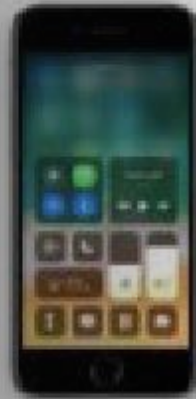
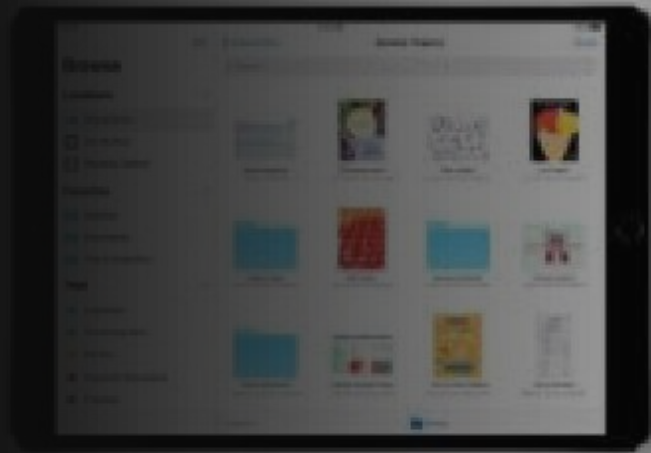
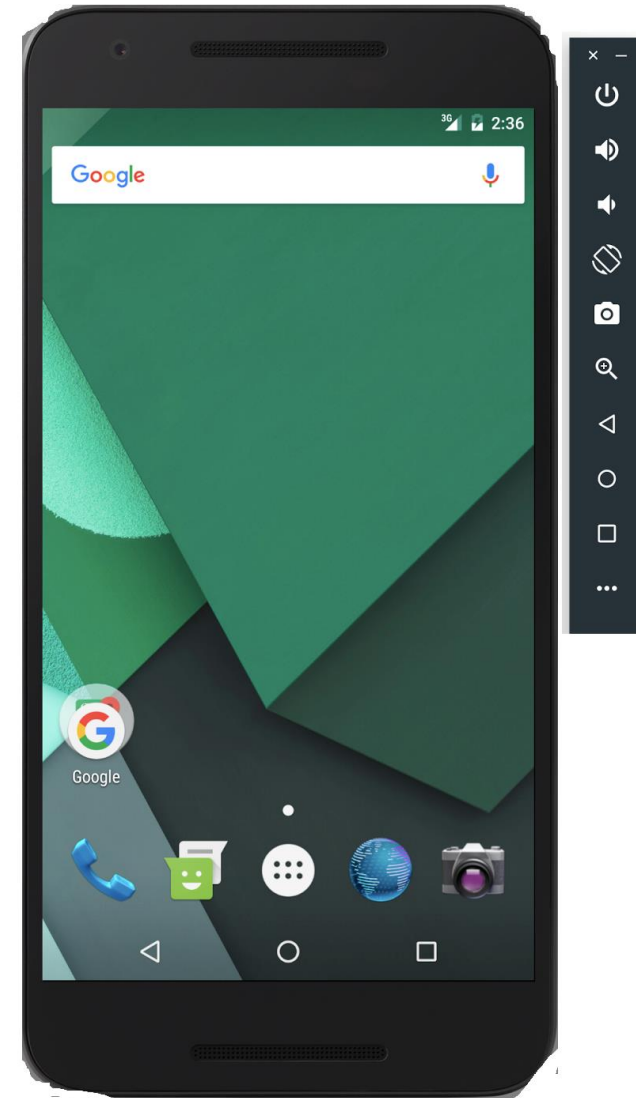


# Emulator Vs Simulator



# What is Emulator?

- Emulator is kind of Virtual device, it is a software we run on personal computer to mimic the particular smartphone's behavior.
- It helps to test the application on specific device even we don't have any real devices.





# Why Emulator?

- QA Engineer needs specific devices to test software properly and we cannot manage all the real devices for the testing so we can take help of virtual devices.

**Note:** We have option of Browser stack, where we can use real devices for our functional testing but again that is not free, we have to buy plan then only can use.

# Pros of Virtual Devices

Perfect for early testing.

Quick results.

Easy debugging

Lower exploitation price.

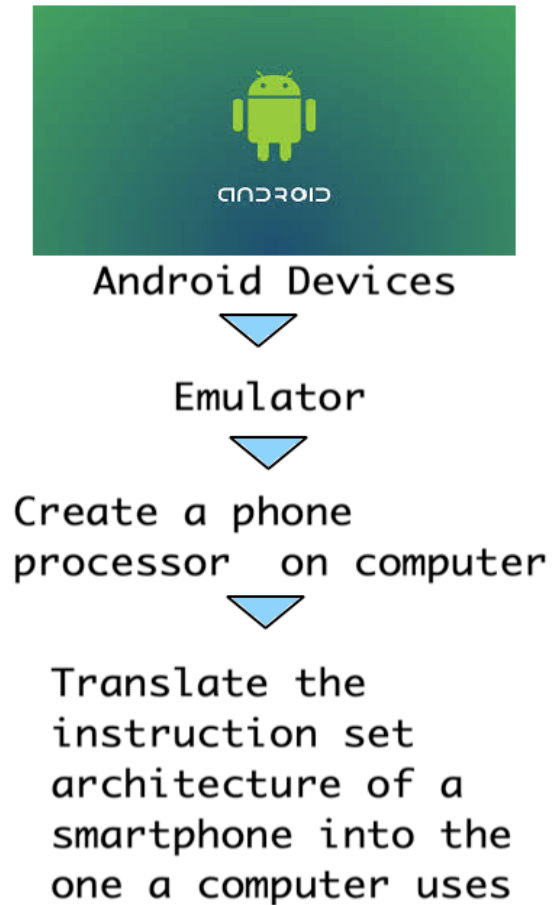




# What is Simulator?

- The iOS simulators mimic iOS and run the required application inside it, by sitting on top of the computer's Operating System. But to run the iOS simulator, one needs to work on the macOS only, as it needs Apple's native Cocoa API. This Cocoa API is essential for the GUI, runtime and many other operations.

# Why Emulator works very slow?



Computer System and mobile devices powered by different processors family. and processor works on ISA (Instruction set Architecture). It is mainly set of machine language commands which helps to communicate between software and hardware.

To mimic the hardware and software of a target device emulator recreate the processor on a computer and for this they have to translate the instruction set architecture of mobile phone into one computer uses. This process is known as binary translation and slows down the performance of emulator.



# Difference between Emulators and Simulators

## Emulators

- Emulators mimic software and hardware.
- Emulators are written in machine level assembly language.
- Emulator is slower due to binary translation.



## Simulators

- Simulators mimic software only.
- Simulator are written in high- level Languages.
- Simulator don't need binary translation.

**\*\* If you are not aware with high level language and machine level language plz see next slide.**

## Note:

A **machine language** is the only language that a computer directly understands, it is usually written in zeros (0) and ones (1). A program instruction in machine language may look something like this 111010110010001 whereas, a **high-level language** is a programming language that uses English and mathematical symbols, like +, -, % and many others, in its instructions.

```
100100
10000000011
101010101010
000000000111
```

Low level language

VS

```
if(i<5)
{
printf("I am true block ");
}
else{
printf("I am false block");
}
```

High level language



Feature can  
not be  
tested with V  
irtual devices

Device Camera

Two factor  
authentication

Network  
behaviour

Battery issues

Touchscreen  
features

Brightness and  
background color.





## Key point:

- Emulator imitates features of another device, mimicking hardware and software of a target device.
  - Simulator replicates software by mimicking various product configurations that exist in the real environment
  - We can emulate android phones but cannot do iOS phones
-

# Thank You!



Mithilesh Singh