1. **Study of SQLite.What is SQLite?Uses of SQLite.Building and installing SQLite.**

**Answer :**

**🧠 1. What is SQLite?**

**SQLite** is a **lightweight, self-contained, serverless** SQL database engine. It is:

* An **embedded database**, meaning it runs directly in your application, not as a separate server.
* **Open-source** and written in **C**.
* Extremely **portable** – its database is a single cross-platform file.
* Comes with **zero configuration** – no server setup needed.

**🔑 Key Features:**

* No client-server architecture.
* Transactions are **ACID-compliant**.
* Entire database stored in **a single file**.
* Very fast and efficient for read-heavy applications.
* **Public domain** license – free for commercial or private use.

## 🧰 ****2. Uses of SQLite****

SQLite is widely used in various domains due to its simplicity and efficiency:

|  |  |
| --- | --- |
| **Use Case** | **Explanation** |
| **Mobile Apps** | Default DB for **Android** and used in **iOS**. |
| **Web Browsers** | Used by **Chrome**, **Firefox** for local data. |
| **IoT Devices** | Ideal for low-resource environments. |
| **Embedded Systems** | Smart TVs, routers, etc. |
| **Testing & Prototyping** | Lightweight alternative to full SQL servers. |
| **Desktop Applications** | Tools like Skype and Photoshop use SQLite. |
| **Data Caching / Local Storage** | Stores temporary or offline data. |

## 🛠️ ****3. Building and Installing SQLite on Ubuntu****

### ✅ ****Option 1: Install via APT (Quick & Easy)****

### sudo apt update

### sudo apt install sqlite3

### 🔎 ****Check version:****

### **sqlite3 --version**

### ✅ This installs the SQLite command-line tool.

### ✅ ****Option 2: Build from Source (Latest Version)****

#### 📥 Step 1: Install Build Tools

### **sudo apt install build-essential tcl**

#### 📥 Step 2: Download SQLite Source Code

Go to: https://www.sqlite.org/download.html

Example (replace version as needed):

### **wget https://www.sqlite.org/2024/sqlite-autoconf-3450100.tar.gz**

### **tar -xzf sqlite-autoconf-3450100.tar.gz**

### **cd sqlite-autoconf-3450100**

### ⚙️ Step 3: Compile and Install

### **./configure**

### **make**

### **sudo make install**

### 🧪 Step 4: Verify Installation

### **sqlite3**

### This will open the SQLite prompt (sqlite>) where you can start creating databases.

## 📌 Summary

|  |  |
| --- | --- |
| **Topic** | **Summary** |
| **SQLite** | Lightweight, embedded SQL engine with no server setup. |
| **Uses** | Mobile apps, web browsers, IoT, embedded systems, prototyping. |
| **Install** | Use sudo apt install sqlite3 or compile from source for latest build. |