**1. Python Environment**

* **What:** Python 3.6 or higher.
* **How:**
  + Download and install the latest Python from python.org.
  + (Optional) Create a virtual environment:
    - On Windows: python -m venv venv venv\Scripts\activate
    - On macOS/Linux: python3 -m venv venv source venv/bin/activate

**2. Python Packages**

* **What:** Required libraries for automation, OCR, image processing, and more.
* **How:** Open your terminal or command prompt (with your virtual environment activated) and run:
  + **Appium-Python-Client:** pip install Appium-Python-Client
  + **Selenium:** pip install selenium
  + **OpenCV-Python:** pip install opencv-python
  + **Pytesseract:** pip install pytesseract
  + **Pillow:** (for handling images) pip install Pillow
  + **NumPy:** (often comes with OpenCV, install if needed) pip install numpy

**3. Tesseract OCR Engine**

* **What:** The Tesseract engine does the optical character recognition (OCR).
* **How:**
  + **Windows:**
    - Download the installer from Tesseract at UB Mannheim.
    - Run the installer.
    - (Optional) Add the Tesseract installation folder (e.g., C:\Program Files\Tesseract-OCR) to your PATH environment variable.
  + **macOS:**
    - Install via Homebrew: brew install tesseract
  + **Linux (Debian/Ubuntu):**
    - Run: sudo apt-get update sudo apt-get install tesseract-ocr

**4. Appium Server**

* **What:** Appium is used to communicate with mobile devices.
* **How:**
  + Install Node.js from nodejs.org if not already installed.
  + Then, open a terminal and run:
    - npm install -g appium
  + To start the Appium server, simply type:
    - Appium

**5. Android SDK and Device Drivers**

* **What:** Needed for testing on Android devices or emulators.
* **How:**
  + **Android Studio:**
    - Download and install Android Studio. It comes with the Android SDK.
  + **Device Drivers:**
    - For Windows, install the USB drivers for your device (often provided by the manufacturer).
  + **Emulator:**
    - Use Android Studio’s AVD Manager to create and manage emulators.

**6. Project Configuration**

* **What:** A configuration file (like config/config.py) is needed to store settings such as:
  + Appium server URL
  + Device name, platform version, UDID
  + App package and activity
  + Screenshot directory and OCR language
* **How:**
  + config.py is already created