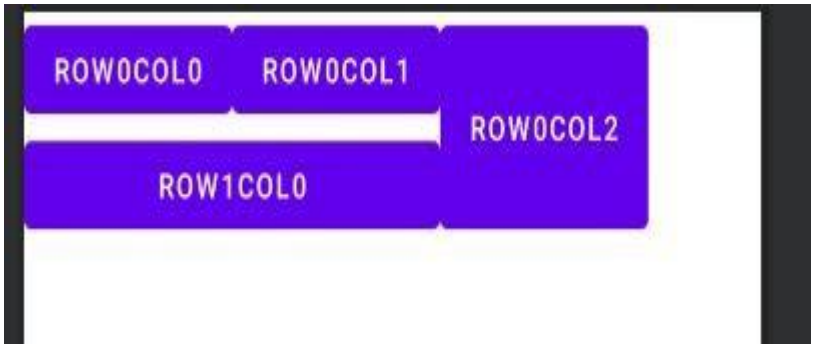
GridLayout

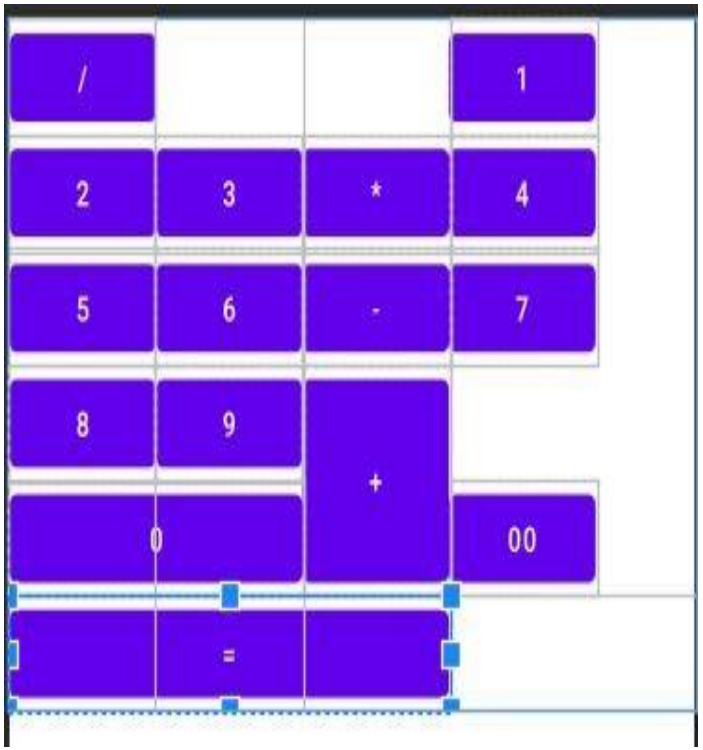
- Layout that places its children in a **rectangular grid**.
- The grid is composed of a set of infinitely thin lines that separate the viewing area into cells.
- In **Android GridLayout**, we can specify the number of columns and rows that the grid will have.
- The number of rows and columns within the grid can be declared using the android:rowCount and android:columnCount properties.
- Typically, however, if the number of columns is declared the GridLayout will infer the number of rows based on the number of occupied cells making the use of the rowCount property unnecessary.
- Similarly, the orientation of the GridLayout may optionally be defined via the android:orientation property.
- The following example XML declares a 2 x 2 GridLayout configuration in horizontal orientation:

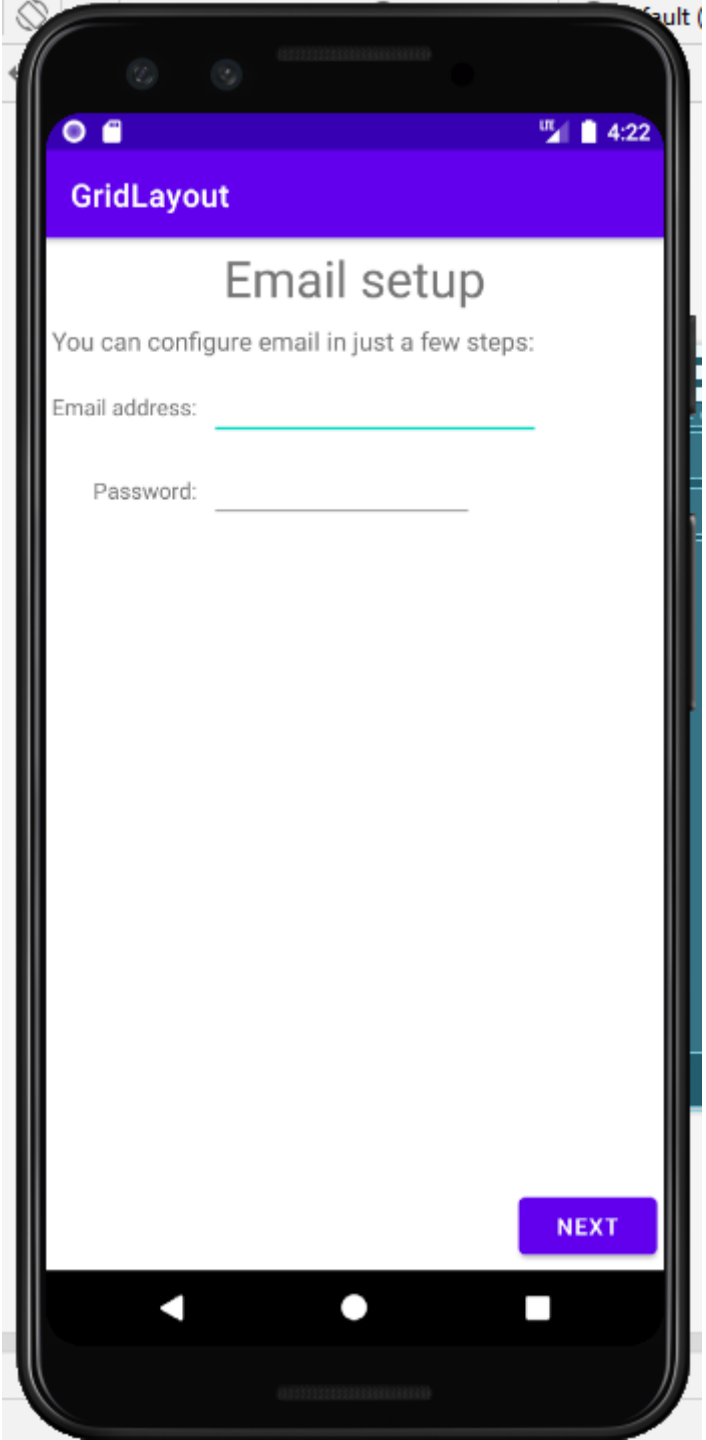
- A view can be placed within a specific cell by specifying the intersecting row and column number of the destination cell. The following Button view will be placed in the cell and row 1, column 2 of the parent GridLayout:

```
<Button
    android:id="@+id/button5"
    android:layout_column="2"
    android:layout_row="1"
    android:layout_gravity="left|top"
    android:text="Button" />
```

- **rowSpan or colspan ?**






4:22
GridLayout
Email setup
You can configure email in just a few steps:
Email address:
Password:
NEXT

```
<?xml version="1.0" encoding="utf-8"?>
<GridLayout xmlns:android="http://schemas.android.com/apk/res/andoid"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:useDefaultMargins="true"
    android:alignmentMode="alignBounds"
    android:columnOrderPreserved="false"
    android:columnCount="4"
    tools:context=".MainActivity">

    <TextView
        android:text="Email setup"
        android:textSize="32dip"

        android:layout_columnSpan="4"
        android:layout_gravity="center_horizontal"
        />

    <TextView
        android:text="You can configure email in just a few steps:"
        android:textSize="16dip"

        android:layout_columnSpan="4"
        android:layout_gravity="left"
        />
```

```
 <TextView
        android:text="Email address:"

        android:layout_gravity="right" />

    <EditText
        android:ems="10" />

    <TextView
        android:text="Password:"
        android:layout_column="0"
        android:layout_gravity="right" />

    <EditText
        android:ems="8"  />

    <Space
        android:layout_row="4"
        android:layout_column="0"
        android:layout_columnSpan="3"
        android:layout_gravity="fill"  />

    <Button
        android:text="Next"
        android:layout_row="5"
        android:layout_column="3" />

</GridLayout>
```

Attributes

ColumnCount

- ColumnCount is used only to generate default column/column indices when they are not specified by a component's layout parameters.

Attributes

RowCount

- RowCount is used only to generate default row/column indices when they are not specified by a component's layout parameters.

Attributes

RowOrderPreserved

- When this property is true, GridLayout is forced to place the row boundaries so that their associated grid indices are in ascending order in the view.
- When this property is false GridLayout is at liberty to place the vertical row boundaries in whatever order best fits the given constraints.
- The default value of this property is true.

Attributes

ColumnOrderPreserved

- When this property is true, GridLayout is forced to place the column boundaries so that their associated grid indices are in ascending order in the view.
- When this property is false GridLayout is at liberty to place the horizontal column boundaries in whatever order best fits the given constraints.
- The default value of this property is true.

Attributes

UseDefaultMargins

- When true, GridLayout allocates default margins around children based on the child's visual characteristics.
- Each of the margins so defined may be independently overridden by an assignment to the appropriate layout parameter.
- When false, the default value of all margins is zero.
- When setting to true, consider setting the value of the alignmentMode property to ALIGN_BOUNDS.
- The default value of this property is false.

Attributes

AlignmentMode

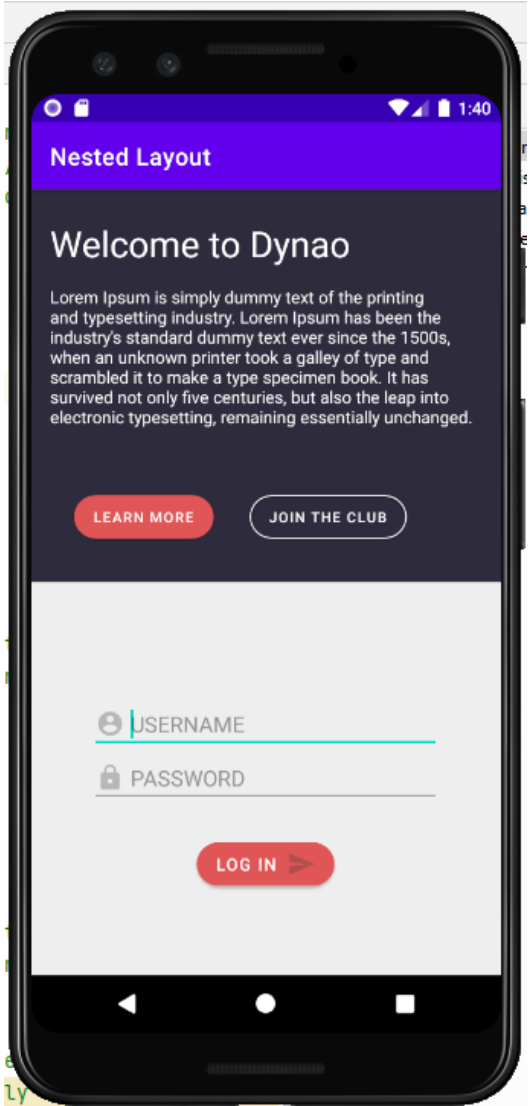
- Sets the alignment mode to be used for all of the alignments between the children of this container.
- The default value of this property is ALIGN_MARGINS
- **ALIGN_MARGINS**
  - When the alignmentMode is set to ALIGN_MARGINS, the bounds of each view are extended outwards, according to their margins, before the edges of the resulting rectangle are aligned.
- **ALIGN_BOUNDS**
  - When the alignmentMode is set to ALIGN_BOUNDS, alignment is made between the edges of each component's raw view boundary: i.e. the area delimited by the component's: top, left, bottom and right properties.

Table layout vs Grid layout

- If the amount of data is low, fixed and don't require scrolling then TableLayout should be used but if the data is large and require scrolling to access, GridLayout with ScrollView should be used.

Nested Layout

- Design the following screen



Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
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:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:paddingLeft="16dp"
        android:paddingRight="16dp"
        android:layout_weight="0.5"
        android:background="#2f2c3d">
        <TextView
            android:id="@+id/welcomeText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="25dp"
            android:textSize="30dp"
            android:textColor="#FFF"
            android:text="Welcome to Dynao"
            />
```

```
    <TextView
                android:id="@+id/introText"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:textColor="#FFF"
                android:paddingTop="15dp"
                android:layout_below="@+id/welcomeText"
                android:text="Lorem Ipsum is simply dummy text
of the printing and typesetting
industry. Lorem Ipsum has been the industry's standard dummy
text ever since the 1500s,
when an unknown printer took a galley of type and scrambled
it to make a type specimen
book. It has survived not only five centuries, but also the
leap into electronic typesetting,
remaining essentially unchanged."
                />

            <Button
                android:id="@+id/primaryButton"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_below="@id/introText"
                android:layout_marginLeft="20dp"
                android:layout_marginTop="50dp"
                android:text="LEARN MORE"
                android:textSize="12sp"
                app:backgroundTint="#e05555"
                app:cornerRadius="24dp" />
```

```
 <Button
        android:id="@+id/secondButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/introText"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="50dp"
        android:layout_toRightOf="@+id/primaryButton"
        android:textSize="12sp"
        android:text="JOIN THE CLUB"
        app:backgroundTint="@android:color/transparent"
        app:cornerRadius="24dp"
        app:strokeColor="#FFF"
        app:strokeWidth="1dp" />
</RelativeLayout>
 <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="0.5"
        android:paddingLeft="50dp"
        android:paddingRight="50dp"
        android:background="#eeeeee"
        android:orientation="vertical">
```

```
        <EditText
            android:id="@+id/username"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_above="@+id/password"
            android:drawableLeft="@drawable/ic_baseline_account_circle_24"
            android:drawablePadding="5dp"
            android:hint="USERNAME" />
        <EditText
            android:id="@+id/password"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:drawableLeft="@drawable/ic_baseline_lock_24"
            android:drawablePadding="5dp"
            android:hint="PASSWORD" />
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerHorizontal="true"
            android:layout_marginTop="25dp"
            android:drawableRight="@drawable/ic_baseline_send_24"
            android:drawableEnd="@drawable/ic_baseline_send_24"
            android:drawablePadding="5dp"
            android:layout_below="@+id/password"
            app:backgroundTint="#e05555"
            app:cornerRadius="24dp"
            android:text="Log In" />
    </RelativeLayout>
</LinearLayout>
```