

CMPS 312

Read Chapter 1 & 6



RecyclerView

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Outline

1. RecyclerView Components
2. Implementing a RecyclerView

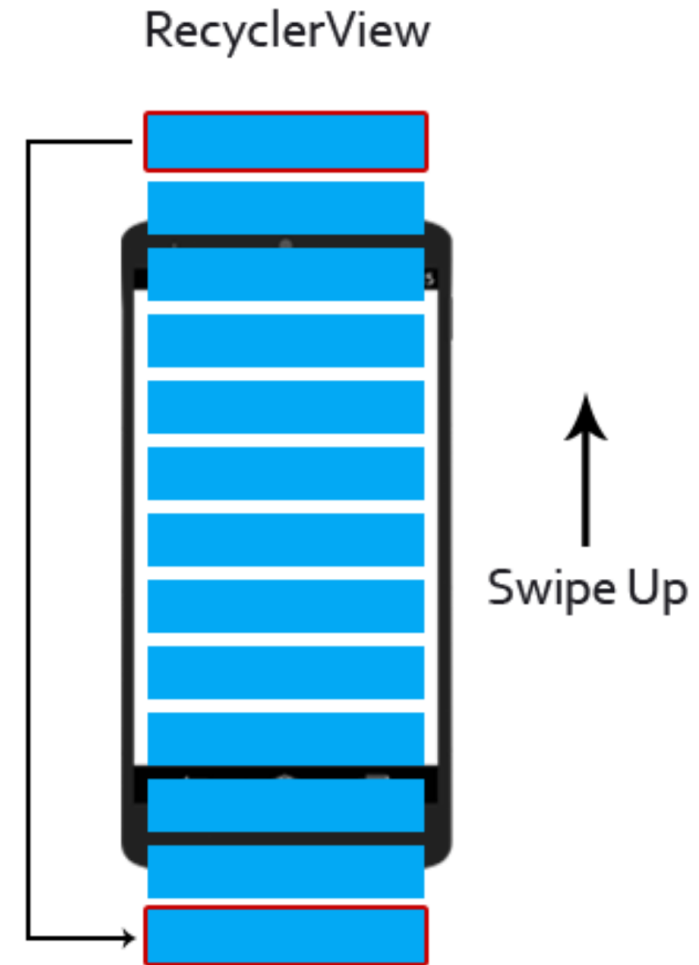
RecyclerView

Horizontal & Vertical Constraints

- To define a view's position you must add at least one horizontal and one vertical constraint for the view.
- Each constraint represents a connection or alignment to another view, the parent layout, or an invisible guideline.
- Each constraint defines the view's position along either the vertical or horizontal axis; so each view must have a minimum of one constraint for each axis, but often more are necessary

What is a RecyclerView?

- RecyclerView is scrollable container for large data sets
- Efficient
 - Uses and reuses limited number of View elements
 - Updates changing data fast

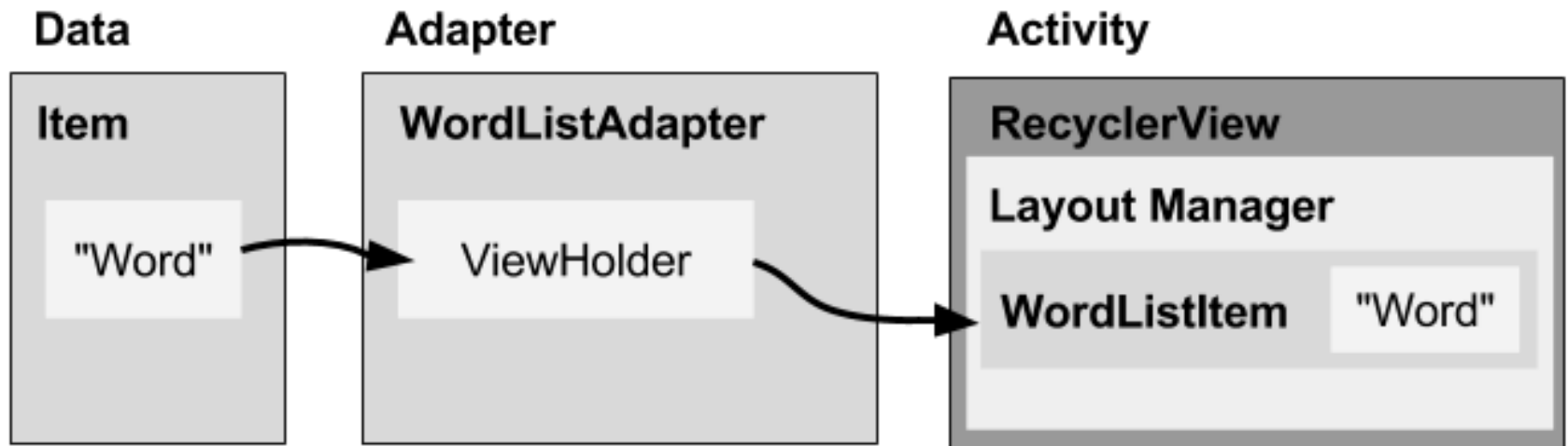


RecyclerView Components

Components Overview

- **List of data to display**
- **RecyclerView** scrolling list items
- **Layout** for one item of data - XML file
- **Layout manager** handles the organization of UI components in a View (Linear Layout or Grid Layout)
- **Adapter** connects data to the RecyclerView - extends [RecyclerView.Adapter](#)
- **ViewHolder** has view information for displaying one item - extends [RecyclerView.ViewHolder](#)

How components fit together

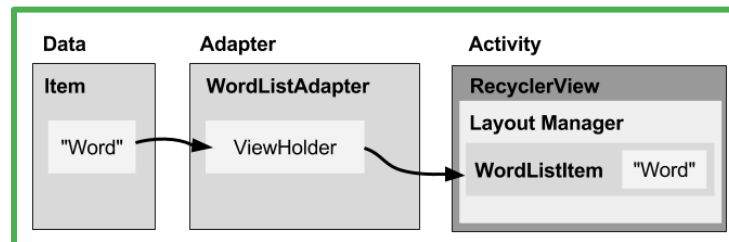


What is a layout manager?

- Use to position View items inside a [RecyclerView](#)
- Reuses View items that are no longer visible to the user
- Built-in layout managers
 - [LinearLayoutManager](#)
 - [GridLayoutManager](#)
 - [StaggeredGridLayoutManager](#)
- Extend [RecyclerView.LayoutManager](#)

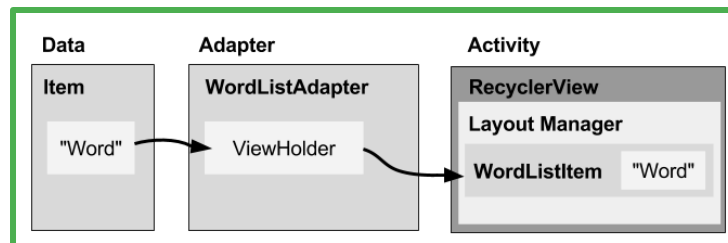
What is an adapter?

- Helps incompatible interfaces work together
- Intermediary between data and View
- Manages creating, updating, adding, deleting View items as underlying data changes
- Extends [RecyclerView.Adapter](#)



What is a ViewHolder?

- Used by the adapter to prepare one View with data for one list item
- Layout specified in an XML resource file
- Can have clickable elements
- Is placed by the layout manager
- Extends [RecyclerView.ViewHolder](#)

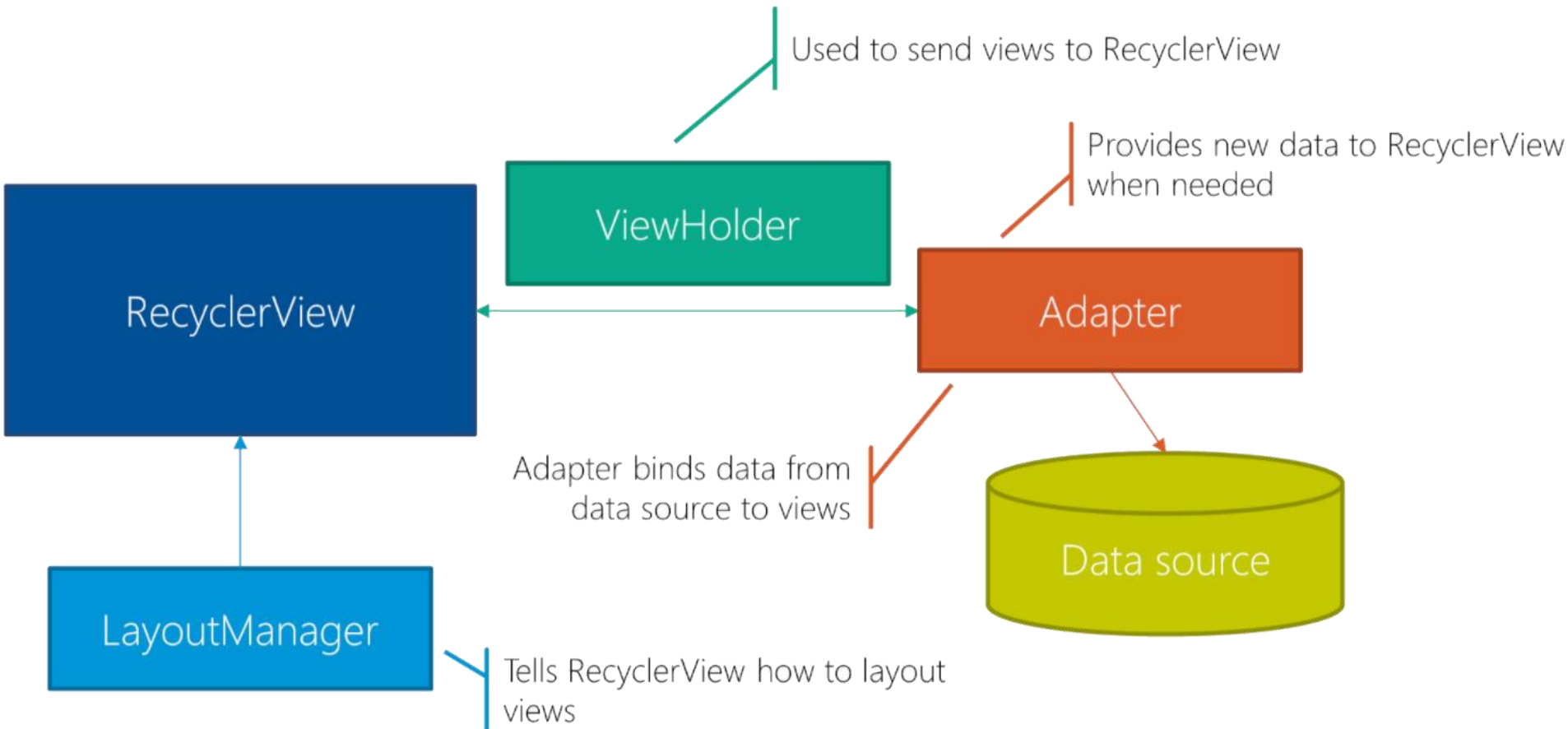


Implementing RecyclerView

Implementation Steps Summary

- Add **RecyclerView** to layout
- Create XML layout for 1 list item
- Implement RecyclerViewAdapter that extends **RecyclerView.Adapter**
- Implement View Holder that extends **RecyclerView.ViewHolder**
- In Activity onCreate, set the RecyclerView adapter and layout manager

RecyclerView Flow



Add RecyclerView to XML Layout

```
<androidx.recyclerview.widget.RecyclerView  
    android:id="@+id/countriesRecyclerView"  
>
```

Create layout for 1 list item

```
<LinearLayout ...>  
    <TextView  
        android:id="@+id/word" ... />  
</LinearLayout>
```

Implement RecyclerViewAdapter having 3 required methods

- **onCreateViewHolder()**
- **onBindViewHolder()**
- **getItemCount()**

Let's take a look!

Country Explorer App

