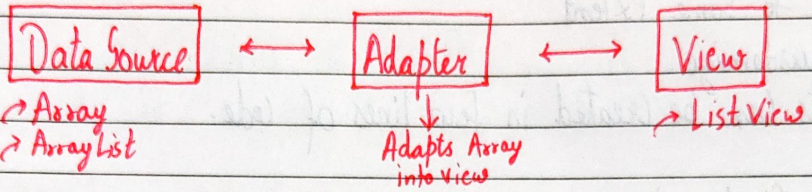
Chapter 5 - ListViews & RecyclerView

In Android, a scrollable list of items is implemented using a ListView. The data is populated into the list using an Adapter.

Adapter converts an Array/ArrayList into view items.



ArrayAdapter

ArrayAdapter is used to display a set of items in a ListView

```
ArrayAdapter<String> ad = new ArrayAdapter(this, R.layout.list_item, sArr)
```

layout (TextView) — Context — String Array

```
listView.setAdapter(ad);
```

This sets the content of sArr to list view

Custom Array Adapter

We can create custom Array Adapters by creating a model and a class (eg. MyAdapter) which extends ArrayAdapter
We can pass our string array to MyAdapter like this:

```
MyAdapter ad = new MyAdapter(this, sArr);
listView.setAdapter(ad)
```

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Why use ListViews

It will be very hectic to create a scrollable view where data is coming from a DataSource. Just imagine how hectic would it be to otherwise populate data into a View to show it to the user.
Hence Listviews are used due to the following reasons:

- User & Developer Friendly
- Optimized to some extent
- Easy to customize
- Simple Lists can be created in few lines of code.

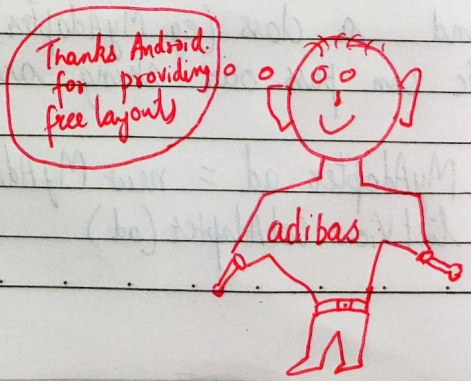
Adding OnClick listener to items

We can override onItemClick method to add click listeners as shown below:

```
listView.setOnItemClickListener(new OnItemClickListener(){
    ...
});
```

Built-in XML layouts

Android provides you a list of built-in layouts to be used within list views.
Ex: android.R.layout.simple_list_item_1
android.R.layout.simple_list_item_2
... etc.



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RecyclerView

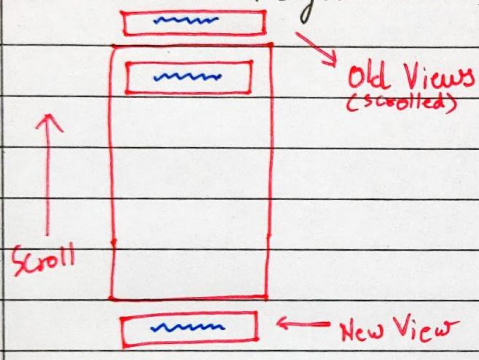
Its simply a better version of ListViews

In ListViews → Memory is directly proportional to the number of items

RecyclerView solves this problem by recycling the existing views hence saving up on memory

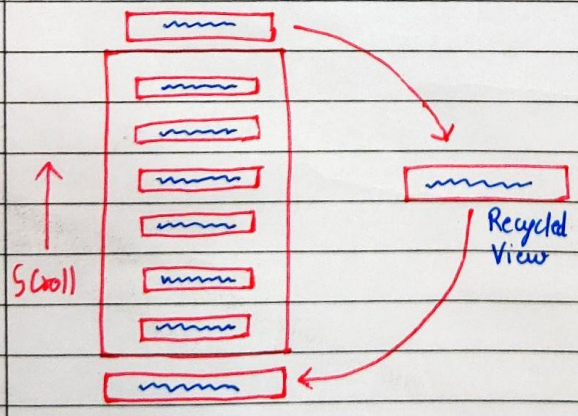
We simply update the Adapter in RecyclerView to an Adapter which is capable of Recycling the Views

ListViews Vs RecyclerViews



⇒ User keeps scrolling which adds Views & hence more memory is Consumed

ListView



⇒ Views are recycled when a user scrolls resulting into Performance boost

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How to Implement a RecyclerView

A RecyclerView can be implemented just like ListViews using an Adapter. All the major changes are done to the Adapter. Android Docs has a page which can be used as a starter template for implementing RecyclerViews.