

CSc 317

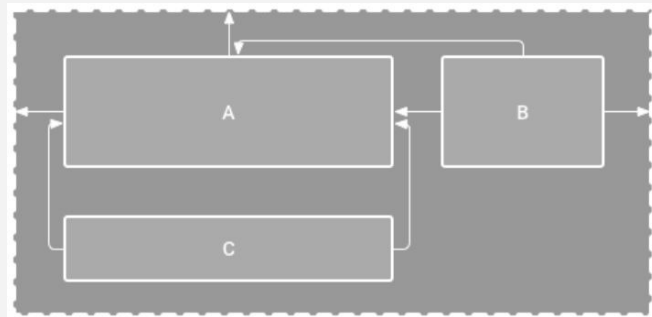
ConstraintLayout

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ConstraintLayout

- For laying out **Views** and **ViewGroups** based on constraints, relative to
 - Screen edges
 - Other views
- According to the Android Docs, use **ConstraintLayout** for better performance and tooling



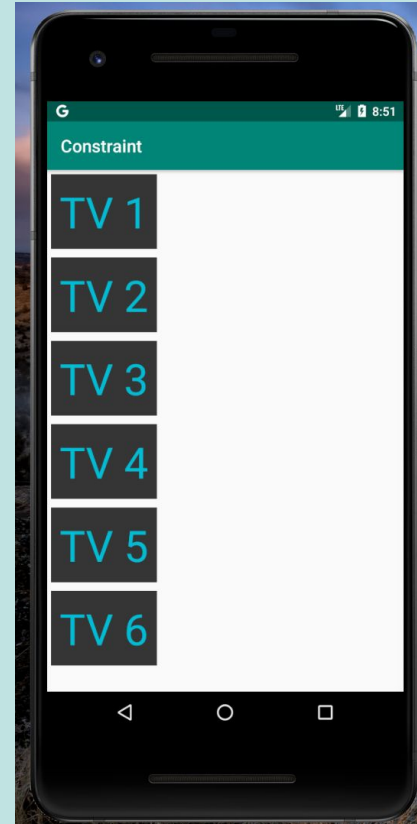
Constraints

```
app:layout_constraintTop_toTopOf="@+id/??"  
app:layout_constraintTop_toBottomOf="@+id/??"  
app:layout_constraintLeft_toLeftOf="@+id/??"  
app:layout_constraintLeft_toRightOf="@+id/??"  
app:layout_constraintRight_toLeftOf="@+id/??"  
app:layout_constraintRight_toRightOf="@+id/??"  
app:layout_constraintBottom_toTopOf="@+id/??"  
app:layout_constraintBottom_toBottomOf="@+id/??"
```

<https://developer.android.com/reference/android/support/constraint/ConstraintLayout>

Constraint starter code

- Go download the starter code
- Run without changing, should look similar to:



Constraint

- Change the `LinearLayout` to a `ConstraintLayout`
- Using constraints, modify to make UI look like:



ConstraintLayout

<!-- First -->

```
app:layout_constraintTop_toTopOf="@+id/outer"  
app:layout_constraintLeft_toLeftOf="@+id/outer"
```

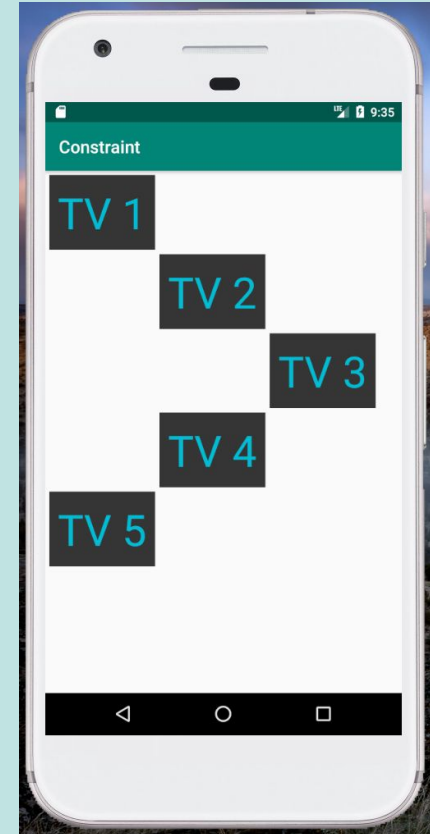
<!-- Second and third -->

```
app:layout_constraintTop_toBottomOf="@+id/tv?"  
app:layout_constraintLeft_toRightOf="@+id/tv?"
```



ConstraintLayout

- Using constraints, modify to make UI look like:



ConstraintLayout

<!-- First -->

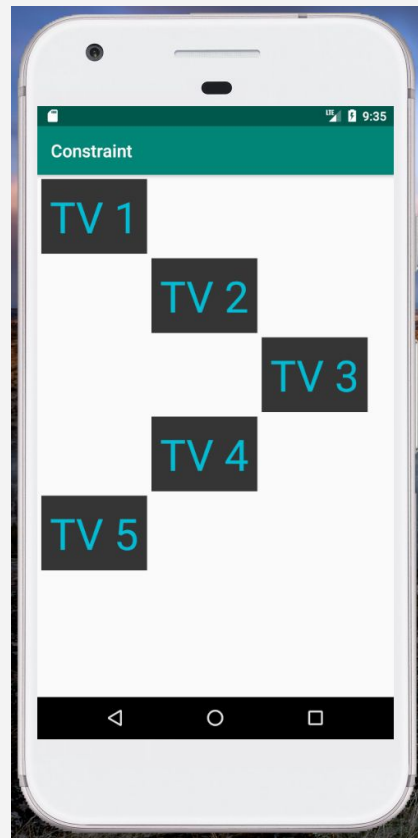
```
app:layout_constraintTop_toTopOf="@+id/outer"  
app:layout_constraintLeft_toLeftOf="@+id/outer"
```

<!-- Second and third -->

```
app:layout_constraintTop_toBottomOf="@+id/tv?"  
app:layout_constraintLeft_toRightOf="@+id/tv?"
```

<!-- Fourth and fifth -->

```
app:layout_constraintTop_toBottomOf="@+id/tv?"  
app:layout_constraintRight_toLeftOf="@+id/tv?"
```



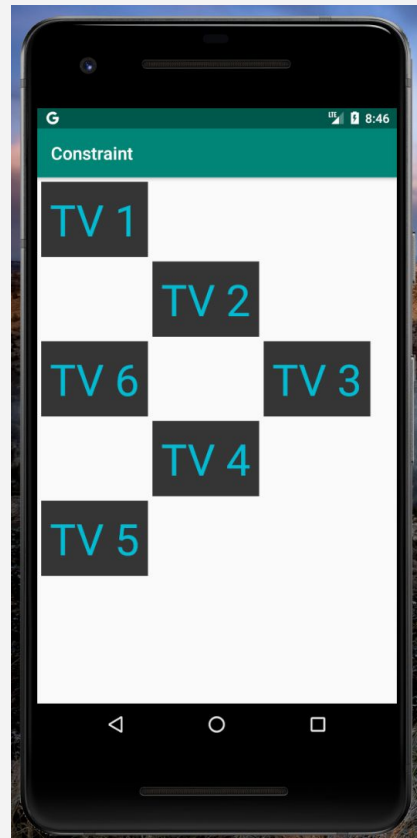
ConstraintLayout

- Using constraints, modify to make UI look like:



ConstraintLayout

```
<!-- sixth -->
<TextView
    android:id="@+id/tv6"
    ...
    app:layout_constraintTop_toBottomOf="@+id/tv2"
    app:layout_constraintBottom_toTopOf="@+id/tv4"
    app:layout_constraintRight_toLeftOf="@+id/tv2"/>
```



Why use ConstraintLayout

- One big benefit is the **flat layout hierarchy**
- Can create layouts without having heavy nesting of **LinearLayouts**
- Can lead to better performance

