

EchoGPT — Part 4: Automation Recommendations

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Reference Test Cases (Sheet): [Click to open the live sheet](#)

1 4.1 Automation Strategy

1.1 4.1.1 Objectives & Principles

- **Risk-Driven Coverage:** Prioritize high-impact flows (auth, payment, security, compliance).
- **Repeatability:** Automate scenarios executed frequently (smoke + regression).
- **Stability First:** Focus on deterministic, stable UI & API layers; guard flakiness.
- **Shift-Left:** Validate APIs (OTP/email/payment) earlier to reduce UI brittleness.
- **Defect Containment:** Convert failures (e.g., TC034, TC038, TC039) into must-run checks.

1.2 4.1.2 Candidates for Automation

Functional (High Priority)

- *Sign-up/Login (TC001–TC019, TC015, TC016):* valid/invalid credentials, password policy (length/complexity/mismatch), field validation, OAuth (Google/GitHub/Twitter), redirections.
- *Security Controls (TC021, TC034):* password masking, session timeout.
- *Payment Flow (TC032, TC033):* visibility of options, error handling, graceful failure.

Non-Functional (Targeted)

- *Cross-Browser/Device (TC023–TC027, TC035):* consistent rendering/behavior on Chrome, Firefox, Safari, Edge; responsive layout.
- *Performance/Resilience (TC022, TC029, TC037):* response time, concurrency stress, network latency handling.
- *Accessibility (TC028):* screen reader semantics, ARIA, focus order.

AI-Specific Safeguards (Critical)

- *Content Moderation (TC038):* verify refusal on harmful prompts.
- *Knowledge Accuracy (TC039):* validate current-facts responses via oracle/comparator.

1.3 4.1.3 Recommended Tools & Frameworks

- **UI E2E:** Selenium WebDriver + TestNG (Java) or PyTest (Python).
- **API:** Postman + Newman (pipeline) or RestAssured (Java) for OTP/email/payment verification.
- **Mobile/Responsive:** Appium (native/hybrid).
- **Performance:** Apache JMeter or Locust (load, stress, soak).
- **Accessibility:** axe-core CLI/axe Selenium, Wave (WCAG 2.1 checks).

- **CI/CD:** GitHub Actions or Jenkins with parallel matrix for browsers; Allure for reports & trend charts.

1.4 4.1.4 Automation vs. Manual Decision

- **Automate:** repetitive auth flows, OAuth paths, critical redirects, session handling, payment visibility/errors, cross-browser sanity, moderation & factual checks.
- **Manual:** exploratory usability, visual polish, one-off edge inputs (e.g., 254-char email), first-look changes, ambiguous AI outputs requiring human judgment.

2 4.2 Automation Scope

2.1 4.2.1 High-Priority Scenarios

1. **Authentication Core:** TC001–TC019, TC015, TC016.
2. **Password & Session Security:** TC005, TC010, TC011, TC012, TC021, TC034.
3. **Payment Visibility/Resilience:** TC032, TC033.
4. **Cross-Platform Baseline:** TC023–TC027, TC035.
5. **Reliability Under Adversity:** TC022, TC029, TC037.
6. **Trust & Safety:** TC038 (harmful prompt refusal), TC039 (current-fact accuracy).

2.2 4.2.2 Regression Strategy & Frequency

- **Smoke (per-commit):** minimal path: OAuth sign-in, dashboard reachability, critical redirection, payment options visible.
- **Daily Regression (nightly):** full auth matrix (valid/invalid), session timeout, browser matrix, moderation & factual checks.
- **Pre-Release:** cross-browser/device expansion, performance (JMeter/Locust), accessibility (axe-core), payment negative paths.

Appendix A: Test Case Coverage Matrix

TC ID	Area	Priority	Automate?	Primary Tool
TC001–TC004	Email/OAuth sign-up basic	High	✓	Selenium
TC005–TC014	Field & policy validation	High	✓	Selenium
TC015	Google sign-in redirection	High	✓	Selenium
TC016	Email verification integration	High	✓	Selenium + API
TC017	Password strength indicator	Medium	✓	Selenium
TC018–TC019	Terms/blank validations	High	✓	Selenium

TC020	Usability: clear errors	Medium	✗ (manual UX)	N/A
TC021	Password masked	High	✓	Selenium
TC022	Response time	Medium	✓	JMeter/Locust
TC023– TC026	Chrome/Firefox/Safari/Edge	High	✓	Selenium
TC027	Mobile responsiveness	High	✓	Selenium
TC028	Accessibility	Medium	✓	axe-core
TC029	Stress: multiple sign-ups	Low	✓	JMeter/Locust
TC030	OAuth security	High	✓	Selenium + API
TC031	Upgrade page load	Medium	✓	Selenium
TC032	Payment options visible	High	✓	Selenium
TC033	Payment error handling	High	✓	Selenium + API
TC034	Session timeout (failed)	Medium	✓	Selenium
TC035	Cross-browser UI consistency	Medium	✓	Selenium
TC036	Dark mode/theme	Low	✗ (visual)	N/A
TC037	Slow network handling	Medium	✓	JMeter/Throttle
TC038	Harmful content refusal (failed)	High	✓	Selenium + Policy oracle
TC039	Verify correct ans (failed)	High	✓	Selenium + Facts oracle

This document is prepared for the Interview Assignment — Part 4. It prioritizes automation for high-impact, repeatable, and compliance-critical scenarios while preserving manual exploratory value.