1. Strategic Recommendations for Test Automation

The sign-up feature of **EchoGPT** is a critical entry point for all users. Since it is both business-critical and frequently used, it is an ideal candidate for **test automation**.

Areas Recommended for Automation:

- **Positive Flows**
    - Successful sign-up with valid inputs.
    - OTP verification with valid 6-digit code.
- **Negative Flows**
    - Invalid email formats.
    - Empty mandatory fields (First Name, Last Name, Email).
    - Names with only spaces, numeric, or special characters.
    - Invalid OTP (less than 6 digits, wrong OTP, alphabets/special characters).
- **Regression Scenarios**
    - "Already registered email" flow.
    - Optional checkbox behavior (updates opt-in).
    - Redirect to Sign-In link.

Areas Not Recommended for Automation (Manual Only):

- **UI/UX checks** (alignment, colors, responsiveness).
- **Email delivery verification in spam/junk** (requires manual observation).

2. Technical Approach

Proposed Framework:

- **Tool:** Selenium WebDriver (for web UI automation).
- **Language:** Python (lightweight, easy to maintain) or Java (if team standard).
- **Test Runner:** Pytest (Python) or TestNG (Java).

- **Build/CI Tool:** GitHub Actions or Jenkins (to enable automated execution in pipelines).
- **Reporting:** Allure Reports or Extent Reports for professional reporting.

Test Data Strategy:

- Use a **data-driven approach** (Excel) for email/OTP variations.
- Mock or stub OTP service for automation (instead of relying on actual email delivery).

3. Tool Selection Rationale

- **Selenium WebDriver** → Open-source, widely adopted, supports cross-browser testing.
- **Pytest/TestNG** → Supports parameterization, grouping, fixtures, and detailed reports.
- **GitHub Actions/Jenkins** → Integrates tests into CI/CD pipeline for continuous quality.
- **Allure/Extent Reports** → Provides visual, shareable execution reports for stakeholders.

4. Risks & Mitigation

Risk	Impact	Mitigation
OTP delivery dependency	May cause test flakiness if email server delays	Use mock OTP API or temporary email services
Frequent UI changes	Tests may break	Build maintainable framework with Page Object Model (POM)
Initial setup effort	High for first-time setup	Invest in reusable framework, reduces long-term effort

5. Conclusion

Automating the **EchoGPT sign-up feature** will significantly reduce regression testing time, improve accuracy, and ensure reliability of this core functionality. While OTP-related tests require careful handling, a hybrid approach of automation + manual checks ensures balanced coverage.

Recommendation: Begin with automating **core positive and negative flows** using Selenium + Pytest/TestNG, and gradually expand into regression and CI/CD integration.