oHA → open handset Alliance    SDK → SW Dev. kit

Android → is (not) single piece of hw
   but    end-to-end    sw  platform ,  Can Work on
            any  hw  Configuration
      " From  bootloader  upto  application.

Android  Sw  Stack
Application → FB, whatsapp
      ↓
  Application framework ───────→    Core functions
      ↓
  Libraries ───→ runtime < Core libs
                          Dalvik virtual machine → run java
                                                        Cod
                                                        ↓ on
      ↓
  kernel                                          linux kernel
  _____

[Application  Framework]

① View system ───→ build an application include list, Grid
② Content provider ───→ access data from other app / share ou
                                                            data

                 String
③ Resource manger ───→ provide access to non-Code resources
④ Notification " ───→ Enable all application to display Custom
                       alert in status bar


⑤ Activity  " ───→ - life cycle of app
                    - provide Navigation backstack

# libraries

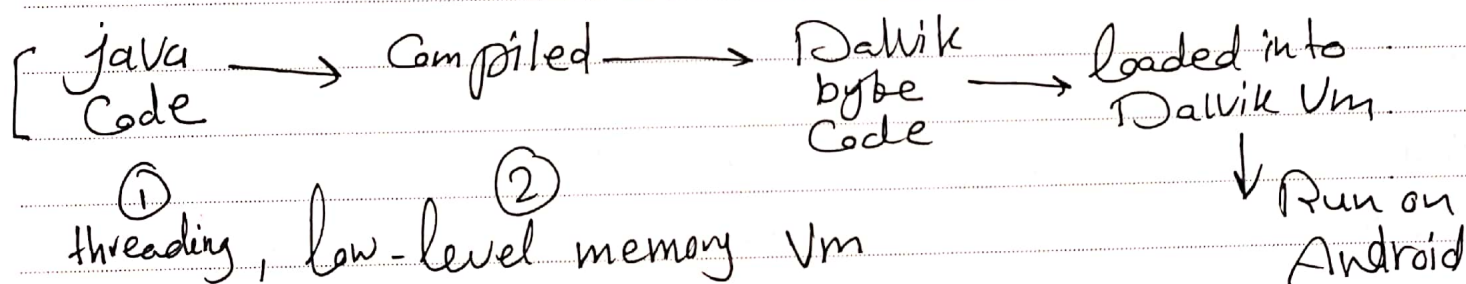C, C++ libraries used by Components of an android system

## examples

Surface manger $\longrightarrow$ display 2d, 3d
webkit $\longrightarrow$ browser support
Free Type $\longrightarrow$ Font Support
SqLite $\longrightarrow$ Relational db (on device it self)

## Runtime $\longrightarrow$ Core libraries

Dalvik run time
- optimized for mobile applications
- Run multiple Vms efficently
- each app has its own Vm
- Minimal memory

[ Java Code $\longrightarrow$ Compiled $\longrightarrow$ Dalvik bybe Code $\longrightarrow$ loaded into Dalvik Vm
$\downarrow$ Run on Android

① threading, ② low-level memory Vm

## Application Building Block

① Activity   ② intent Reciever   ③ Service
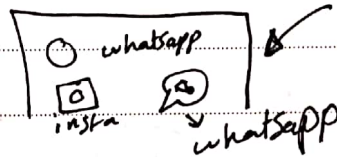④ Content provider

① Activity → UI Screens

كل شاشة بـ Activity / مش كل Activity بتكون شاشة

② Intent Reciver

msg from
other app, system

→ respond to broadCost Intent

Gallarey → want to
share img → [whatsapp, insta, whatsapp] ← intent reciever

③ Service

↳ Faceless Components run in background