### **Performance Test : for https://magento.softwaretestingboard.com/**

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**Product Catalog Browsing and Checkout Process**

* The product catalog (category pages, filters, and search) is a high-traffic area where users browse many products.
* The checkout process is critical for revenue and involves multiple backend interactions (cart update, address validation, payment processing).
* Performance bottlenecks here directly affect user experience and conversion rates.
* Testing this flow can reveal slowdowns or failures under load, impacting overall business goals.

### **Testing Approach:**

1. **Load Testing:** Simulate typical user load with realistic browsing and checkout behavior to measure response times and system stability under normal to peak load conditions.
2. **Stress Testing:** Increase load beyond expected peak to identify the breaking point of the system and how gracefully it recovers from overload.
3. **Endurance Testing:** Run sustained load over an extended period to uncover memory leaks, resource depletion, or degradation.
4. **Spike Testing:** Simulate sudden spikes in traffic (e.g., black friday sales) to observe how the system handles abrupt load increases.

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### **Key Test Scenarios:**

* **Scenario 1:** Multiple concurrent users browsing category pages, applying filters, and searching for products.
* **Scenario 2:** Multiple users adding various quantities of products to the cart simultaneously.
* **Scenario 3:** Simultaneous users proceeding through checkout — filling shipping details, payment info, and placing orders.
* **Scenario 4:** High volume of guest checkouts versus logged-in user checkouts.
* **Scenario 5:** Spike in login requests and password reset requests.

### **Parameters to Measure:**

* **Response Time:** Average and percentile (95th, 99th) response times for page loads and API calls.
* **Throughput:** Number of requests processed per second.
* **Error Rate:** Percentage of failed requests or server errors.
* **Resource Utilization:** CPU, memory, network, and database I/O on the server.
* **Concurrent Users:** Maximum number of simultaneous users the system can handle without degradation.
* **Latency:** Delay between user action and system response.