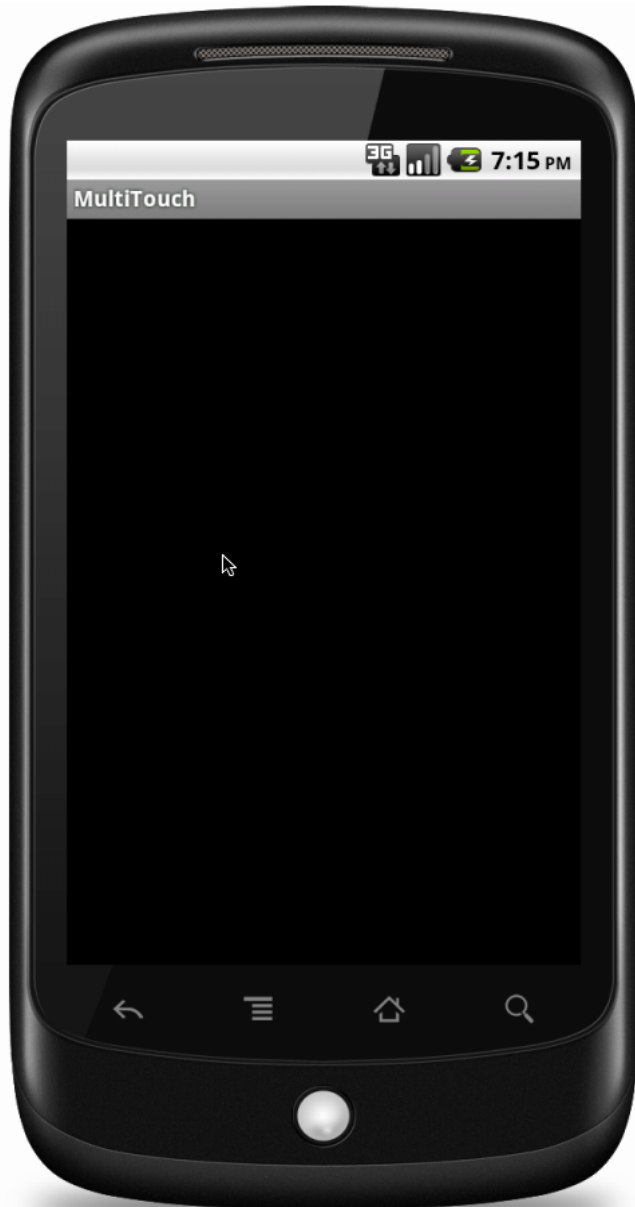


# Android - MultiTouch

- Demonstrates multi-touch on Android devices
- A circle is shown where the finger touches
- If there are multiple touches, multiple circles are shown
- The circle follows the finger when the finger is dragged over
- An anonymous class derived from `android.view.View` is used
  - Override :
    - `onDraw()` - to draw circle
    - `onTouchEvent()` - to intercept touch events
- A list of active touch positions is maintained
  - Used by `onDraw()` to draw circles
  - Updated by `onTouchEvent()`

- `onTouchEvent()`
  - Called when new touch event occurs
- `getAction()`
  - Get the type of the motion event
  - Some of the events are:
    - `MotionEvent.ACTION_DOWN`
      - A pressed gesture has started
    - `MotionEvent.ACTION_POINTER_DOWN`
      - User puts finger on screen
    - `MotionEvent.ACTION_MOVE`
      - User moved a finger
    - `MotionEvent.ACTION_UP`
      - A pressed gesture has finished
    - `MotionEvent.ACTION_POINTER_UP`
      - User lifted a finger
- All the active touches are iterated over and added to the list except the event where user lifted his finger is ignored

- A white circle is drawn wherever the finger touches the screen
- The Android emulator can only simulate one touch
- Not all Android devices support multi-touch



# References

- [MotionEvent](#)
- [Point](#)
- [View](#)

# Exercise

- Change the application so that it draws *\*one\** rectangle that is just large enough to include all active touches. Use red as the filling color of this bounding box.