**Test Plan Document**

**1. Introduction**

The objective of this test plan is to ensure the search functionality on Givelify meets the required quality and performance standards. This includes validating the functionality, performance, and reliability of the search engine using automated tools like Cypress, Postman, and JMeter.

**2. Test Objectives**

* Verify the accuracy and relevance of search results.
* Ensure the UI performs well under load.
* Validate API responses and performance under various conditions.

**3. Test Scope**

* **Functional Testing**: Validate the correctness of the search functionality.
* **Performance Testing**: Assess the system's performance under load.
* **UI Testing**: Ensure the user interface behaves correctly and is responsive.
* **API Testing**: Verify API endpoints' correctness and performance.

**4. Test Strategy**

**4.1 UI Testing**

* **Tool**: Cypress
* **Approach**: Automate tests to validate user interactions and ensure search results are displayed correctly.
* **Scope**:
  + Verify search results accuracy.
  + Ensure search results are displayed within 3 seconds.
  + Test various search keywords and scenarios.

**4.2 API Testing**

* **Tool**: Postman/Cypress
* **Approach**: Automate tests to verify API responses, including correctness and performance.
* **Scope**:
  + Validate API responses for different search queries.
  + Test error handling for invalid requests.
  + Measure response times and ensure they meet performance criteria.

**4.3 Performance Testing**

* **Tool**: JMeter
* **Approach**: Simulate load to ensure the system can handle high traffic and measure response times.
* **Scope**:
  + Simulate up to 10,000 concurrent users (scalable testing within practical limits).
  + Measure response times and system behavior under load.
  + Gradually increase the number of users to identify performance bottlenecks.

**5. Test Environment**

* **Environments**: Development and staging.
* **Tools**: Cypress for UI testing, Postman/ Cypress for API testing, JMeter for performance testing.

**6. Test Deliverables**

* Detailed test cases and automation scripts.
* Test execution reports and metrics.
* Defect logs and resolution reports.