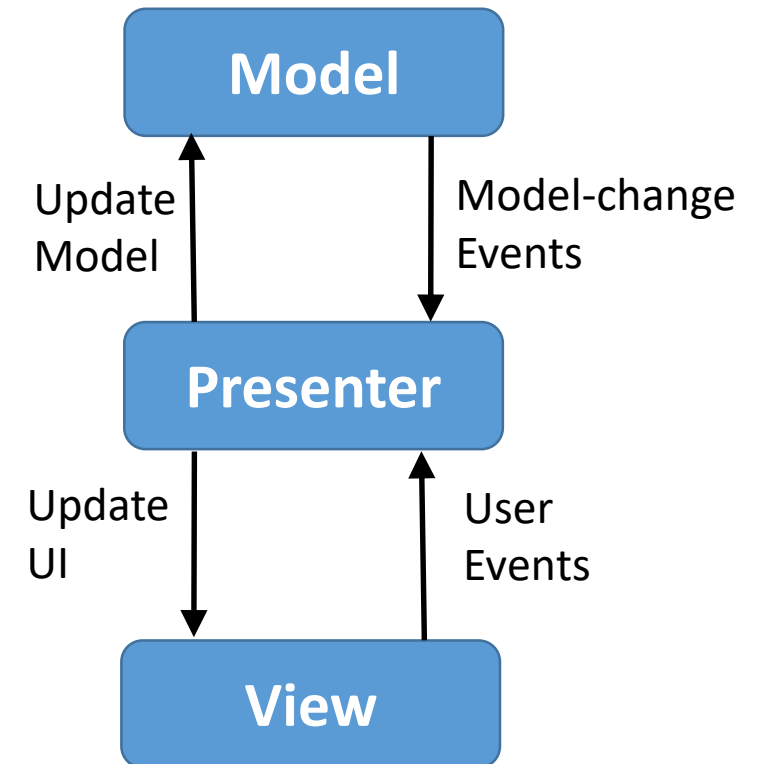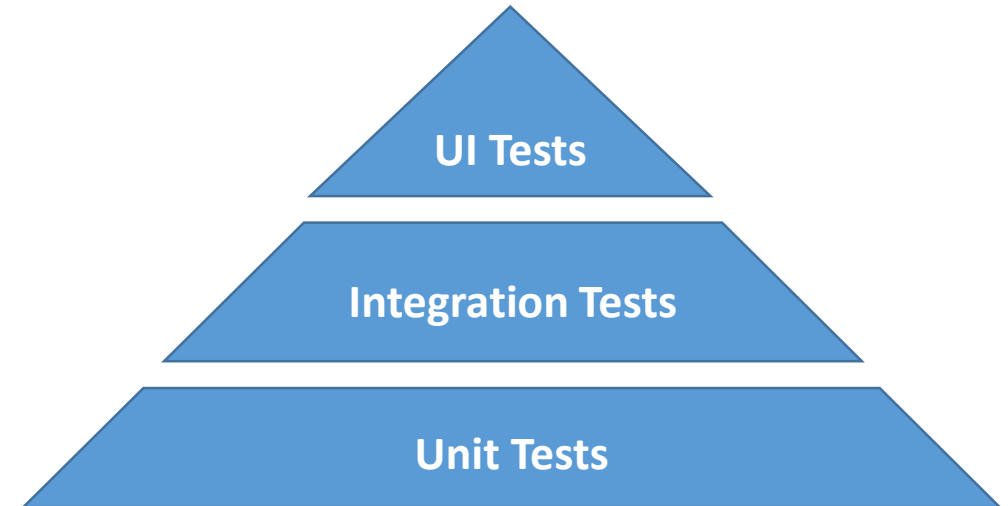# CSCB07 - Software Design

Android – Testing

Model-View-Presenter

- An architectural design pattern that results in code that is easier to test

- It consists of three components:

  1. Model (Data)
  2. View (UI)
  3. Presenter (Business logic)

Model

Update Model | Model-change Events

Presenter

Update UI | User Events

View

Local and Instrumented Tests

- Local unit tests
  - ➤ Run on the machine's local JVM
  - ➤ Do not depend on the Android framework

- Instrumented tests
  - ➤ Run on an actual device or an emulator
  - ➤ Usually used for integration and UI tests

UI Tests

Integration Tests

Unit Tests

Commonly used tools

- JUnit
  - ➢ Writing unit tests

- Mockito
  - ➢ Creating dummy (mock) objects to facilitate testing a component in isolation

- Roboelectric
  - ➢ Running tests that involve the Android framework without an emulator or a device

- Espresso
  - ➢ Writing UI tests

Mock Objects

- A mock is a software component that is used to replace the "real" component during testing

- Mock objects could be used to:
  - ➢ Represent components that have not yet been implemented
  - ➢ Speed up testing
  - ➢ Reduce the cost
  - ➢ Avoid unrecoverable actions

Mockito

- A mocking framework for Java

- Features include:
  - ➢ Creating mocks
  - ➢ Stubbing
  - ➢ Verifying behavior

Example