🚀 Database Performance Testing Using JMeter

**🔧 1. Gather Required Database Information**

| **Parameter** | **Example** |
| --- | --- |
| Server (Host) | localhost or sql12.freesqldatabase.com |
| Port Number | 3306 |
| Database Name | sql12715580 |
| Username | sql12715580 |
| Password | KGn548izbj |
| Permissions Required | SELECT, INSERT, UPDATE, DELETE |

**🧰 2. Prerequisites**

* **Apache JMeter** (download from [jmeter.apache.org](https://jmeter.apache.org))
* **Java JDK** (Required to run JMeter)
* **MySQL JDBC Driver**:
  + Download mysql-connector-java-<version>.jar
  + Place it in JMeter/lib folder
* **Restart JMeter** after placing the driver.

**🛠️ 3. Step-by-Step Setup**

**✅ Step 1: Create a Test Plan**

* Launch jmeter.bat (Windows) or jmeter.sh (Linux/macOS)
* Rename “Test Plan” → e.g., **MySQL DB Performance Test**

**✅ Step 2: Add Thread Group**

Right-click on Test Plan → Add → Threads (Users) → Thread Group  
Configure:

* **Threads (Users)**: e.g., 5
* **Ramp-Up Period**: e.g., 10 sec
* **Loop Count**: 1 (or higher for load test)

**✅ Step 3: Add JDBC Connection Configuration**

Right-click on Thread Group → Add → Config Element → JDBC Connection Configuration  
Example Configuration:

* **Pool Name**: mySQLPool
* **JDBC URL**: jdbc:mysql://sql12.freesqldatabase.com:3306/sql12715580
* **Driver Class**: com.mysql.cj.jdbc.Driver
* **Username/Password**: as per DB credentials

**✅ Step 4: Add JDBC Request (SQL Queries)**

Right-click Thread Group → Add → Sampler → JDBC Request  
Fill in:

* **Name**: Select All From Test
* **Pool Name**: mySQLPool
* **Query Type**: Select Statement
* **Query**:

sql

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SELECT \* FROM test;

For Insert:

sql

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INSERT INTO test (ID, Name) VALUES ('1003', 'Bhim'), ('1004', 'Shyam');

📌 You can use **CSV Data Set Config** for parameterized INSERTs.

**📊 4. Add Listeners (To View Results)**

Right-click on Thread Group → Add → Listener  
Recommended:

* **View Results Tree** (Debug)
* **Summary Report**
* **Aggregate Report**

**▶️ 5. Run the Test**

**🧪 In GUI Mode:**

* Click Start button (Green Triangle)

**🧪 In Non-GUI Mode (for load testing):**

bash

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jmeter -n -t path/to/test.jmx -l path/to/results.jtl -e -o path/to/output\_dashboard

* -n: Non-GUI mode
* -t: Path to .jmx file
* -l: Results file (.jtl)
* -e: Generate dashboard
* -o: Output folder (must be empty)

**📈 6. Analyze Results**

**In GUI Mode:**

* **View Results Tree**: Shows SQL output and errors
* **Aggregate Report**:
  + **Average / Median**: Lower = better
  + **Throughput**: Higher = better
  + **Error %**: Should be 0%

**In Non-GUI Mode:**

* Open index.html in output\_dashboard for interactive visual reports.

**🧠 7. Pro Tips for Robust Testing**

| **Feature** | **Usage** |
| --- | --- |
| CSV Data Set Config | Use for data-driven INSERT/UPDATEs |
| Assertions | Validate query results using JDBC Assertions |
| Pre-/Post-Processors | Set up or clean up DB before/after test |
| External Monitoring | Use mysqltop, htop, or cloud DB monitoring for server performance |
| Test Data Mgmt | Clean up inserted/updated/deleted records as needed |