Department of Master of Computer Applications (MCA)

Mobile Application Development (MCA221IA)

Hand Notes

Unit - 1	Topic: Setup
Editor: 1RV24MC089 SAHANA H J	

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02 Marks Questions:

1.Does android studio need JDK to function,if so why ?
Answer:

Yes, **Android Studio needs a JDK (Java Development Kit)** because:

- Android app development relies on Java and Kotlin languages, and the JDK provides the essential tools to **compile, run, and debug Java code.**

- The **build process** of Android apps (via Gradle) requires the JDK for compiling source code into bytecode.

- Core Android tools and SDK components depend on Java runtime and development tools included in the JDK.

Android Studio bundles its own JDK and installs it automatically.

04 Marks Questions:

2. What are the system requirements/prerequisites for installing Android Studio on Windows?

Answer:

The following are the system requirements for Android Studio on Windows.

- 64-bit Microsoft® Windows® 8/10/11
- x86_64 CPU architecture; 2nd generation Intel Core or newer, or AMD CPU with support for a <u>Windows Hypervisor</u>
- 8 GB RAM or more
- 8 GB of available disk space minimum (IDE + Android SDK + Android Emulator)
- 1280 x 800 minimum screen resolution

3. What are the system requirements/prerequisites for installing Android Studio on Linux?

Answer:

The following are the Android Studio system requirements for Linux.

- Any 64-bit Linux distribution that supports Gnome, KDE, or Unity DE; GNU C Library (glibc) 2.31 or later.
- x86_64 CPU architecture; 2nd generation Intel Core or newer, or AMD processor with support for AMD Virtualization (AMD-V) and SSSE3
- 8 GB RAM or more
- 8 GB of available disk space minimum (IDE + Android SDK + Android Emulator)
- 1280 x 800 minimum screen resolution

4. What are the system requirements/prerequisites for installing Android Studio on Mac?

Answer:

The following are the system requirements for Android Studio on macOS.

- MacOS® 10.14 (Mojave) or higher
- ARM-based chips, or 2nd generation Intel Core or newer with support for <u>Hypervisor Framework</u>
- 8 GB RAM or more
- 8 GB of available disk space minimum (IDE + Android SDK + Android Emulator)
- 1280 x 800 minimum screen resolution

5. How to download Android Studio? (on linux/windows/mac)

Answer:

- Open any web browser and navigate to the official Android Studio download page (https://developer.android.com)
- This is the Android Developers website, where you can download Android Studio. This page automatically detects your operating system.
- Click Download Android Studio. The Terms and Conditions page with the Android Studio License Agreement opens.
- Read the License Agreement.
- At the bottom of the page, if you agree with the terms and conditions, select the I have read and agree with the above terms and conditions checkbox.
- Click Download Android Studio to start the download.
- When prompted, save the file to a location where you can easily locate it, such as the `Downloads` folder.

- Wait for the download to complete. This may take a while.

  Source for all of the above: link

06 Marks Questions:

6.How to install Android Studio on Linux?

Answer:
Download Android Studio

Open the `Downloads` folder in the terminal.

1. Extract the archive with the `tar` command.
2. Navigate to the `android-studio/bin` directory.
3. Run `studio.sh`
4. Keep Do not import settings selected and click OK on the prompt.
5. Choose whether or not to share usage data with Google.
6. Keep Standard as the selected install type. Click Next to continue.
7. Choose your preference of light or dark theme. Screenshots in this course use the light theme, but choose whichever one you prefer. You can always change this later.
8. Accept all the default settings and click Next.
9. Read and agree to the License Agreement for the Android SDK and Android NDK, and click Next.
10. You may also see some additional information about hardware acceleration and the Android emulator. Click Finish.
11. During the installation, the setup wizard downloads and installs additional components and tools needed for Android app development.
12. When the installation is complete, click Finish.
13. The Welcome to Android Studio dialog displays indicating the completion of installation!

Source: link

7.What's HAXM/KVM ,Why is it important to install Intel HAXM/KVM or enable Hypervisor support during setup?

Answer:

Term	Full Form	Platform	Purpose
HAXM	Intel® Hardware Accelerated Execution Manager	Windows/macOS	A virtualization engine to accelerate Android Emulator performance on Intel CPUs
KVM	Kernel-based Virtual Machine	Linux	A virtualization module in the Linux kernel that enables hardware-assisted virtualization

HAXM/KVM or Hypervisor Support Important are important for:

1. Emulator Speed

- The Android Emulator simulates an entire Android phone, which is **CPU-intensive**.

- Without HAXM/KVM, the emulator runs in **software mode** — slow and laggy.

- With HAXM/KVM, the emulator uses **hardware acceleration**, making it **fast and smooth** (closer to real device speed).

2. Better Development Experience

- Faster boot times

- Quicker deployment of apps

- Real-time testing performance

- Less system lag

3. Required for Some System Images

- Some system images (like x86/x86_64-based ones) **require hardware acceleration** to run efficiently.

- HAXM/KVM makes these usable even on development machines with limited resources.

08 Marks Questions

8.How do you install additional SDK packages or system images using SDK Manager?

Answer:

1. Open SDK Manager

- Open **Android Studio**.

- Click on **"More Actions"** (on the welcome screen) → **"SDK Manager"**,
  or if a project is open:
  Go to `File` → `Settings` → `Appearance & Behavior` → `System Settings` → `Android SDK` (on Windows/Linux),
  or `Android Studio` → `Preferences` → `Appearance & Behavior` → `System Settings` → `Android SDK` (on macOS).

◆ **2. Choose SDK Platforms**

- Click on the **SDK Platforms** tab.

- You'll see a list of Android versions (API Levels).

- Check the box next to the Android version you want to install.

- Click **Apply** to begin installation.

◆ **3. Choose SDK Tools (Optional)**

- Switch to the **SDK Tools** tab.

- Here you can install or update:

  ○ Android SDK Build-Tools

  ○ Android Emulator

  ○ Android SDK Platform-Tools

  ○ Intel x86 Emulator Accelerator (HAXM)

  ○ NDK, CMake, etc.

- Check the boxes for the tools you need and click **Apply**.

◆ **4. Install System Images (for Emulator)**

- Go back to **SDK Platforms** tab.

- Expand a platform (e.g., Android 12.0 (API 31)) by clicking the arrow.

- Check the box for the **System Image** (e.g., **x86, ARM, or Google APIs image**).

- Click **Apply** to download.

◆ **5. Finish Installation**

- Android Studio will download and install the selected components.

- Once finished, you can use the new system image to create a virtual device in the **AVD Manager**.