Summer 2, 2019 - CS 4520/CS5520 – Mobile Application Development

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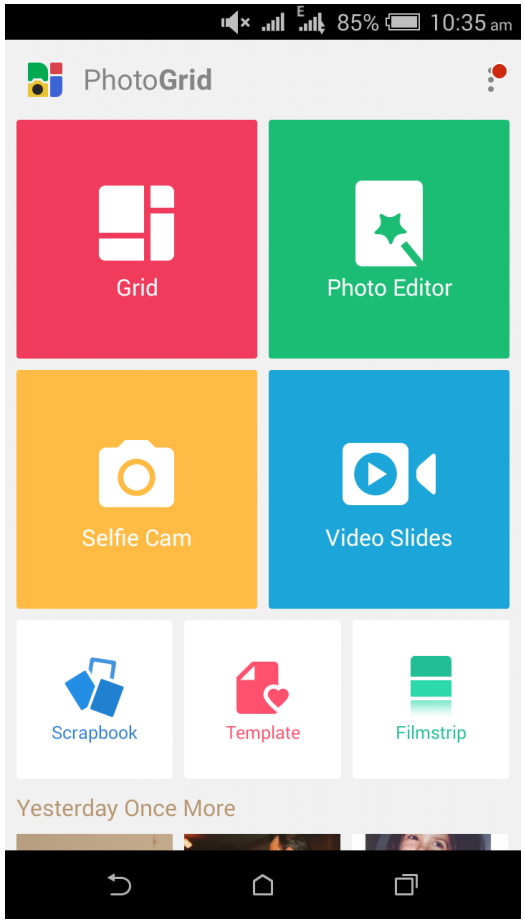
Announcement

Grid Layout

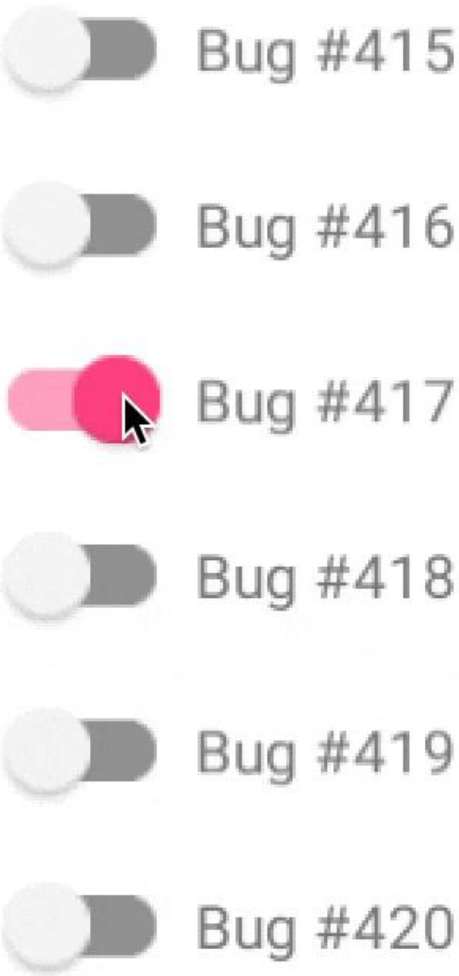
- Create a grid of views using a gridLayout
- Specify the row and column count in the declaration
  - rowCount
  - ColumnCount
- Include the layout_colum/layout_row for defining the cells in the grid



[automationrecap.wordpress.com/2015/08/04/photo-grid-the-best-android-picture-collage-maker-app-review/]

Today's topics

- MVC
- Adapters


Bug #415
Bug #416
Bug #417
Bug #418
Bug #419
Bug #420

Design Patterns

Design patterns

- Coordination of different elements
- Modular code for each entity
- Better management and maintenance

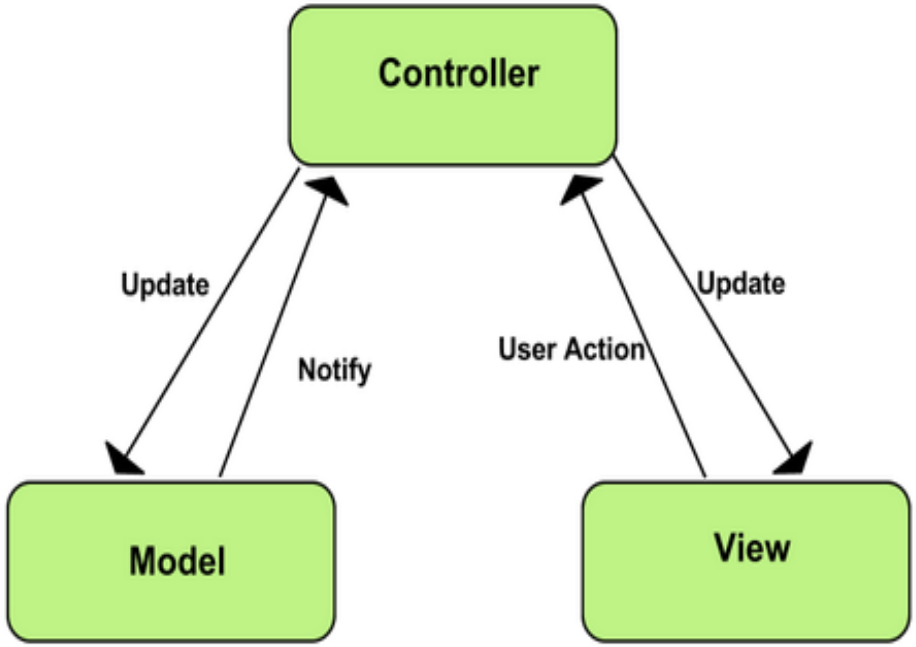
Three components

- Component for storing system's state
- Component for handling input and showing outputs to the user
- Component for encapsulating the logical functionality of system

MVC – Model View Controller

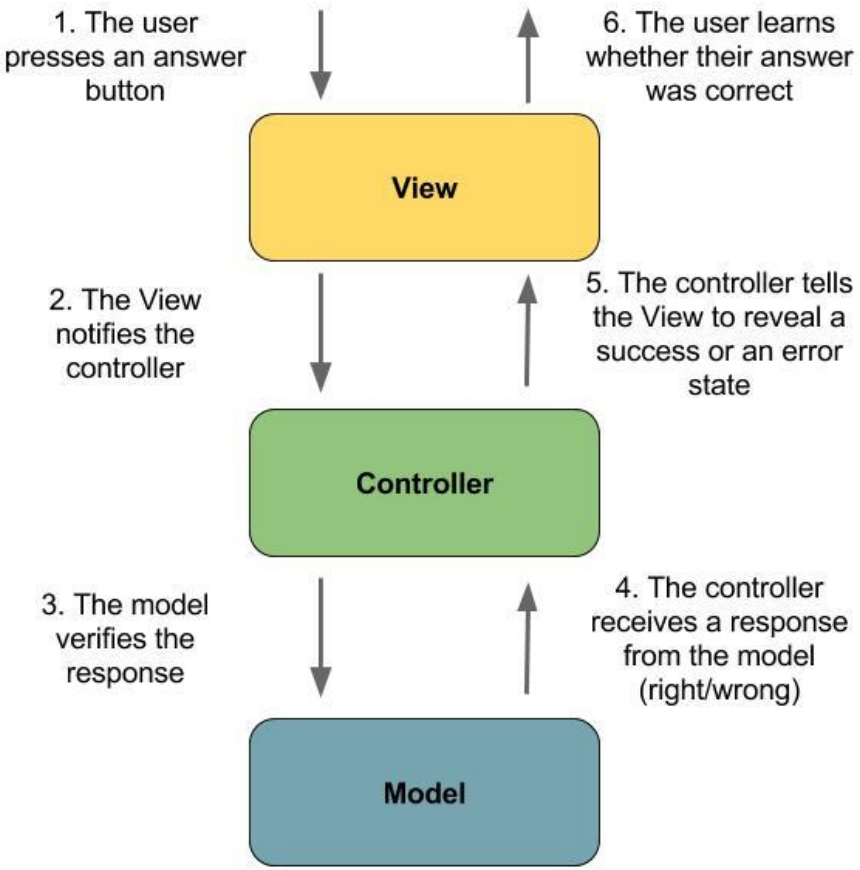
- Isolation of roles – dedicated functionality for each aspect

- **Model:**
  - Application's data objects are stored
- **View:**
  - Presented to the user for interaction
- **Controller**
  - Business logic
  - Requests updates from model and reflects it on view



[developer.chrome.com/apps/app_frameworks]

MVC – Model View Controller



[openclassrooms.com/en/courses/4661936-develop-your-first-android-application/4679186-learn-the-model-view-controller-pattern]

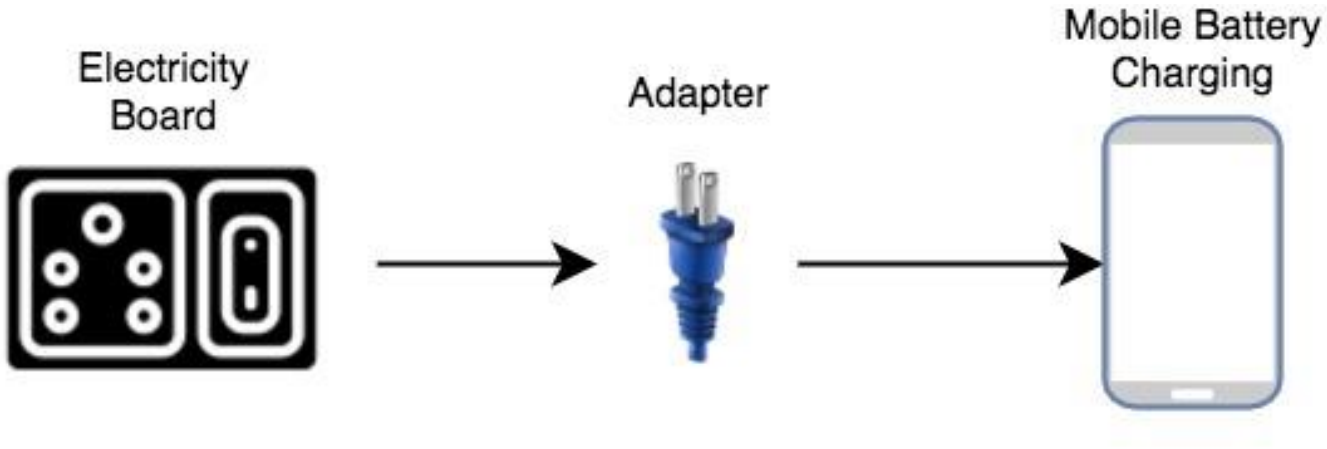
Adapters

Adapters

Adapters in Android connects the data source with the views.

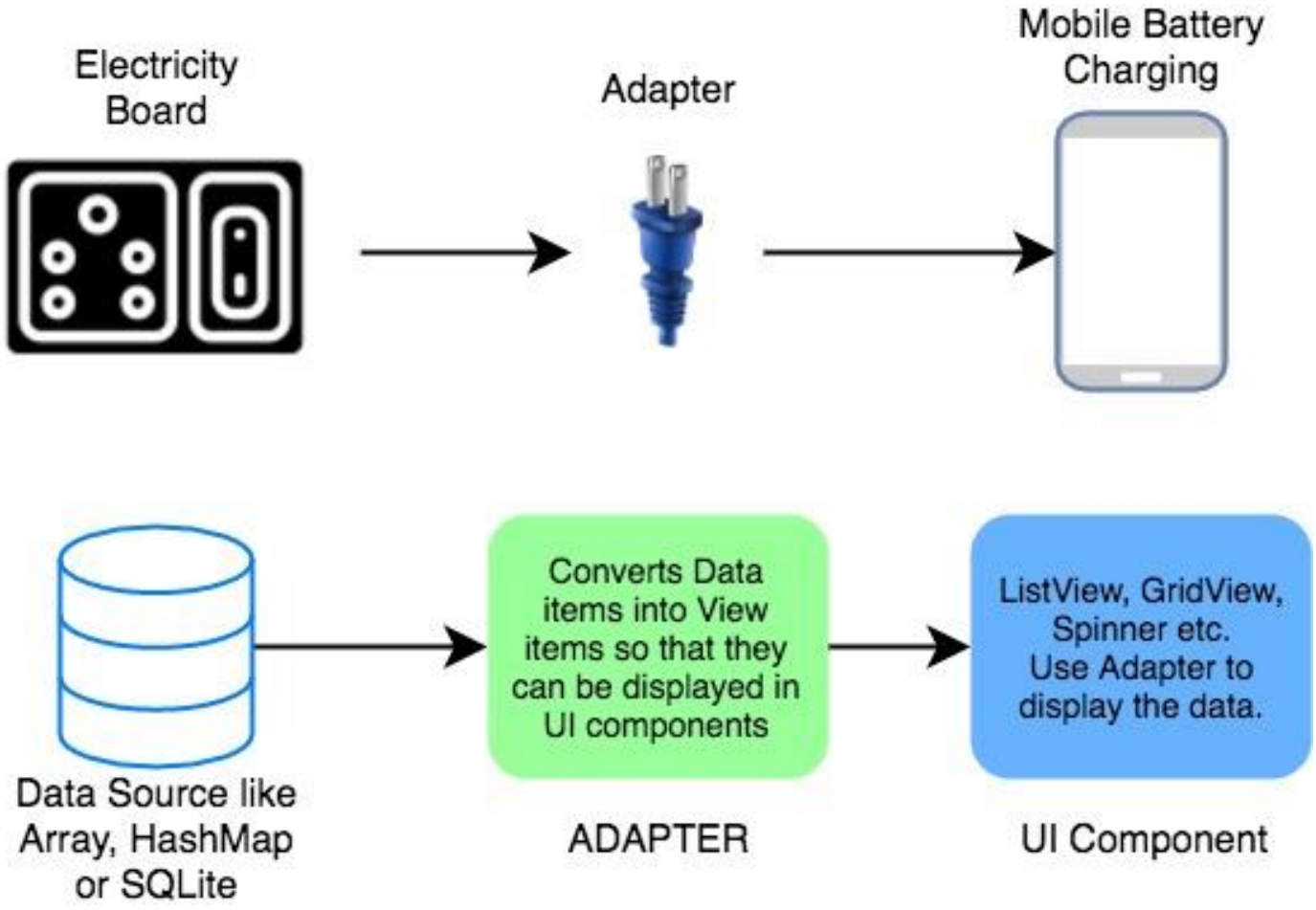
Displays large datasets in a concise way.

Adapters in Android



[studytonight.com/android/adapter-and-adapter-view]

Adapters in Android



[studytonight.com/android/adapter-and-adapter-view]

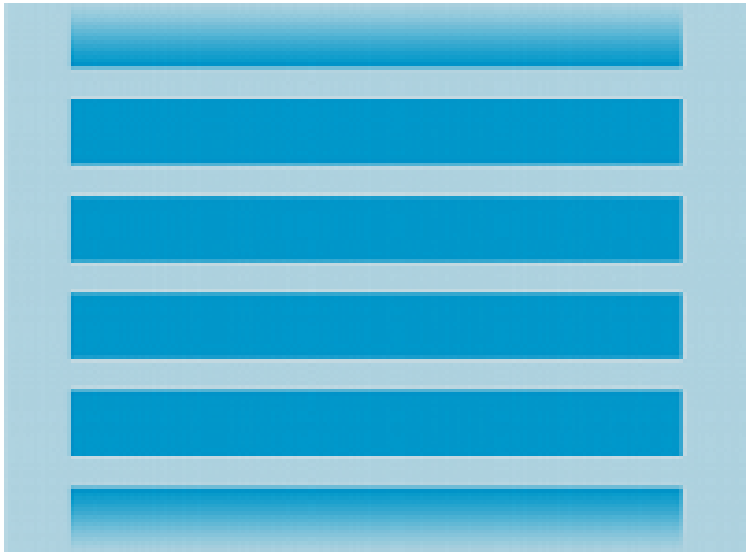
Adapter Types in Android

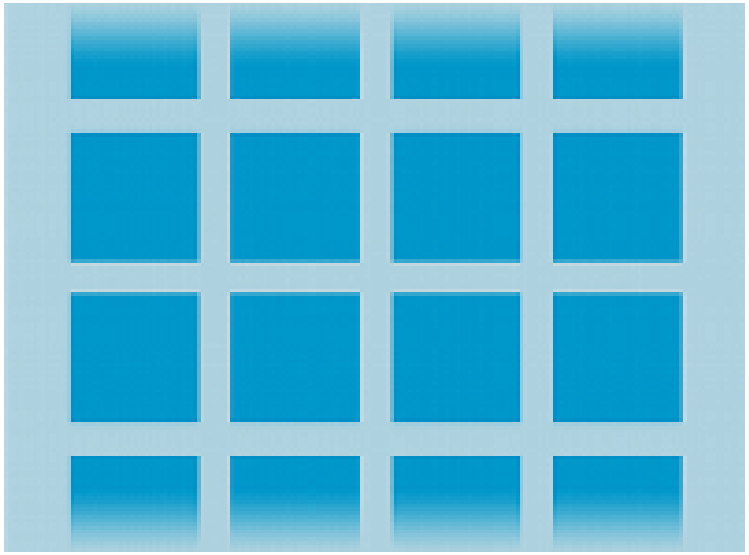
- ArrayAdapter – data source is coming from an Array/ArrayList
- CustomAdapter – Customizing your adapter view
- CursorAdapter – for displaying contents from a DB

- BaseAdapter – Base class for Adapter Implementations.

AdapterView

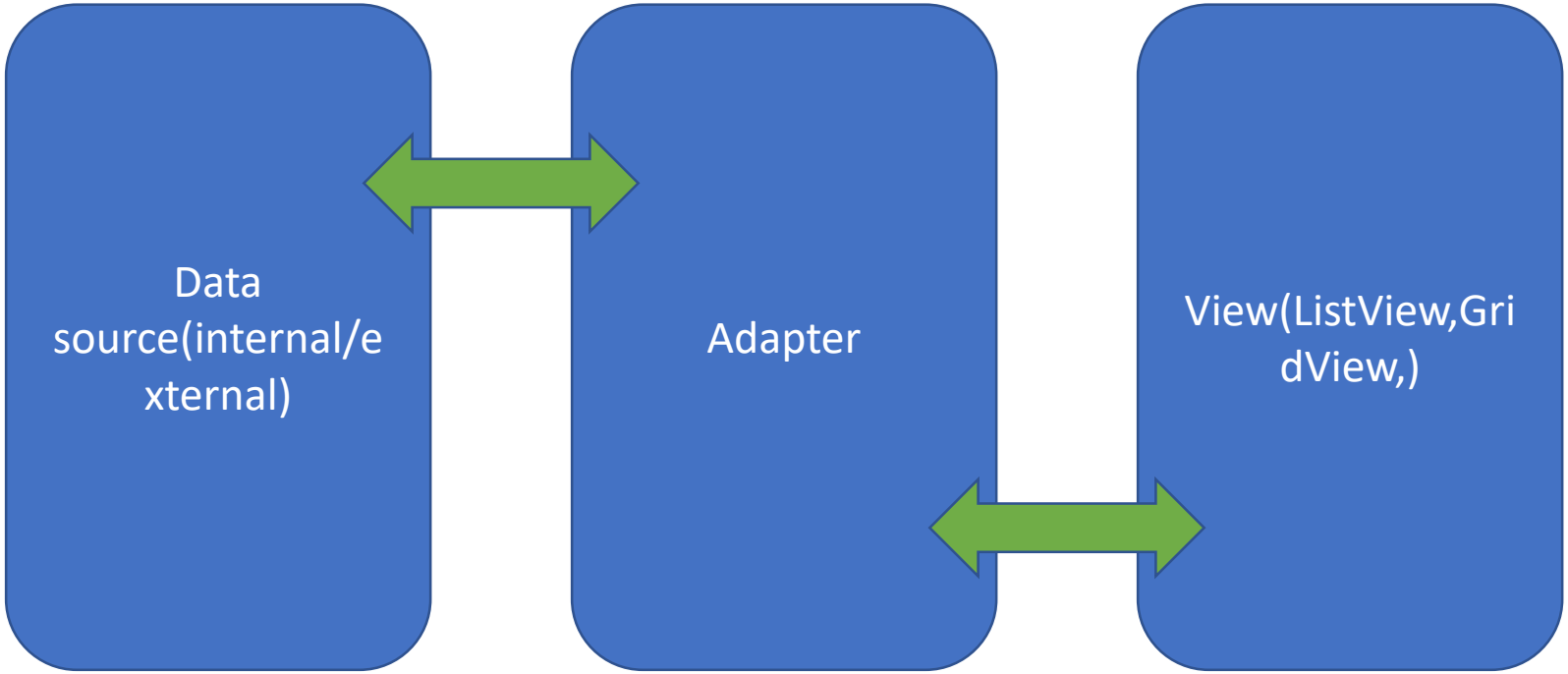
- AdapterView – a Viewgroup, which gets its child views from the Adapter(Based on the data).



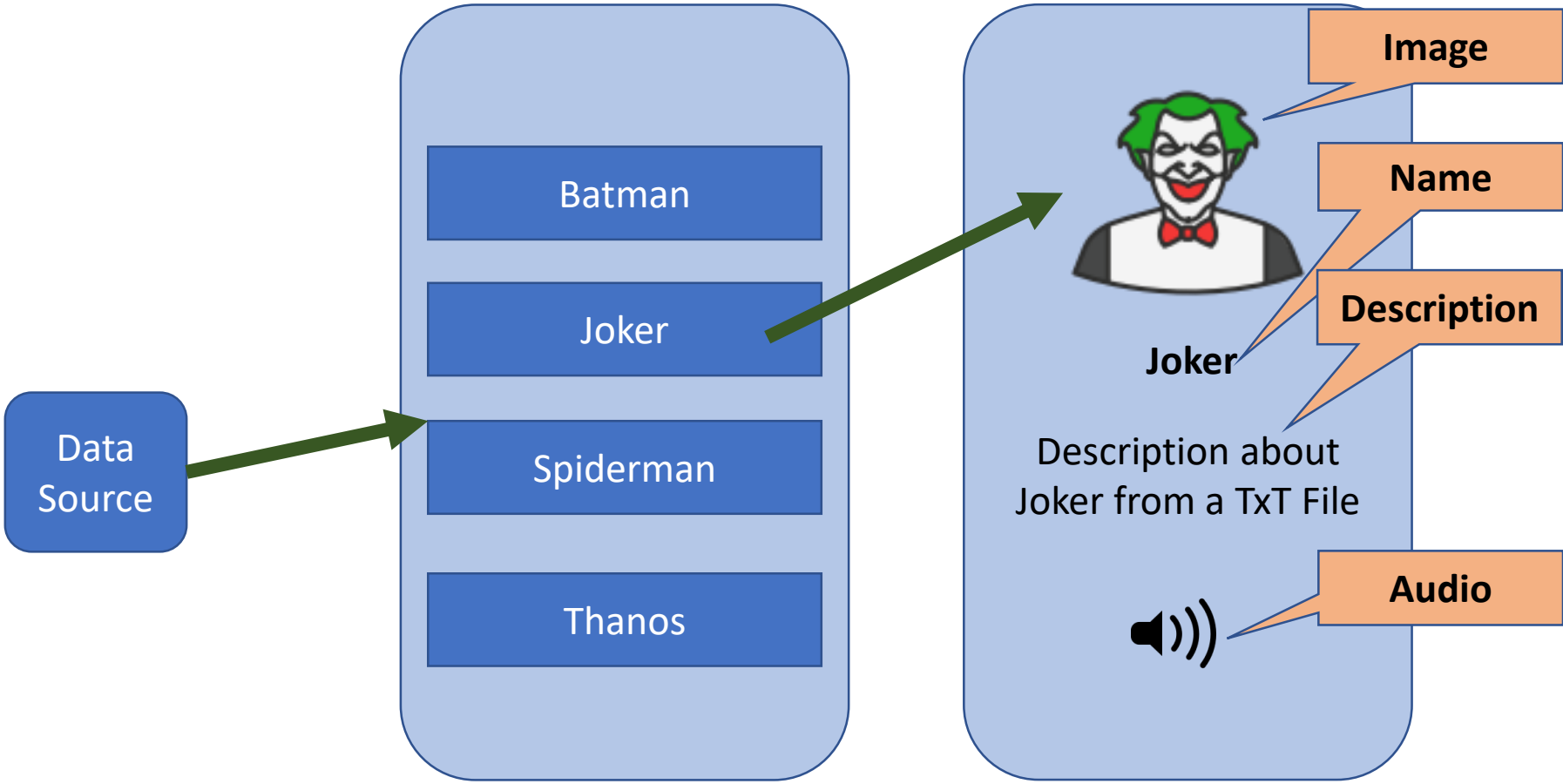


[developer.android.com/guide/topics/ui/declaring-layout]

Implementation of ArrayAdapter



Exercise 5 – Favorite Characters



Favorite Characters - Configuration

- **Step 1:** Download the necessary asset files from the Blackboard
  - Course Material -> Course Documents -> Media Files for in-class exercises-> Week 3 -> ***get your files from here***
    - Image files (4) , text files (4) and audio files (4)

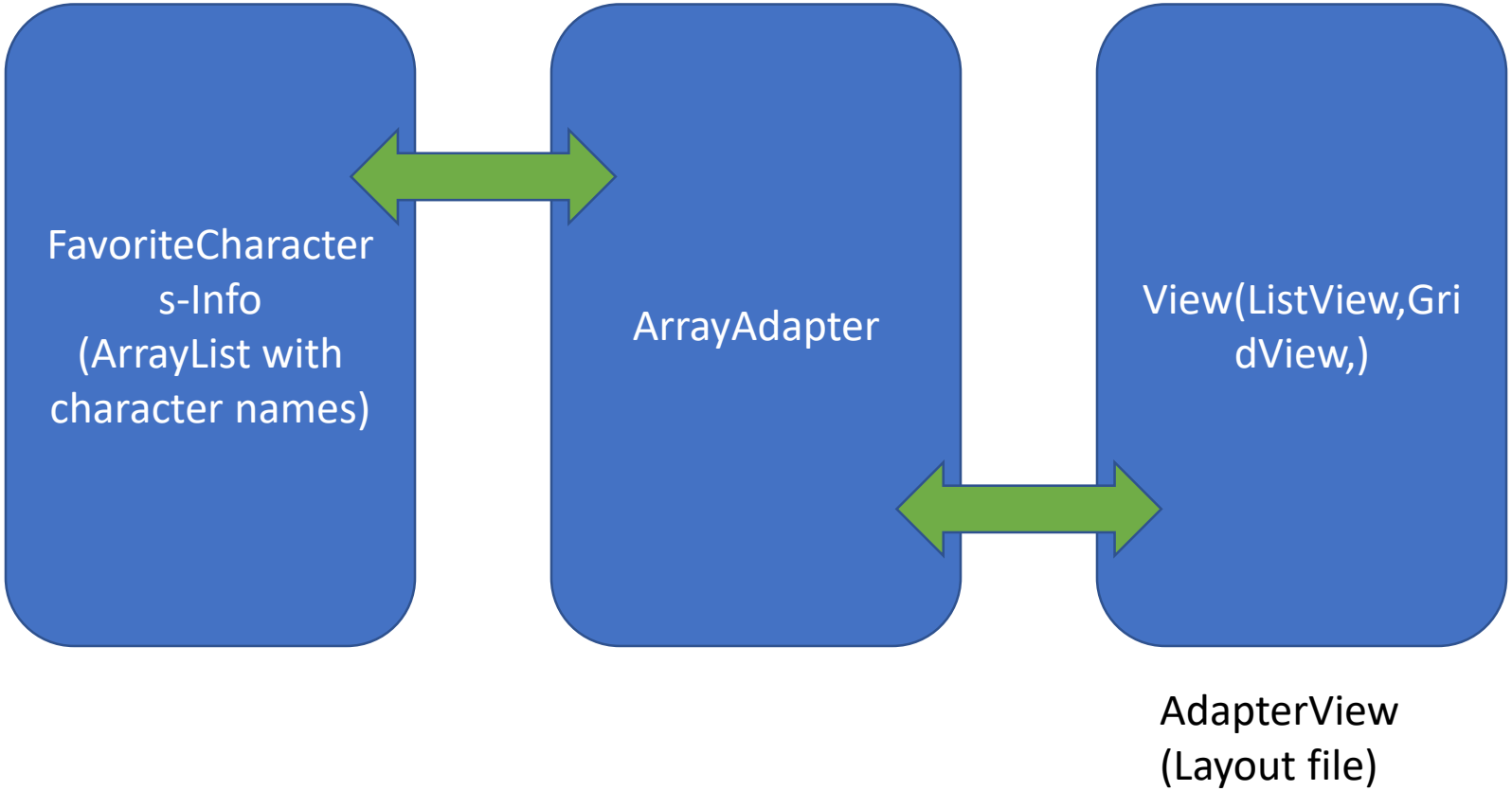
- **Step 2:** Import the assets to your Android Studio project
  - Images -> drawable folder
  - Text and audio files -> raw folder (Create a raw folder using the options)

Favorite Characters - Configuration

- **Step 3:** Create a new activity for displaying the information of the selected character.
  - CharacterInfo -> Activity
  - CharacterInfo.xml -> Layout

Implementation of Adapter

Implementation of Adapter

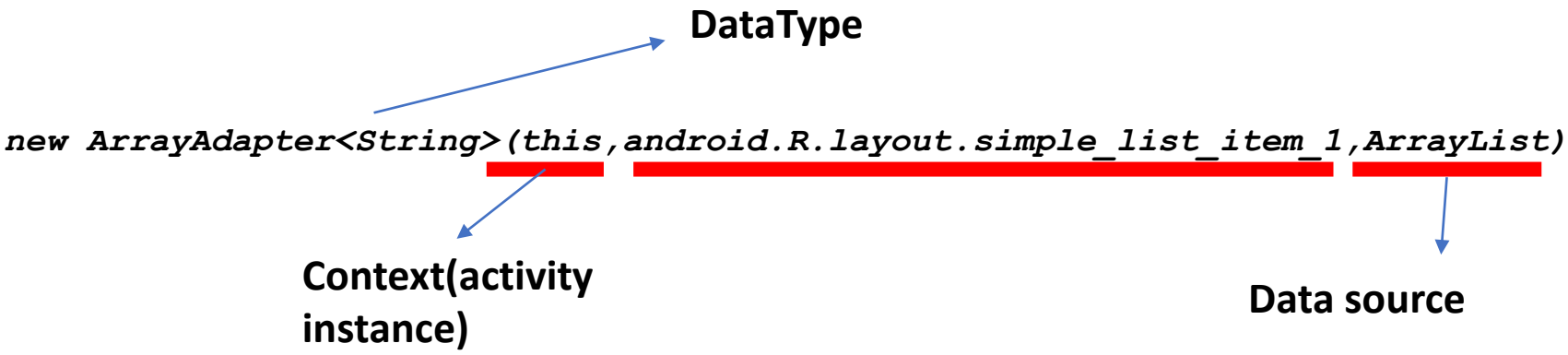


Implementation of Adapter

- **Step 1:** View Creation
  - Create a listview in your main XML
- **Step 2:** Define the data
  - Populate the ArrayList
- Steps involved for creating an ArrayAdapter and linking it to the List view
  - Create an ArrayAdapter
  - Set the ArrayAdapter to your ListView
  - Set clickListener to your listview

Implementation of Adapter

Create an ArrayAdapter



Implementation of Adapter

- Set Adapter to your ListView
- Set clickListener to respond for item Clicks

Implementation of Adapter

Step 4:Configure the CharacterInfo screen

Use any Layout Type to set the specified view

Implementation of Adapter

- We'll use Intents to pass information from MainActivity -> CharacterInfo Activity

- Based on the itemClick we'll pull out the corresponding data and display it on the CharacterInfo Activity

Displaying data based on ItemClick

- Extract the **Resource ID** based on the inputs from previous activity
- Fetch the resources based on **Resource ID**
- Override the views of characterInfo(XML)

Extracting Resource ID during runtime

getIdentifier (String name, String defType, String defPackage)

Name of the resource file

Type – drawable, raw, etc

PackageName

Reading data from file

```
//Create a String Builder

StringBuilder myText = new StringBuilder();

// Create a Buffered Reader and pass in the textfile respurce ID
BufferedReader reader = new BufferedReader(
          new InputStreamReader(getResources().openRawResource(resId)));

String line;

//Read every line and append it to a String Builder
while ((line = reader.readLine()) != null) {
    myText.append(line);
    myText.append(' ');
}

//Read mytext
Return myText;
```

Override the View parameters based on the resource IDs

- setText(textResID)
- setImageResource(imgResID)