Performance Testing

Functional testing is a type of software testing that ensures each function of the software application operates in accordance with the required specifications. For the **Video Conference App**, the primary goal is to validate that all features—especially those critical to real-time communication—work seamlessly from the user's perspective.

Key Objectives:

- To verify that all core functionalities (video calls, chat, user auth, etc.) operate as expected.
- To test the user interface, APIs, database, security, and client/server communications.
- To ensure that user flows such as registration, login, property listing, and search yield correct results.

Test Scenarios Covered:

- **User Registration:** Verifying if new users can register with valid data and appropriate error messages are displayed for invalid inputs.
- **Login Functionality:** Testing successful login with correct credentials and appropriate feedback for incorrect attempts.
- **Email Confirmation:** Ensuring that confirmation emails are sent and verified before account activation.

- **Room Creation & Join:** Verify users can create new meeting rooms and generate unique room links.

- **Video/Audio Communication:** Test real-time video and audio functionality using WebRTC.

- **Chat Functionality:** Confirm that text messages can be sent and received in real time during meetings.

- **User Dashboard:** Verifying the display of user-specific data and options such as saved listings or posted properties.

- **Logout:** Ensuring secure and smooth logout operation.

Tools Used for Functional Testing:

- Manual Testing

- Postman (for testing API responses)

- Selenium (optional automation, if applicable)

Performance testing assesses how the **Video Conference App** behaves under various load conditions, especially given the real-time and resource-intensive nature of video calls.

Key Objectives:

- To ensure the system can handle multiple users accessing or modifying data simultaneously.

- To identify bottlenecks and performance issues in various modules like search, listing uploads, and dashboard loading.

- To measure the response time, throughput, and server behavior under different conditions.

Types of Performance Testing Performed:

- **Load Testing:** Checked how the system handles a normal expected load (e.g., 100 simultaneous users searching properties).

- **Stress Testing:** Evaluated how the system behaves under peak load (e.g., 1000 concurrent requests during festive/academic admission periods).

- **Spike Testing:** Tested performance impact due to sudden surges in user activity.

- **Endurance Testing:** Checked for memory leaks and system stability during extended use.

Key Metrics Evaluated:

- **Response Time:** Time taken to return results for user queries.

- **Throughput:** Number of requests handled per second.

- **Server Resource Usage:** CPU, memory, and database usage trends under load.

- **Error Rate:** Frequency of failed transactions or dropped requests.

Tools Used for Performance Testing:

- JMeter (for simulating multiple users)
- Google Chrome DevTools (for client-side performance and load times)
- LightVideoCon (to evaluate page performance and best practices)

Summary:

The **Video Conference App** successfully passed all core performance and functional tests during the current development cycle. The application demonstrated stable performance under both expected and high-load scenarios, with real-time features (video, audio, and chat) operating smoothly across multiple simulated users