users.

**7. Health Insurance – 15 Steps Deep Dive**

**Step 1 – Customer Registration & Login**

**What it is:** Allows new policyholders to create an account.
**Why it matters:** If registration fails, customers can’t access benefits.
**How it’s done:**

* Test registration with valid/invalid data.
* Validate identity verification (DOB, SSN, etc.).
* Ensure MFA is enabled for login.
**Tools:** Selenium, Postman, Burp Suite.
**Example:** Incorrect SSN should block account creation.

**Step 2 – Plan Search & Comparison**

**What it is:** Customers browse and compare health insurance plans.
**Why it matters:** Wrong comparisons can lead to poor decisions.
**How it’s done:**

* Search by premium, coverage, provider network.
* Compare two or more plans side by side.
**Tools:** Selenium, Postman.
**Example:** Comparing plans must show accurate deductible differences.

**Step 3 – Quote Calculation**

**What it is:** System estimates premium based on inputs.
**Why it matters:** Incorrect quotes hurt trust and revenue.
**How it’s done:**

* Test different ages, locations, and coverage levels.
* Validate calculations against official rates.
**Tools:** Selenium, SQL.
**Example:** Older applicants should see higher premiums for the same plan.

**Step 4 – Plan Enrollment**

**What it is:** Joining a selected plan.
**Why it matters:** Errors prevent coverage start.
**How it’s done:**

* Enroll via web and mobile.
* Test document uploads for eligibility.
**Tools:** Selenium, Postman.
**Example:** Enrollment confirmation email must include start date.

**Step 5 – Policy Document Management**

**What it is:** Stores coverage documents.
**Why it matters:** Missing documents cause disputes.
**How it’s done:**

* Upload and view policy documents.
* Test secure storage and access.
**Tools:** Selenium, file testing tools.
**Example:** Only the policyholder should be able to download their documents.

**Step 6 – Premium Payment**

**What it is:** Payment for monthly or annual premiums.
**Why it matters:** Late payments can cancel coverage.
**How it’s done:**

* Test autopay setup.
* Validate payment confirmations.
**Tools:** Payment sandbox, Selenium.
**Example:** Late payments should trigger a grace period notice.

**Step 7 – Claims Submission**

**What it is:** Customers file claims for medical costs.
**Why it matters:** Incorrect claim handling delays payouts.
**How it’s done:**

* Submit with required documents.
* Test coverage eligibility checks.
**Tools:** Selenium, Postman.
**Example:** Claim for uncovered service should be rejected with reason.

**Step 8 – Claims Processing**

**What it is:** Internal review of submitted claims.
**Why it matters:** Accuracy affects finances and trust.
**How it’s done:**

* Test workflow from submission to approval/rejection.
* Check adjustment calculations.
**Tools:** Selenium, SQL.
**Example:** Approved claim should match policy limits exactly.

**Step 9 – Provider Search**

**What it is:** Find in-network doctors and hospitals.
**Why it matters:** Out-of-network care costs more.
**How it’s done:**

* Search by specialty, location, and name.
**Tools:** Selenium, Postman.
**Example:** Search “Dermatologist” should only show network providers.

**Step 10 – Benefits Tracking**

**What it is:** Shows remaining coverage amounts.
**Why it matters:** Transparency avoids disputes.
**How it’s done:**

* Test annual limit tracking.
* Verify updates after claims.
**Tools:** Selenium, SQL.
**Example:** $1,000 dental limit reduced after $200 claim.

**Step 11 – Policy Renewal**

**What it is:** Extends plan before expiry.
**Why it matters:** Avoids coverage gaps.
**How it’s done:**

* Test renewal reminders.
* Verify updated documents.
**Tools:** Selenium, Mailtrap.
**Example:** Renewal must reset coverage start date.

**Step 12 – Policy Cancellation**

**What it is:** Ends coverage early.
**Why it matters:** Affects customer financial planning.
**How it’s done:**

* Test voluntary/involuntary cancellation flows.
**Tools:** Selenium, SQL.
**Example:** Cancelled policy should stop autopay immediately.

**Step 13 – Customer Support Requests**

**What it is:** Contact forms, chat, call support.
**Why it matters:** Timely help improves retention.
**How it’s done:**

* Test ticket creation and escalation.
**Tools:** Selenium, API testing.
**Example:** Chatbot should hand off to human agent when needed.

**Step 14 – Performance Testing**

**What it is:** High load during open enrollment.
**Why it matters:** Prevents site downtime.
**How it’s done:**

* Simulate heavy traffic in enrollment portal.
**Tools:** JMeter, BlazeMeter.
**Example:** Maintain <3s load time with 2,000 users.

**Step 15 – Security Testing**

**What it is:** Protect PHI under HIPAA.
**Why it matters:** Legal compliance.
**How it’s done:**

* Test encryption, access control, vulnerability scans.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** Health records must be encrypted in storage and transit.

**8. Fintech (Digital Payments & Mobile Wallets) – 15 Steps Deep Dive**

**Step 1 – User Registration & KYC**

**What it is:** Customer onboarding with Know Your Customer verification.
**Why it matters:** Prevents fraud and complies with AML laws.
**How it’s done:**

* Test account creation with phone/email.
* Verify ID upload and validation flow.
* Check failed KYC handling.
**Tools:** Selenium, Postman, OCR testing tools.
**Example:** Expired ID should fail KYC instantly.

**Step 2 – Login & Authentication**

**What it is:** Secure account access.
**Why it matters:** Weak login invites fraud.
**How it’s done:**

* Test MFA with OTP and authenticator apps.
* Check lockouts after failed attempts.
**Tools:** Selenium, Burp Suite.
**Example:** 5 failed attempts → account locked + email alert.

**Step 3 – Wallet Funding**

**What it is:** Adding money to the digital wallet.
**Why it matters:** Errors block transactions.
**How it’s done:**

* Test bank transfers, cards, UPI.
* Check transaction limits.
**Tools:** Payment sandbox, Selenium.
**Example:** Funding above the limit should be rejected.

**Step 4 – Peer-to-Peer Transfers**

**What it is:** Sending money between users.
**Why it matters:** Key feature for fintech adoption.
**How it’s done:**

* Test transfers with correct and wrong details.
* Verify instant transaction updates.
**Tools:** Postman, Selenium.
**Example:** Transfer to inactive account must fail gracefully.

**Step 5 – Bill Payments**

**What it is:** Paying utility and merchant bills.
**Why it matters:** Boosts wallet usage.
**How it’s done:**

* Test biller addition/removal.
* Simulate failed payments.
**Tools:** Selenium, API testing tools.
**Example:** Paid bill should update status instantly.

**Step 6 – Merchant Payments (QR/NFC)**

**What it is:** Paying stores via QR code or contactless.
**Why it matters:** Common daily use case.
**How it’s done:**

* Scan valid/invalid QR codes.
* Test NFC tap payments.
**Tools:** Mobile automation tools, Selenium.
**Example:** Expired QR code should be flagged.

**Step 7 – Currency Conversion**

**What it is:** Converting wallet balance to another currency.
**Why it matters:** Needed for global payments.
**How it’s done:**

* Test conversion rates.
* Validate fee calculation.
**Tools:** Selenium, Postman.
**Example:** Converting $100 to EUR must use the set rate.

**Step 8 – Refund Processing**

**What it is:** Returning funds to a user.
**Why it matters:** Customer trust.
**How it’s done:**

* Test partial/full refunds.
* Check processing times.
**Tools:** Selenium, SQL.
**Example:** Partial refund must adjust wallet balance correctly.

**Step 9 – Transaction History**

**What it is:** List of all payments and transfers.
**Why it matters:** Transparency.
**How it’s done:**

* Match transactions with DB records.
* Test filtering by date/type.
**Tools:** Selenium, SQL.
**Example:** Deleted transactions should never appear.

**Step 10 – Fraud Detection**

**What it is:** System to block suspicious activity.
**Why it matters:** Reduces scams.
**How it’s done:**

* Trigger abnormal patterns.
* Test alert escalation.
**Tools:** API logs, Selenium.
**Example:** Large overseas payment flagged for review.

**Step 11 – Profile Management**

**What it is:** Update user details.
**Why it matters:** Keeps account secure.
**How it’s done:**

* Test name, email, phone updates.
* Verify OTP confirmation.
**Tools:** Selenium, Postman.
**Example:** New email must require verification before activation.

**Step 12 – Security Testing**

**What it is:** Preventing hacking attempts.
**Why it matters:** Protects money and data.
**How it’s done:**

* Test SQL injection, XSS, CSRF.
* Check encryption.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** Payment APIs must reject script injections.

**Step 13 – Compliance Testing**

**What it is:** Meeting legal payment regulations.
**Why it matters:** Avoids fines.
**How it’s done:**

* Test GDPR, PCI DSS compliance.
**Tools:** Compliance checklists, scanning tools.
**Example:** Card numbers never stored in plain text.

**Step 14 – Performance Testing**

**What it is:** Handling high load during sales.
**Why it matters:** Prevents downtime.
**How it’s done:**

* Simulate peak transactions.
**Tools:** JMeter, BlazeMeter.
**Example:** Process 10,000 TPS without failures.

**Step 15 – Accessibility**

**What it is:** Usable for all users.
**Why it matters:** Improves adoption.
**How it’s done:**

* Screen reader tests, keyboard navigation.
**Tools:** Axe, WAVE.
**Example:** Payment buttons accessible by keyboard only.

**9. Telehealth (Virtual Healthcare Services) – 15 Steps Deep Dive**

**Step 1 – Patient Registration & Login**

**What it is:** Account creation for patients.
**Why it matters:** Start of telehealth journey.
**How it’s done:**

* Test signup, ID verification.
* MFA for login.
**Tools:** Selenium, Postman.
**Example:** Invalid ID must block account creation.

**Step 2 – Doctor Registration**

**What it is:** Onboarding healthcare providers.
**Why it matters:** Quality of network.
**How it’s done:**

* Test license upload/verification.
**Tools:** Selenium, Postman.
**Example:** Expired medical license rejected.

**Step 3 – Appointment Scheduling**

**What it is:** Booking telehealth sessions.
**Why it matters:** Must be accurate and easy.
**How it’s done:**

* Test slot booking/cancellation.
**Tools:** Selenium, SQL.
**Example:** Prevent double booking.

**Step 4 – Video Consultation**

**What it is:** Core telehealth service.
**Why it matters:** Main user experience.
**How it’s done:**

* Test video/audio quality on multiple networks.
**Tools:** Selenium, network simulation tools.
**Example:** Auto-adjust video quality on slow internet.

**Step 5 – Prescription Management**

**What it is:** Issuing digital prescriptions.
**Why it matters:** Direct impact on treatment.
**How it’s done:**

* Test prescription generation and delivery.
**Tools:** Selenium, PDF checkers.
**Example:** Prescription linked to correct patient.

**Step 6 – Payment Processing**

**What it is:** Charging for consultations.
**Why it matters:** Revenue flow.
**How it’s done:**

* Test credit card, PayPal, insurance payments.
**Tools:** Payment sandbox, Selenium.
**Example:** Payment receipt sent instantly.

**Step 7 – EHR Access**

**What it is:** Electronic health record viewing.
**Why it matters:** Medical accuracy.
**How it’s done:**

* Role-based access testing.
**Tools:** Selenium, SQL.
**Example:** Only assigned doctor can view patient history.

**Step 8 – Lab Test Orders**

**What it is:** Ordering tests remotely.
**Why it matters:** Supports virtual care.
**How it’s done:**

* Test lab partner integrations.
**Tools:** API testing tools, Selenium.
**Example:** Lab order sent to correct partner.

**Step 9 – Report Delivery**

**What it is:** Sending test results to patients.
**Why it matters:** Timely care decisions.
**How it’s done:**

* Upload/download reports.
**Tools:** Selenium, file testing.
**Example:** Report must match patient’s profile only.

**Step 10 – Notifications & Reminders**

**What it is:** Reminding patients of sessions/tests.
**Why it matters:** Reduces no-shows.
**How it’s done:**

* Test SMS, email alerts.
**Tools:** Mailtrap, SMS testing.
**Example:** Reminder sent 24 hrs before appointment.

**Step 11 – Multi-Language Support**

**What it is:** Serving diverse patients.
**Why it matters:** Improves usability.
**How it’s done:**

* Switch languages and verify translation accuracy.
**Tools:** Selenium.
**Example:** Language change must update all UI elements.

**Step 12 – Security & HIPAA Compliance**

**What it is:** Data privacy in healthcare.
**Why it matters:** Legal necessity.
**How it’s done:**

* Test encryption, secure sessions.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** No PHI in plain text.

**Step 13 – Emergency Protocols**

**What it is:** Handling urgent cases.
**Why it matters:** Saves lives.
**How it’s done:**

* Test emergency call workflows.
**Tools:** Selenium.
**Example:** Emergency button calls 911 instantly.

**Step 14 – Performance Testing**

**What it is:** Ensuring smooth service at scale.
**Why it matters:** Large events/epidemics create spikes.
**How it’s done:**

* Simulate high concurrent video calls.
**Tools:** JMeter, BlazeMeter.
**Example:** Support 500 calls without lag.

**Step 15 – Accessibility**

**What it is:** Make service usable for all patients.
**Why it matters:** Equal care access.
**How it’s done:**

* Screen reader tests, keyboard nav.
**Tools:** Axe, WAVE.
**Example:** Blind patients can schedule appointments via keyboard.

**10. EV Charging & Green Energy Platforms – 15 Steps Deep Dive**

**Step 1 – User Registration & Login**

**What it is:** Create an account for EV services.
**Why it matters:** Entry to system.
**How it’s done:**

* Test registration and MFA login.
**Tools:** Selenium, Postman.
**Example:** Invalid vehicle ID should be rejected.

**Step 2 – Vehicle Profile Management**

**What it is:** Add/manage EV details.
**Why it matters:** Affects compatibility.
**How it’s done:**

* VIN validation, battery type updates.
**Tools:** Selenium, SQL.
**Example:** Incorrect VIN rejected.

**Step 3 – Charger Search & Map Integration**

**What it is:** Finding charging stations.
**Why it matters:** Core function.
**How it’s done:**

* Test GPS accuracy, filters (fast/slow charger).
**Tools:** API testing, Selenium.
**Example:** Search “fast charger” should filter results.

**Step 4 – Session Booking**

**What it is:** Reserving a charger.
**Why it matters:** Prevents conflicts.
**How it’s done:**

* Test slot booking, cancellation.
**Tools:** Selenium, SQL.
**Example:** Double booking prevention.

**Step 5 – Charging Session Start/Stop**

**What it is:** Begin/end charging from app.
**Why it matters:** Key user interaction.
**How it’s done:**

* Start/stop commands, live status.
**Tools:** API testing, Selenium.
**Example:** Start command must activate station instantly.

**Step 6 – Payment Processing**

**What it is:** Pay per session or subscription.
**Why it matters:** Revenue generation.
**How it’s done:**

* Test per kWh billing.
**Tools:** Payment sandbox, Selenium.
**Example:** Bill must match energy used.

**Step 7 – Charging History**

**What it is:** Log of past sessions.
**Why it matters:** Transparency.
**How it’s done:**

* Match history with backend records.
**Tools:** Selenium, SQL.
**Example:** Each session must have correct timestamp.

**Step 8 – Green Energy Integration**

**What it is:** Show renewable energy usage.
**Why it matters:** Eco impact reporting.
**How it’s done:**

* Validate percentage calculations.
**Tools:** Selenium, SQL.
**Example:** Show correct renewable energy share.

**Step 9 – Maintenance Alerts**

**What it is:** Notify about station issues.
**Why it matters:** User safety.
**How it’s done:**

* Trigger alerts, verify display.
**Tools:** Mailtrap, Selenium.
**Example:** Show “Out of Service” before booking.

**Step 10 – Performance Monitoring**

**What it is:** Track charger uptime.
**Why it matters:** Service reliability.
**How it’s done:**

* Test uptime % calculations.
**Tools:** Selenium, API checks.
**Example:** Report uptime to 99.9%.

**Step 11 – Energy Tariff Updates**

**What it is:** Adjust pricing by location/time.
**Why it matters:** Accurate billing.
**How it’s done:**

* Test real-time tariff updates.
**Tools:** Selenium, SQL.
**Example:** Price should change at midnight as scheduled.

**Step 12 – Loyalty & Rewards**

**What it is:** Incentives for regular users.
**Why it matters:** Encourages usage.
**How it’s done:**

* Test reward points earning/redeeming.
**Tools:** Selenium, SQL.
**Example:** Points should reflect instantly after session.

**Step 13 – Third-Party API Integration**

**What it is:** Connect with maps, payment, EV systems.
**Why it matters:** Expands service.
**How it’s done:**

* Test API data sync.
**Tools:** Postman, Selenium.
**Example:** Map API should show real-time station availability.

**Step 14 – Security Testing**

**What it is:** Protect payments and location data.
**Why it matters:** Trust and safety.
**How it’s done:**

* Test encryption, secure endpoints.
**Tools:** Burp Suite, OWASP ZAP.
**Example:** No GPS data in plain text.

**Step 15 – Accessibility**

**What it is:** Service for all EV owners.
**Why it matters:** Inclusivity.
**How it’s done:**

* Test screen reader, keyboard nav.
**Tools:** Axe, WAVE.
**Example:** All booking options accessible by keyboard only.