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# Mobile Programing

## Chapter 4.1. Input Controls

# Note

- This slide is based on Google Android code labs slides
- Original slides: https://drive.google.com/drive/folders/1eu-LXxiHocSktGYpG04PfE9Xmr_pBY5P

# 4.2 Input Controls

# Contents

- Overview of input controls
- View focus
- Freeform text and numbers
- Providing choices

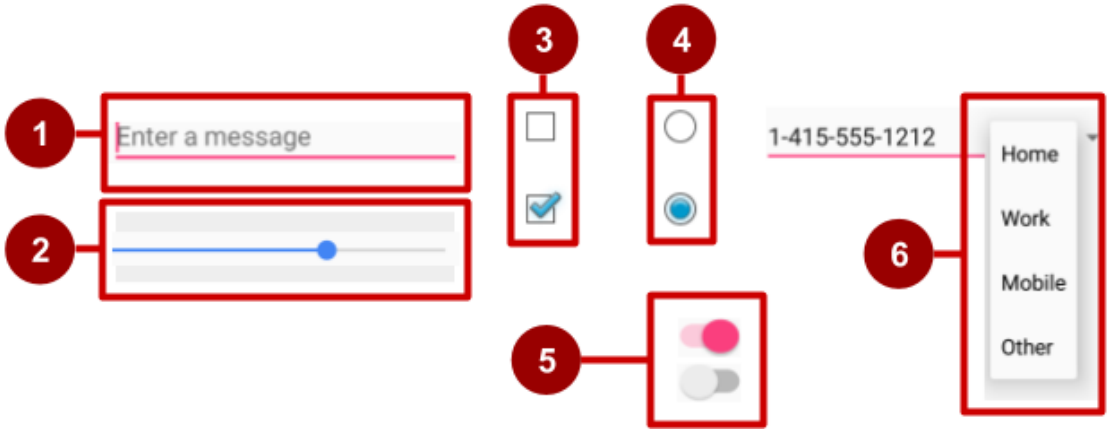
# Overview of input Controls

# Accepting user input

- Freeform text and numbers: `EditText` (using keyboard)
- Providing choices: `CheckBox`, `RadioButton`, `Spinner`
- Switching on/off: `Toggle`, `Switch`
- Choosing value in range of values: `SeekBar`

# Examples of input controls

1. EditText
2. SeekBar
3. CheckBox
4. RadioButton
5. Switch
6. Spinner



# How input controls work

1. Use `EditText` for entering text using keyboard
2. Use `SeekBar` for sliding left or right to a setting
3. Combine `CheckBox` elements for choosing more than one option
4. Combine `RadioButton` elements into `RadioGroup` — user makes only one choice
5. Use `Switch` for tapping on or off
6. Use `Spinner` for choosing a single item from a list

# View is base class for input controls

- The View class is the basic building block for all UI components, including input controls
- View is the base class for classes that provide interactive UI components
- View provides basic interaction through `android:onClick`

# View focus

# Focus

- The View that receives user input has "Focus"
- Only one View can have focus
- Focus makes it unambiguous which View gets the input
- Focus is assigned by
  - User tapping a View
  - App guiding the user from one text input control to the next using the **Return**, **Tab**, or arrow keys
  - Calling `requestFocus()` on any View that is focusable

# Clickable versus focusable

**Clickable**—View can respond to being clicked or tapped

**Focusable**—View can gain focus to accept input

Input controls such as keyboards send input to the view that has focus

# Which View gets focus next?

- Topmost view under the touch
- After user submits input, focus moves to nearest neighbor—priority is left to right, top to bottom
- Focus can change when user interacts with a directional control

# Guiding users

- Visually indicate which view has focus so users knows where their input goes
- Visually indicate which views can have focus helps users navigate through flow
- Predictable and logical—no surprises!

# Guiding focus

- Arrange input controls in a layout from left to right and top to bottom in the order you want focus assigned
- Place input controls inside a view group in your layout
- Specify ordering in XML

```
android:id="@+id/top"
android:focusable="true"
android:nextFocusDown="@+id/bottom"
```

# Set focus explicitly

Use methods of the View class to set focus

- setFocusable() sets whether a view can have focus
- requestFocus() gives focus to a specific view
- setOnFocusChangeListener() sets listener for when view gains or loses focus
- onFocusChanged() called when focus on a view changes

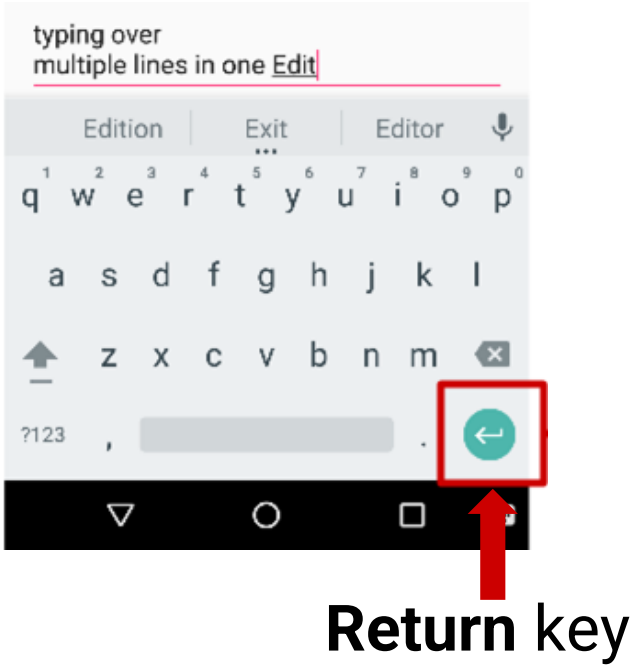
# Find the view with focus

- Activity.getCurrentFocus()
- ViewGroup.getFocusedChild()

# Freeform text and numbers

# EditText for multiple lines of text

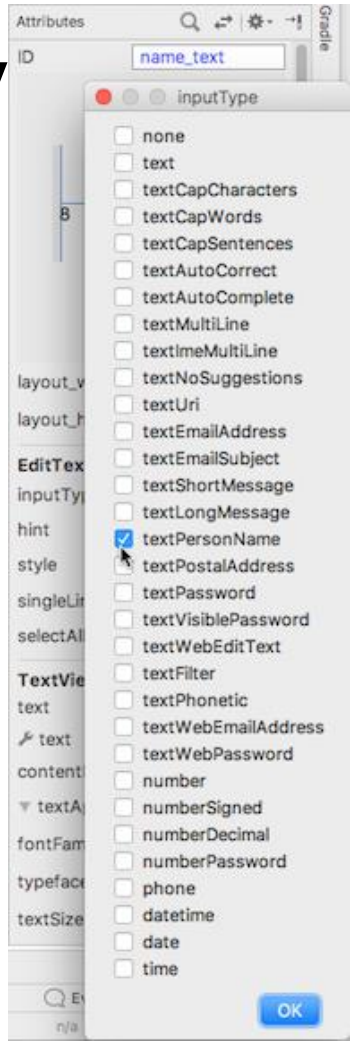
- EditText default
- Alphanumeric keyboard
- Suggestions appear
- Tapping **Return** (**Enter**) key starts new line



# Customize with inputTy

- Set in Attributes pane of layout editor
- XML code for EditText:

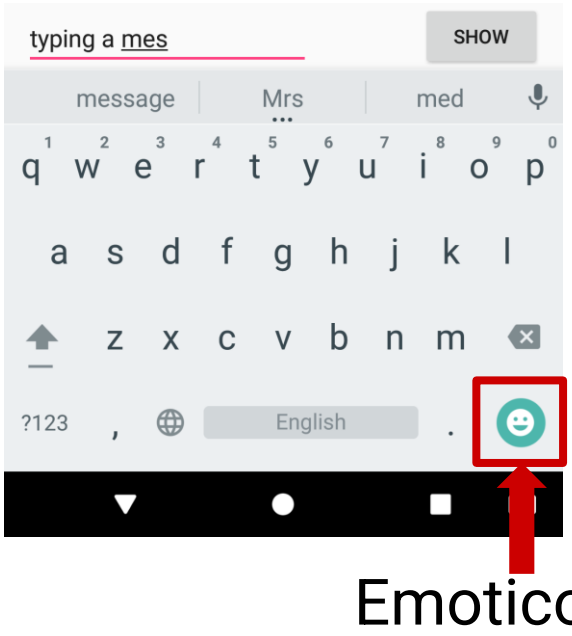
```
<EditText
    android:id="@+id/name_field"
    android:inputType =
                "textPersonName"
    ...
```



# EditText for message

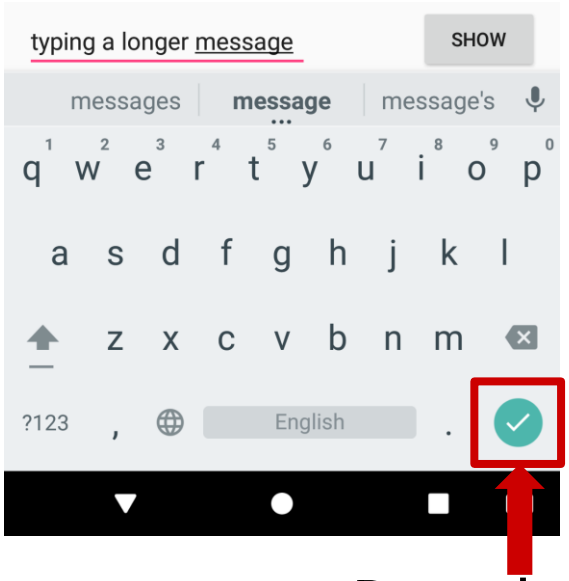
- `android:inputType`

  `="textShortMessage"`
- Single line of text
- Tapping Emoticons key changes keyboard to emoticons



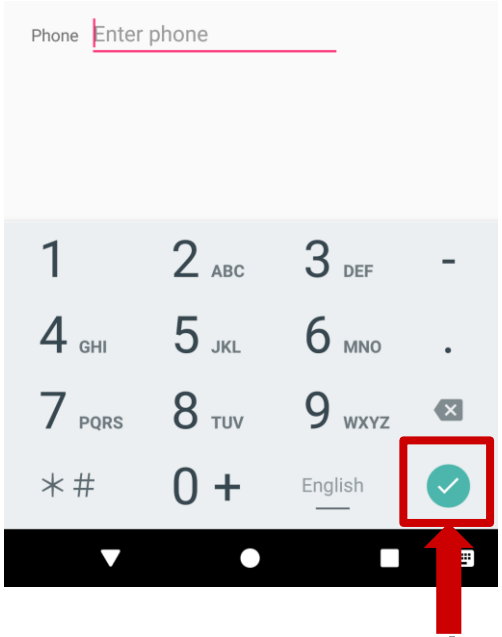
# EditText for single line

- Both work:
  - `android:inputType="textLongMessage"`
  - `android:inputType="textPersonName"`
- Single line of text
- Tapping **Done** key advances focus to next View



# EditText for phone number entry

- `android:inputType ="phone"`
- Numeric keypad (numbers only)
- Tapping **Done** key advances focus to next View



# Getting text

- Get the EditText object for the EditText view

```
EditText simpleEditText =

findViewById(R.id.edit_simple);
```

- Retrieve the CharSequence and convert it to a string

```
String strValue =

simpleEditText.getText().toString();
```

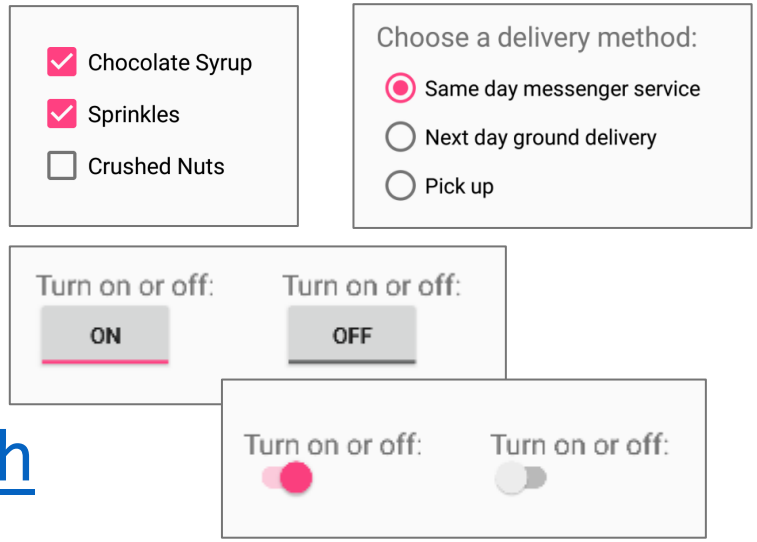
# Common input types

- `textCapCharacters`: Set to all capital letters
- `textCapSentences`: Start each sentence with a capital letter
- `textPassword`: Conceal an entered password
- `number`: Restrict text entry to numbers
- `textEmailAddress`: Show keyboard with @ conveniently located
- `phone`: Show a numeric phone keypad
- `datetime`: Show a numeric keypad with a slash and colon for entering the date and time

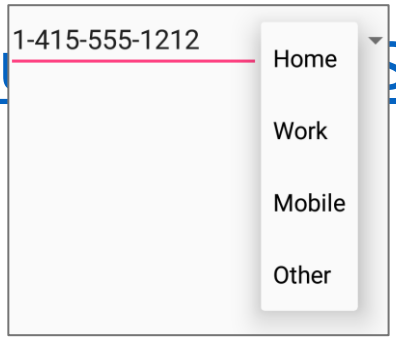
# Providing choices

# UI elements for providing choices

- CheckBox and RadioButton

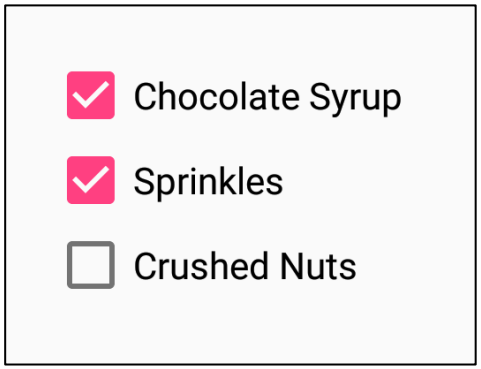



- ToggleButton and Switch
- Spinner



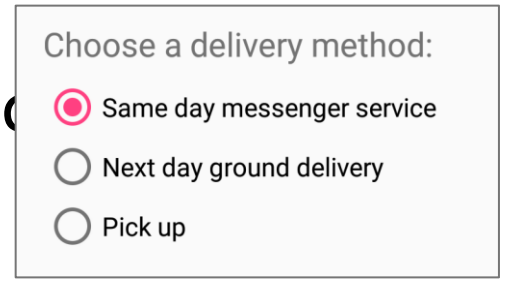
# CheckBox

- User can select any number of choices
- Checking one box does not uncheck another
- Users expect checkboxes in a vertical list
- Commonly used with a **Submit** button
- Every `CheckBox` is a `View` and can have an `onClick` handler



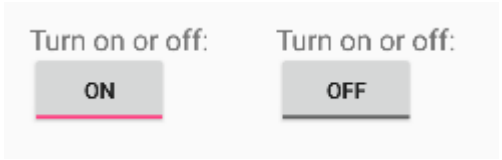
# RadioButton

- Put `RadioButton` elements in a `RadioGroup` in a vertical list (horizontally if labels are short)
- User can select only one of the choices
- Checking one unchecks all others in group
- Each `RadioButton` can have `onClic` handler
- Commonly used with a **Submit** button for the `RadioGroup`

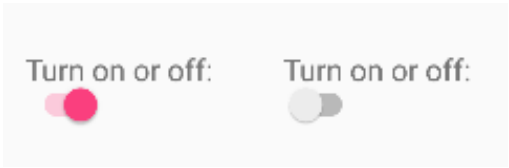


# Toggle buttons and switches

- User can switch between on and off
- Use `android:onClick` for click handler




Toggle buttons




Switches

# Learn more

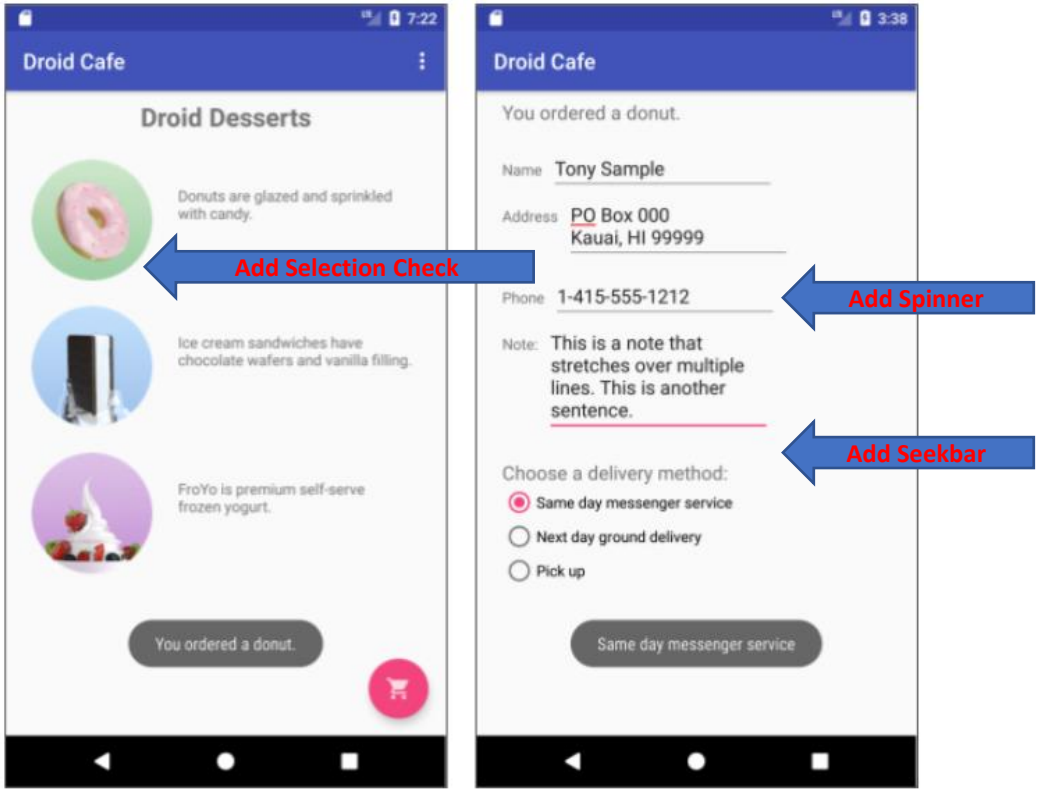
- Input Controls
- Radio Buttons
- Specifying the Input Method Type
- Handling Keyboard Input
- Text Fields
- Spinners

# What's Next?

- Concept Chapter: 4.2 Input controls
- Practical: 4.2 Input controls

END

# CODELAB


7:22
Droid Cafe
Droid Desserts
Donuts are glazed and sprinkled with candy.
Ice cream sandwiches have chocolate wafers and vanilla filling.
FroYo is premium self-serve frozen yogurt.
You ordered a donut.
Add Selection Check
3:38
Droid Cafe
You ordered a donut.
Name Tony Sample
Address PO Box 000
Kauai, HI 99999
Phone 1-415-555-1212
Note: This is a note that stretches over multiple lines. This is another sentence.
Choose a delivery method:
Same day messenger service
Next day ground delivery
Pick up
Same day messenger service
Add Spinner
Add Seekbar