

# Test Planning & Analysis

## 1. Requirements Analysis

### 1.1 Sign-Up Process Flow:

1. Initial Access
  - User navigates to <https://echogpt.live/>
  - On the homepage, users see a **Sign in** button.
  - Beneath it, there is a **Sign up for free** link
2. Clicking Sign up for free
  - Users are presented with **4** options:
    - Sign in with Email
    - Sign up with Google
    - Sign up with Twitter (X)
    - Sign up with GitHub
3. Email Sign-up Flow
  - Selecting **Sign in with Email** redirects to an email sign-in page.
  - On this page, there's also a **Sign-Up** button.
  - When clicked:
    - User is prompted to provide First Name, Last Name, and Email.
    - User clicks **Send OTP**.
    - OTP (6 digits) is sent to the entered email.
    - User is redirected to the OTP Verification Page.
    - User enters the received OTP.
    - Upon successful validation, the user is:
      - Redirect to Homepage.
      - Success confirmation email is sent.
4. Social Sign-up Flows (Google, Twitter, GitHub)
  - User selects a **social provider**.
  - A pop-up appears from the respective OAuth provider (Google/Twitter/GitHub).
  - User selects an account or enters credentials on the provider's site.
  - User grants permissions to EchoGPT.
  - User is redirected back to EchoGPT and is automatically logged into the homepage.

### 1.2 Explicit Requirements:

- Users must provide valid first name, last name, email for email sign-up.
- Users must be able to create an account using an email address, first name, and last name.
- Users must be able to create an account using a Google, Twitter, or GitHub account.
- Email verification via a 6-digit OTP is mandatory for email-based sign-up.
- OTP must be **6 digits**.
- Successful OTP validation redirects to homepage and sends confirmation email.

- OAuth sign-up (Google, Twitter, GitHub) should successfully authenticate via third-party services.
- Users must agree to the Terms of Use and Privacy Policy.
- Email field must accept only valid email formats.

### 1.3 Implicit Requirements:

- Prevention of duplicate account creation.
- OTP must be unique per request.
- OTP input should reject anything other than 6 digits.
- Error messages should be clear (e.g invalid OTP, invalid email format).
- Security: OTPs should not be guessable or reused.
- Accessibility: The Signup page should work across devices (desktop, mobile, tablet).

### 1.4 Assumptions:

- OTP has no expiration time.
- Email sign-up is accessible only through the 'Sign up' button.
- Passwords are not required for email sign-up, relying solely on OTP for every login.
- User data is stored securely in the backend database.
- Network/API failures should display friendly error messages.
- User is redirected to the homepage only after successful authentication.

### 1.5 Potential User Personas:

1. **Job Seekers:** Signing up to use AI-driven job analysis and resume tools.
2. **Students & Graduates:** Signing up for career-building assistance.
3. **Recruiters & Employers:** Signing up to evaluate job analysis tools.
4. **Tech Enthusiasts:** Exploring the AI productivity platform.

## 2. Test Strategy Development

### 2.1 Scope of Testing:

#### 2.1.1 In-Scope:

- Email-based registration flow.
- Social OAuth integration (Google, Twitter, GitHub).
- OTP generation and verification.
- Form validation and error handling.
- Email notifications.
- Usability of sign-up page (navigation, responsiveness).
- Cross-browser compatibility.
- Basic security validation(OTP uniqueness).

#### 2.1.2 Out-of-Scope:

- Backend database testing.
- Load/performance testing beyond basic response times.
- Third-party OAuth provider internal functionality.
- Email delivery infrastructure.

- Advanced security penetration testing.

## 2.2 Test Objectives & Success Criteria:

1. **Objective 1:** Verify that all sign-up methods create valid user accounts.  
**Success Criteria:** User registration completes, confirmation email received, homepage access granted.
2. **Objective 2:** Verify security and input validation.  
**Success Criteria:** Duplicate emails rejected, invalid OTPs rejected.
3. **Objective 3:** Verify cross-browser and device compatibility.  
**Success Criteria:** Sign-up works on all target browsers and devices.
4. **Objective 4:** Verify OAuth integration reliability.  
**Success Criteria:** All social sign-up methods authenticate and create accounts successfully.

## 2.3 Risk Assessment:

Risk Area	Risk Level	Impact	Mitigation Strategy
OTP not received / Email delivery failure	High	User cannot complete registration	Test multiple email providers, verify spam folder handling
OAuth provider downtime	High	Social sign-up unavailable	Test fallback to email registration
Duplicate account creation	High	Data integrity issues	Test email uniqueness validation
Form validation bypass	Medium	Invalid data in the system	Comprehensive input validation testing
Mobile responsiveness issues	Medium	Poor user experience	Cross-device testing
Browser compatibility	Low	Limited user access	Multi-browser testing
Accessibility issues	Low	Compliance concerns	Basic accessibility validation
UI/UX confusion (sign-in vs sign-up)	Low	Confuses users, may reduce sign-ups	Improve button labeling, clearer navigation

## **2.4 Testing Approaches:**

### **2.4.1 Functional Testing**

- Positive/negative test cases for form validation.
- OTP validation (correct vs incorrect OTPs).
- OAuth signup success & failure scenarios.

### **2.4.2 Usability Testing**

- User interface intuitiveness.
- Error message clarity.
- Navigation flow efficiency.
- Mobile user experience.

### **2.4.3 Security Testing**

- Verify OTP can't be reused.
- Brute-force attempt prevention.
- Ensure HTTPS is enforced.

### **2.4.4 Performance Testing**

- OAuth login speed.
- OTP delivery speed.
- Page load times.
- Form submission response times.

## **2.5 Test Environment Requirements**

- Browsers: Chrome, Firefox, Safari, Edge (latest versions).
- Devices: Desktop, Mobile, Tablet(iOS, Android,iPad).
- Email testing environment (dummy accounts to receive OTPs).
- Test Google/Twitter/GitHub accounts for OAuth validation.

## **2.6 Entry Criteria**

- All sign-up methods are deployed and functional
- Test accounts available for email + OAuth providers.
- OTP email service configured.

## **2.7 Exit Criteria**

- All critical and high-priority test cases pass.
- No critical defects remain open.
- Cross-browser compatibility confirmed.
- OTP validation and OAuth sign-ups confirmed.
- Confirmation email verified after signup.
- User acceptance criteria met.

