

RecyclerView

-By

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Agenda

1. What is a RecyclerView?
2. Who uses it?
3. Why use it?
4. Use Cases
5. Creating a RecyclerView
6. RecyclerView Showcase

What is a Recycler view?

Definition : A RecyclerView is a flexible view for providing a limited window into a large dataset.

But what is it actually?

It is a special type of View used to display data in the form of lists.

Broadbeach, AU	City
Brockton, MA	City
Brockville, ON	City
Broken Arrow, OK	City
Bronx, NY	City
Bronxville, NY	City
Brookfield, NY	City
Brookfield, WI	City

Fig 1 : Simple RecyclerView Of Cities

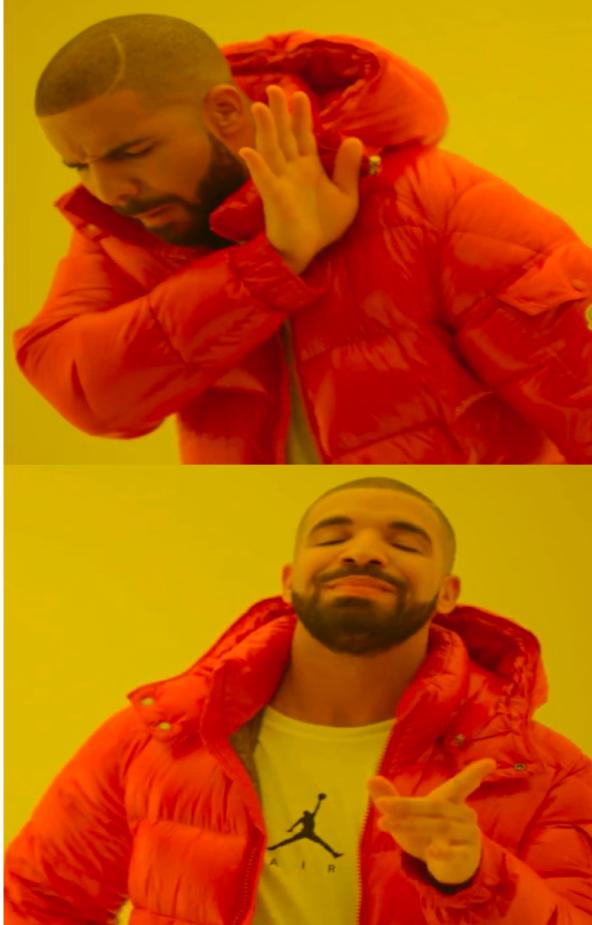
Applications that use RecyclerView

- Facebook
- Gmail
- Twitter

Basically almost every application

Why use it?

To represent data in the form of list of data !Duh!



Philadelphia Flyers
Real Estate
White

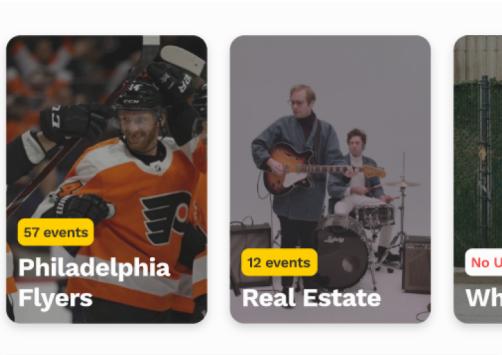


Fig 2: A meme showing why we should use RecyclerView

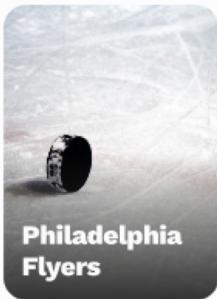
History : ListView vs RecyclerView

Advantages o RecyclerView

- Better performance .
- More flexibility .
- Better efficiency .
- Can have different types of views in the same RecyclerView
- RecyclerView-seption.
- Animations!

Use cases

Favorites



Philadelphia
Flyers



San
Francisco,
CA



The War
on Drugs



San
Ro

Popular



NBA

Toronto Raptors

31 events



CITY

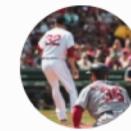
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Event Types



Concerts

Rock, Rap / Hip Hop, Indie



Sports

Hockey, Football, Basketball



Theater

Broadway, Comedy, Ballet & Dance



Fig 3 : Horizontal RecyclerView

Fig 4 : Horizontal RecyclerView

Use cases

Past Plans

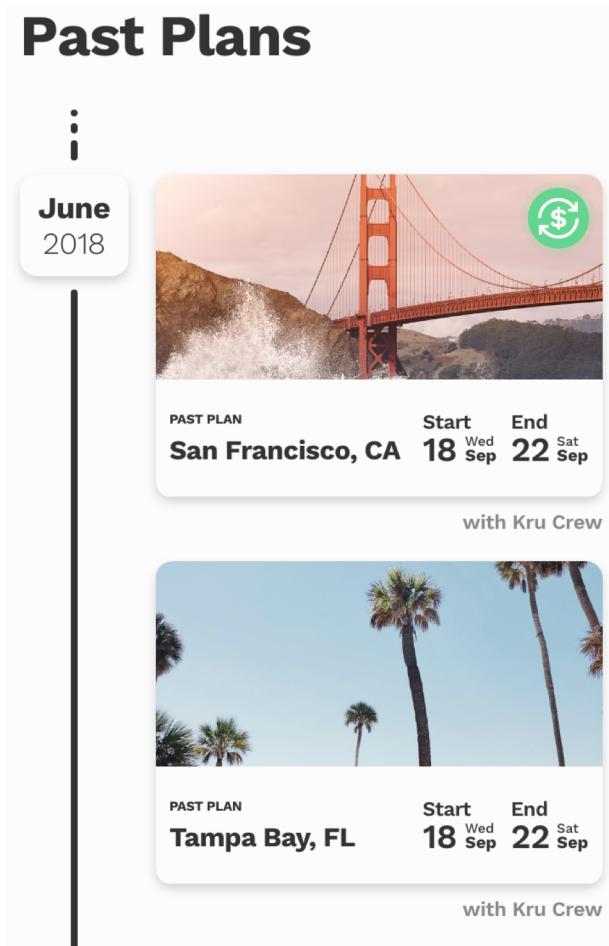


Fig 5 : RecyclerView-seption

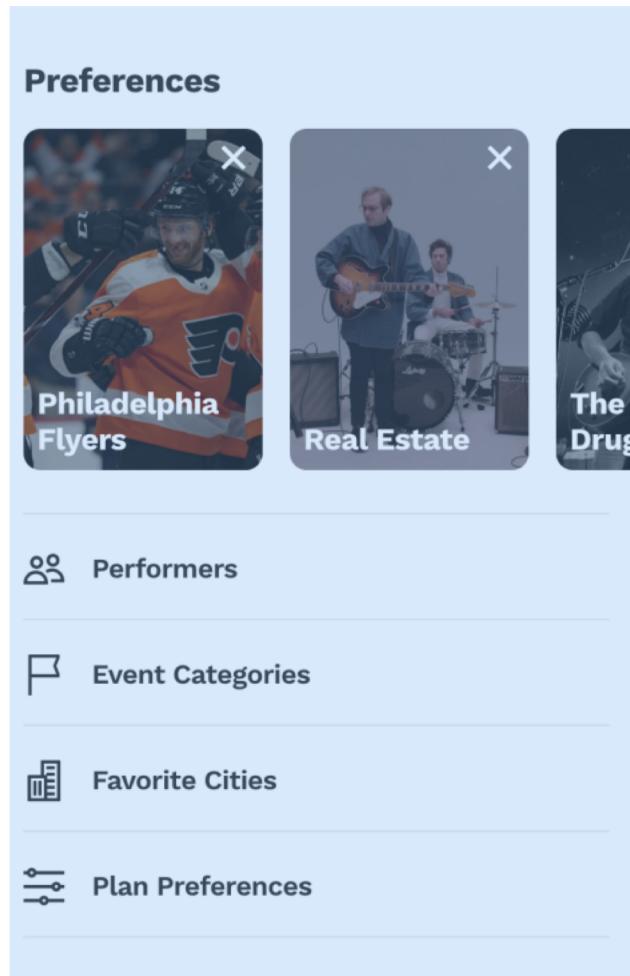


Fig 6: RecylerViews with Nested Scroll-Views

How do you make one?

Imports

1. Create a simple 1 activity project
2. RecyclerView's are part of the androidx library which is a part of the few libraries which are imported automatically when a new android application is created within Android Studio.

Create the Main RecyclerView

Add the RecyclerView to the layout xml file .

```
<androidx.recyclerview.widget.RecyclerView  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    android:id="@+id/simpleRecyclerView"  
    android:layout_width="match_parent"  
    android:layout_height="400dp" />
```

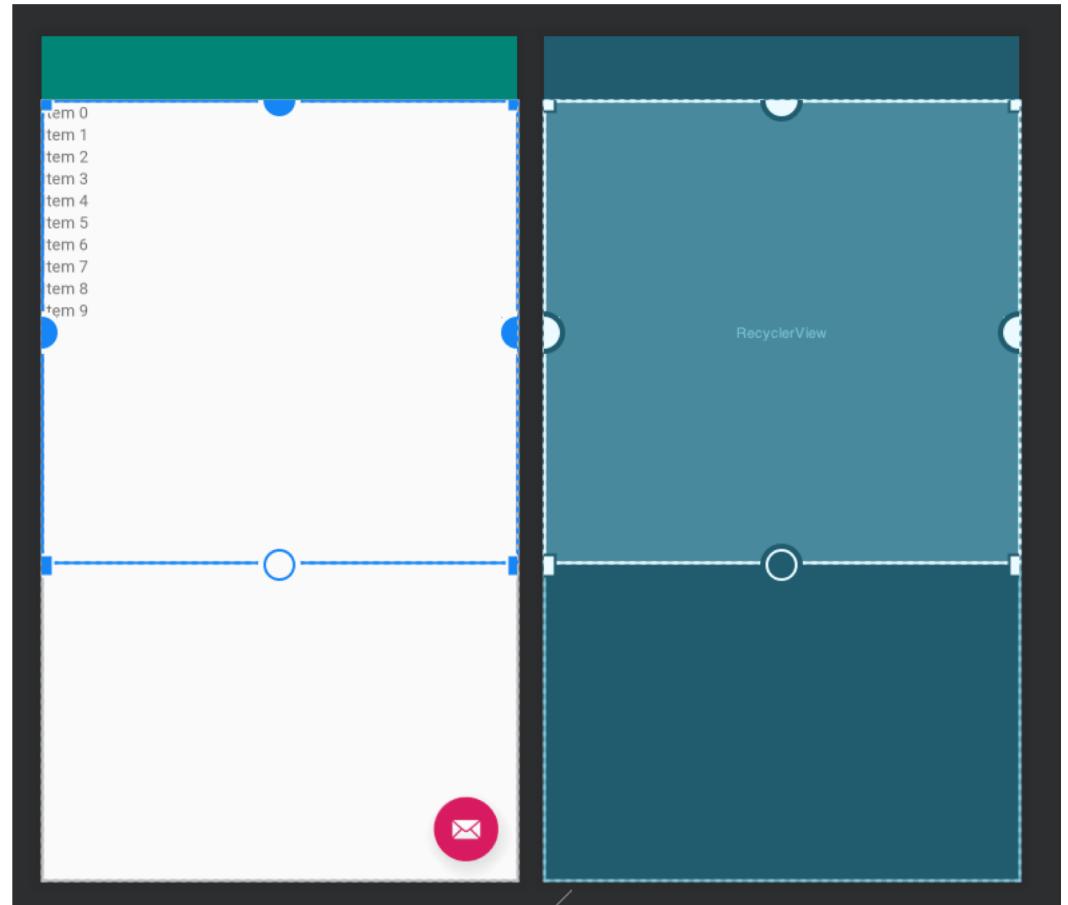


Fig 7: A XML view of a simple recycler view

Create the List Item View which the RecyclerView Holds

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="40dp">

    <TextView
        android:id="@+id/pokemonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="@color/colorPrimaryDark"
        android:textSize="20sp"
        android:layout_constraintStart_toStartOf="parent"
        android:layout_constraintEnd_toEndOf="parent"
        android:layout_constraintTop_toTopOf="parent"
        android:layout_constraintBottom_toBottomOf="parent"
        tools:text="Bulbasaur" />

    <View
        android:layout_width="match_parent"
        android:layout_height="1dp"
        android:background="@color/colorPrimary"
        android:layout_constraintStart_toStartOf="parent"
        android:layout_constraintBottom_toBottomOf="parent"
        android:layout_constraintEnd_toEndOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Fig 8 : List Item View XML

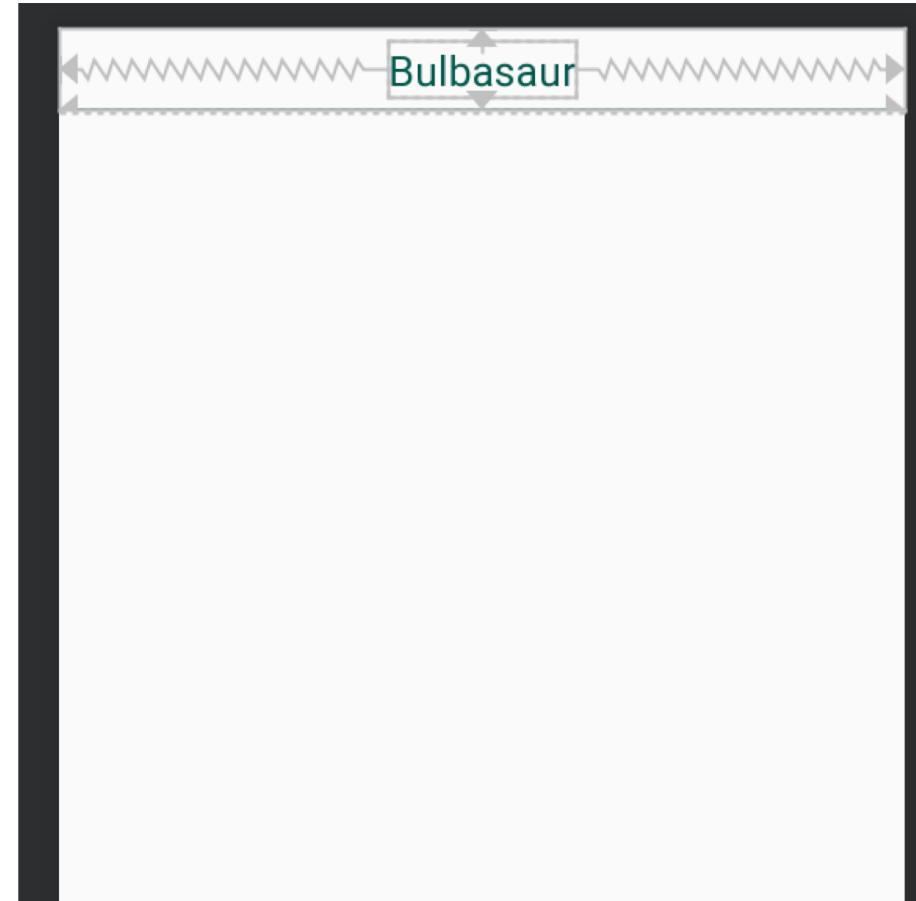


Fig 9: List item Graphical View

Connect the View to Activity

Three Things Required for a RecyclerView to work

1. Adapter –Adapts the views to changes in data.
1. Layout Manager –Manages the layout and navigation inside the RecyclerView.
1. ViewHolder- Holds the view and binds the view to the XML.



Fig 10 : A Fruit Seller

Create a ViewHolder

Holds the view which is going to be used in the List item.

```
class ViewHolder (view: View) : RecyclerView.ViewHolder(view)
{
    // Holds the TextView that will contain the pokemon name
    val pokemonName = view.pokemonName
}
```

Create Adapter

Create Class and Implement () RecyclerView.Adapter<ViewHolder>()

Three methods need to be overridden `onCreateViewHolder` , `getItemCount` , `onBindViewHolder`

```
class PokemonAdapter(val pokemonList: List<String>, val context: Context): RecyclerView.Adapter<ViewHolder>() {  
    override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): ViewHolder {  
        return ViewHolder(LayoutInflater.from(context).inflate(R.layout.listitem_pokemon, parent, false))  
    }  
    override fun getItemCount(): Int {  
        return pokemonList.size  
    }  
    override fun onBindViewHolder(holder: ViewHolder, position: Int) {  
        holder.pokemonName?.text = pokemonList[position]  
    }  
}
```

Initialization

1 . Initialize the list data

```
private var pokemonList=listOf("Pikachu","Squirtle","Charmander","Bulbasaur")
```

2 .Declare and initialize the Adapter in the MainActivity

Declaration = `private lateinit var pokemonAdapter: PokemonAdapter`

Initialization = `pokemonAdapter=PokemonAdapter(pokemonList,this)`

Initialization

3 . Declare and Initialize Layout manager

```
Declaration = private lateinit var linearLayoutManager: LinearLayoutManager  
Initialization = linearLayoutManager=LinearLayoutManager(this)
```

4 . Attach to Recycler View

```
simpleRecyclerView.apply {  
    this.adapter=pokemonAdapter  
    this.layoutManager=linearLayoutManager  
}
```

5. Notify Adapter

```
pokemonAdapter.notifyDataSetChanged()
```

Result

Run the application

Code :

<https://github.com/shalom06/SimpleRecyclerViewCS>

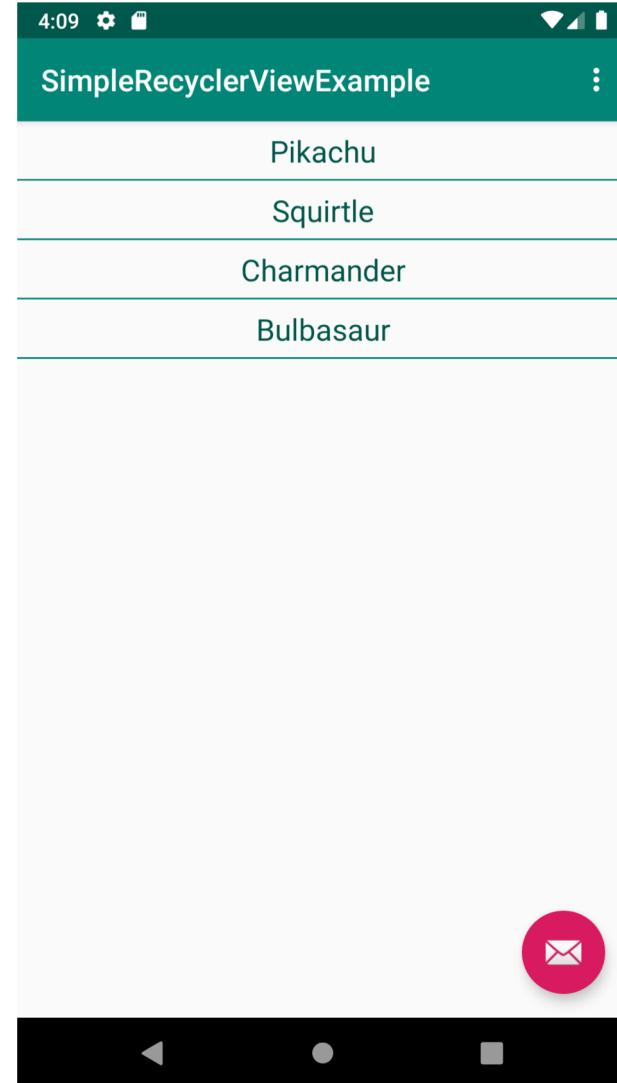


Fig 11 : Pokemon RecyclerView

RecyclerView Showcase

Application Used: Krugo

Questions?

-Thank You!

References

1. Allibhai, E. (2018, March 27). Using RecyclerView in Android - Kotlin. Retrieved from <https://android.jlelse.eu/using-recyclerview-in-android-kotlin-722991e86bf3>.
2. Create a List with RecyclerView : Android Developers. (n.d.). Retrieved from <https://developer.android.com/guide/topics/ui/layout/recyclerview>.