**1. What is Selenium?**

**Selenium** is a **tool** used to **automate testing of web applications**.  
It helps testers write code that opens a browser, clicks buttons, fills forms, and checks if things are working correctly on a website.

**2. Difference between Selenium and Cypress?**

| **Feature** | **Selenium** | **Cypress** |
| --- | --- | --- |
| **Language Support** | Many (Java, Python, C#, etc.) | Only JavaScript |
| **Browser Support** | Chrome, Firefox, Safari, etc. | Mainly Chrome and Edge (limited) |
| **Speed** | Slower | Faster (runs inside browser) |
| **Setup** | Bit harder to set up | Easy to install and use |
| **Best For** | Complex, cross-browser testing | Fast testing for modern JS apps |

**3. What is Selenium IDE and Selenium Client API?**

* **Selenium IDE**:  
  A **browser plugin** (like for Chrome/Firefox) that **records what you do** on a webpage (like clicking, typing), and **turns it into test scripts**. Good for beginners.
* **Selenium Client API**:  
  These are **libraries** in different programming languages (like Java or Python) that allow you to **write test code** for Selenium.

**4. What is Selenium Grid and Selenium WebDriver?**

* **Selenium WebDriver**:  
  It's the **main tool** in Selenium. It helps **control the browser** through code (like opening pages, clicking, etc.).
* **Selenium Grid**:  
  It lets you **run tests on many computers or browsers at the same time**, which saves time.

**5. Explain Selenium Architecture:**

Selenium has these main parts:

1. **Test Code (written by you)** — in Java, Python, etc.
2. **Selenium WebDriver** — connects your code to the browser.
3. **Browser Drivers** — like ChromeDriver or GeckoDriver, they talk to real browsers.
4. **Browser** — like Chrome or Firefox, where tests are run.

**Flow:**  
Your code → WebDriver → Browser Driver → Browser

**6. Advantages and Limitations of Selenium**

**Advantages:**

* Free and open-source
* Supports many programming languages
* Works on all major browsers
* Can run tests in parallel (Selenium Grid)

**Limitations:**

* Only for **web apps**, not desktop/mobile apps
* No built-in reporting (you need to add tools)
* No official tech support (community only)
* Setup can be a bit complex