

PEMROGRAMAN ANTAR MUKA PENGGUNA (XML)

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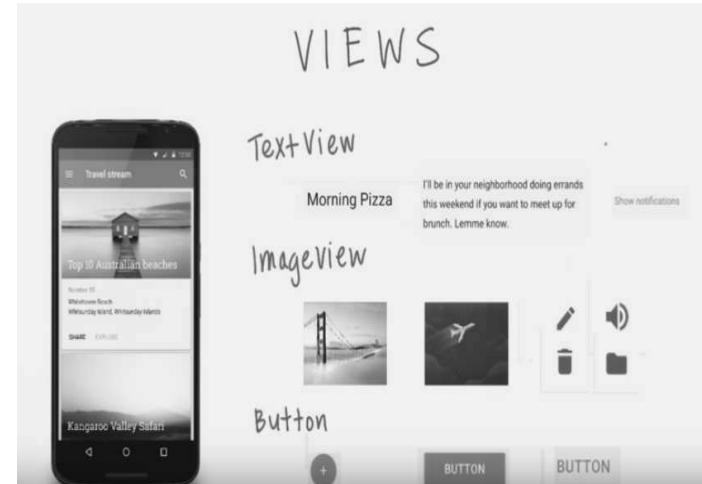
<https://tif.uad.ac.id/>

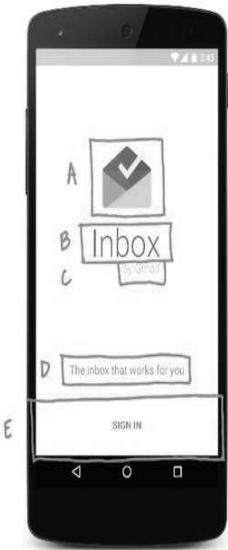
Layout Manager

Berfungsi untuk meletakan komponen (view) pada layar, android menggunakan layout manager.

- **Jenis layout manager:**
 - ✓ **Table Layout**, TableLayout meletakan komponen dalam bentuk tabel (baris dan kolom), mirip seperti Table yang digunakan di HTML untuk mengatur layout
 - ✓ **Absolute Layout**, Absolute layout didasarkan pada ide sederhana dengan menempatkan masing-masing kontrol pada posisi absolut. Penentuan koordinat x dan y pada layar untuk setiap kontrol, Layout ini jarang digunakan karena membuat tidak fleksibel sehingga sangat berisiko dalam proses perbaikan
 - ✓ **Relative Layout**, merupakan sebuah layout dimana posisi dari sebuah komponen dapat diatur terhadap komponen lainnya
 - ✓ **Linear Layout**, merupakan layout yang memberikan susunan tata letak komponen secara garis lurus baik vertikal maupun horizontal
 - ✓ **Frame Layout**, merupakan layout yang memberikan susunan tata letak komponen yang bertumpuk. Di rancang untuk menyisipkan widget ke dalam widget lainnya

- *eXtensible Markup Language (XML)* dirancang untuk mendeskripsikan data dan memfokuskan diri pada data tersebut.
- HTML didesain untuk menampilkan data dan memfokuskan diri pada bagaimana data ditampilkan.
- XML bukanlah pengganti HTML karena memang dirancang berbeda. Hubungan antara XML dan HTML lebih ke arah pelengkap. Kita dapat menyimpan data dalam sebuah dokumen XML dan mempergunakan HTML untuk menampilkan data tersebut.





VIEWS

Identify the type of View

- A ○ TextView ✗ ImageView ○ Button
- B ✗ TextView ○ ImageView ○ Button
- C ✗ TextView ○ ImageView ○ Button
- D ✗ TextView ○ ImageView ○ Button
- E ○ TextView ○ ImageView ✗ Button



VIEWS

Identify the type of View

- A ✗ TextView ○ ImageView ○ Button
- B ✗ TextView ○ ImageView ○ Button
- C ○ TextView ○ ImageView ✗ Button
- D ○ TextView ○ ImageView ✗ Button

TEXTVIEW

```
<TextView  
    android:text="Happy Birthday!"  
    android:background="@android:color/darker_gray"  
    android:layout_width="150dp"  
    android:layout_height="75dp" />
```

Write your observations here:



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XML SYNTAX

```
<TextView  
    android:text="@Happy_Birthday!"  
    android:background="@android:color/darker_gray"  
    android:layout_width="150dp"  
    android:layout_height="75dp" />
```

↑
Attribute
Name

↑
Attribute
Value in

8

Line
numbers ↴

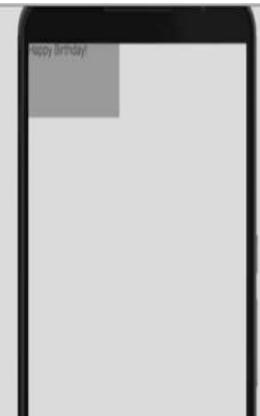
XML SYNTAX

```
1 <TextView  
2     android:text="Happy Birthday!"  
3     android:textColor="@android:color/white"  
4     android:background="@android:color/black"  
5     android:layout_width="200dp"  
6     android:layout_height="300dp" />
```

1. What's the name of the XML element? []
2. List all attribute names (not attribute values) separated by commas
[]
3. On what line number is the tag closed? []

XML Layout Code

```
1 <TextView  
2     android:text="Happy Birthday!"  
3     android:background="@android:color/darker_gray"  
4     android:layout_width="150dp"  
5     android:layout_height="75dp" />
```



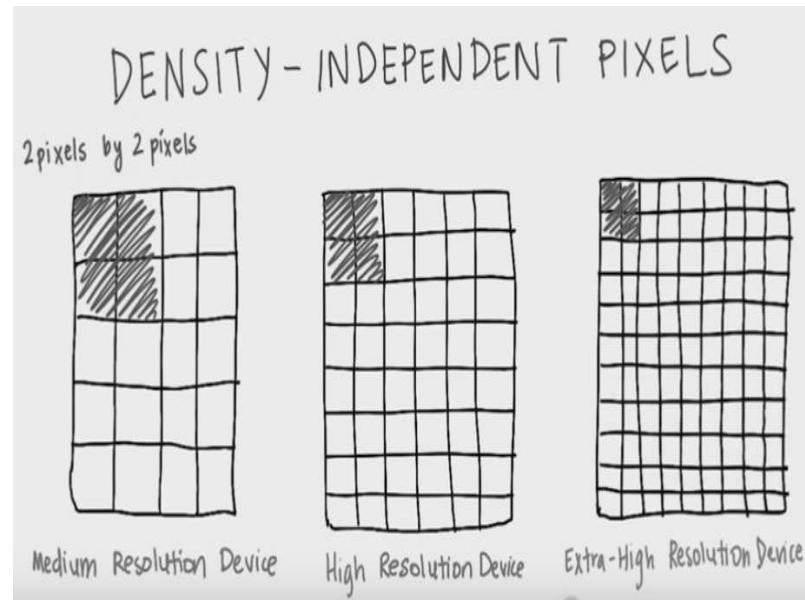
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px, dpi, dp, sp

- px (pixel)
- dpi (*dots per inch*)
- dip/dp (*density independent pixel*)
- sp (*scale independent pixel*)

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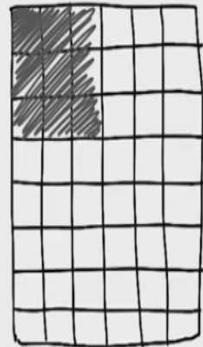
14

DENSITY-INDEPENDENT PIXELS

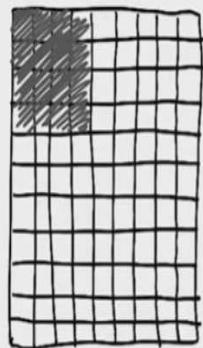
2 dp by 2 dp



Medium Resolution Device



High Resolution Device



Extra-High Resolution Device

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Common Android Views

TextView

Displays text

```
<TextView
    android:id="@+id/title_text_view"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/my_photos"
    android:textAppearance="?android:textAppearanceLarge"
    android:textColor="#4E9ACF"
    android:textStyle="bold" />
```

ImageView

Displays Image

```
<ImageView
    android:id="@+id/photo_image_view"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:scaleType="centerCrop"
    android:src="@drawable/beach" />
```

My Photos



Button

Button with text label

```
<Button
    android:id="@+id/next_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/next" />
```

NEXT

View

Plain rectangle (can be used as a divider)

```
<View
    android:layout_width="match_parent"
    android:layout_height="10dp"
    android:background="#4E9ACF" />
```

Edit Text

Text field that you can type into

```
<EditText
    android:id="@+id/album_description_view"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="@string/album_description"
    android:inputType="textMultiLine" />
```

Album Description

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GETTING PAST ERRORS

```
<Text View
    android:text="Happy Birthday"
    android:layout_width="150dp"
    android:layout_height="150"
    android:background="@android:color/darker_gray"
    >
```

Uh oh! Invalid
XML... help!

Describe at least 2 problems you see.

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XML Layout Code

UNDO REDO Code has been saved RESET CODE

```

1 <TextView
2     android:text="Wait, today's your birthday?">
3     android:background="@android:color/darker_gray"
4     android:layout_width="200dp"
5     android:layout_height="150dp" />

```

XML Layout Code

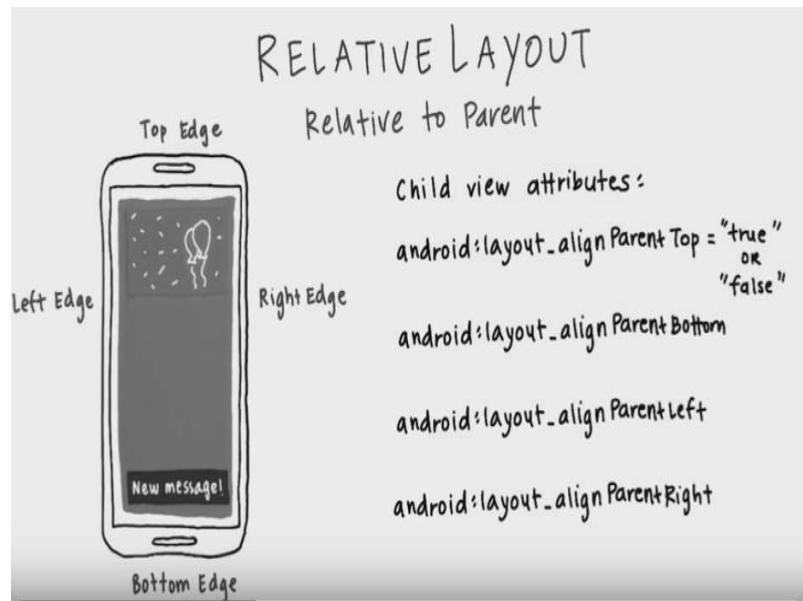
UNDO REDO Code has been saved RESET CODE

```

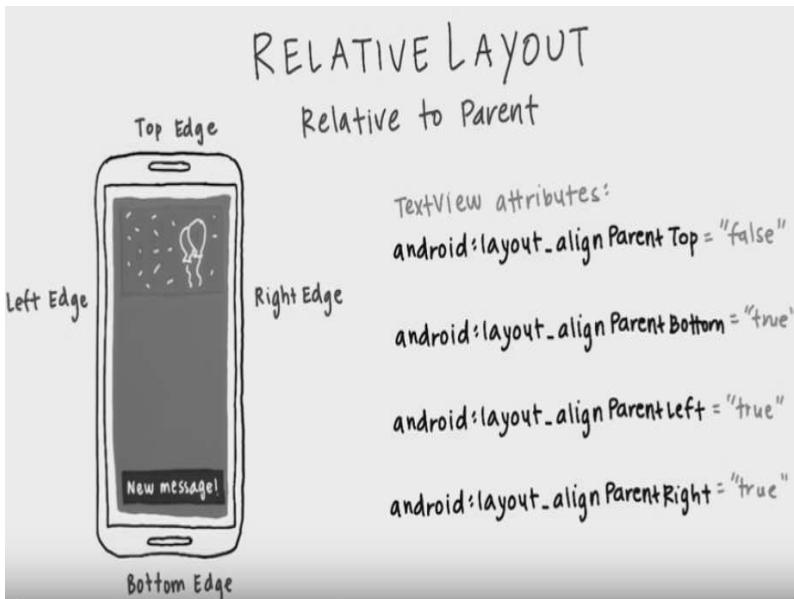
1 <TextView
2     android:text="Wait, today's your birthday?"
3     android:background="@android:color/darker_gray"
4     android:layout_width="wrap_content"
5     android:layout_height="wrap_content" />

```

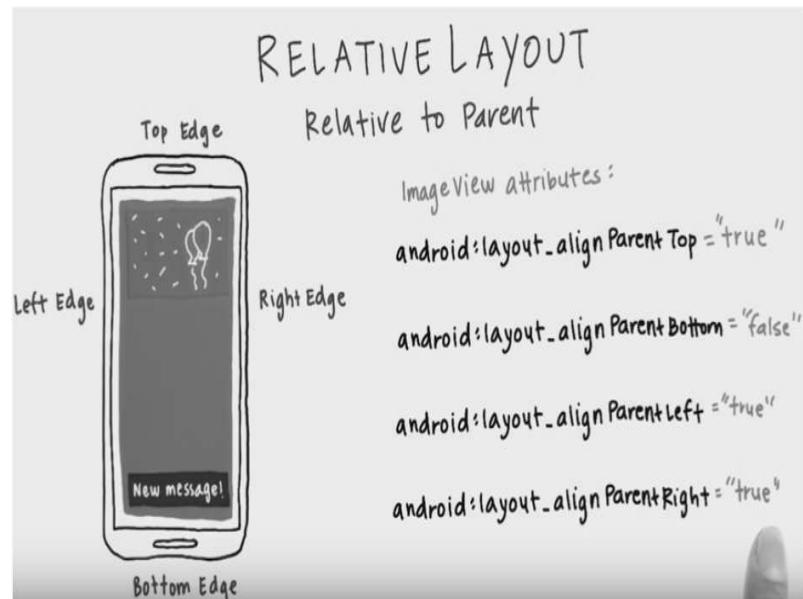
20



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34



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RELATIVE LAYOUT

Relative to Parent

Child view attributes:

`android:layout_alignParentTop = "true"`

`android:layout_alignParentBottom`

`android:layout_alignParentLeft = "true"`

`android:layout_alignParentRight`



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RELATIVE LAYOUT

Relative to Parent

Child view attributes:

`android:layout_alignParentTop = "true"`

`android:layout_alignParentBottom`

`android:layout_alignParentLeft`

`android:layout_alignParentRight = "true"`



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RELATIVE LAYOUT

Relative to Parent

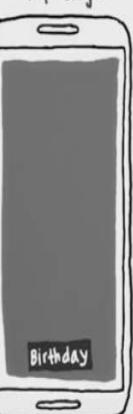
Child view attributes:

`android:layout_alignParentTop`

`android:layout_alignParentBottom = "true"`

`android:layout_alignParentLeft`

`android:layout_alignParentRight`



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RELATIVE LAYOUT

Relative to Parent

Child view attributes:

`android:layout_alignParentTop`

`android:layout_alignParentBottom`

`android:layout_alignParentLeft`

`android:layout_alignParentRight`



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XML Layout Code

```

1 <RelativeLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:layout_width="match_parent"
4     android:layout_height="match_parent">
5
6     <TextView
7         android:layout_width="wrap_content"
8         android:layout_height="wrap_content"
9         android:layout_alignParentRight="true"
10        android:layout_alignParentTop="true"
11        android:textAppearance="?android:textAppearanceLarge"
12        android:text="Happy" />
13
14     <TextView
15         android:layout_width="wrap_content"
16         android:layout_height="wrap_content"
17         android:layout_alignParentBottom="true"
18         android:layout_alignParentLeft="true"
19         android:textAppearance="?android:textAppearanceLarge"
20         android:text="Birthday" />
21
22     <TextView
23         android:layout_width="wrap_content"
24         android:layout_height="wrap_content"
25         android:textAppearance="?android:textAppearanceLarge"
26         android:text="To You" />
27
28 </RelativeLayout>
29

```



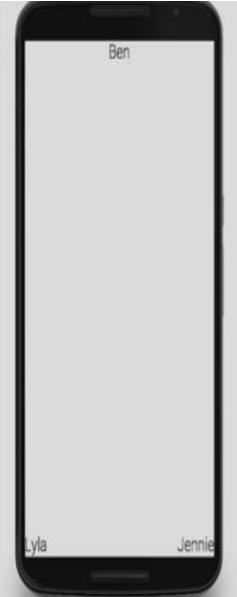
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XML Layout Code

```

1 <RelativeLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:layout_width="match_parent"
4     android:layout_height="match_parent">
5
6     <TextView
7         android:id="@+id/lyla_text_view"
8         android:layout_width="wrap_content"
9         android:layout_height="wrap_content"
10        android:layout_alignParentBottom="true"
11        android:layout_alignParentLeft="true"
12        android:textSize="24sp"
13        android:text="Lyla" />
14
15     <TextView
16         android:id="@+id/jennie_text_view"
17         android:layout_width="wrap_content"
18         android:layout_height="wrap_content"
19         android:layout_alignParentBottom="true"
20         android:layout_alignParentRight="true"
21         android:textSize="24sp"
22         android:text="Jennie" />
23
24     <TextView
25         android:id="@+id/ben_text_view"
26         android:layout_width="wrap_content"
27         android:layout_height="wrap_content"
28         android:layout_alignParentTop="true"
29         android:layout_centerHorizontal="true"
30         android:textSize="24sp"
31         android:text="Ben" />
32
33     <TextView
34         android:id="@+id/kunal_text_view"
35         android:layout_width="wrap_content"
36         android:layout_height="wrap_content"
37         android:layout_alignParentTop="true"
38         android:layout_toLeftOf="@+id/ben_text_view"
39         android:textSize="24sp"
40         android:text="Kunal" />
41
42 </RelativeLayout>
43

```



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XML Layout Code

```

14
15     <TextView
16         android:id="@+id/jennie_text_view"
17         android:layout_width="wrap_content"
18         android:layout_height="wrap_content"
19         android:layout_alignParentBottom="true"
20         android:layout_alignParentRight="true"
21         android:textSize="24sp"
22         android:text="Jennie" />
23
24     <TextView
25         android:id="@+id/ben_text_view"
26         android:layout_width="wrap_content"
27         android:layout_height="wrap_content"
28         android:layout_alignParentTop="true"
29         android:layout_centerHorizontal="true"
30         android:textSize="24sp"
31         android:text="Ben" />
32
33     <TextView
34         android:id="@+id/kunal_text_view"
35         android:layout_width="wrap_content"
36         android:layout_height="wrap_content"
37         android:layout_alignParentTop="true"
38         android:layout_toLeftOf="@+id/ben_text_view"
39         android:textSize="24sp"
40         android:text="Kunal" />
41
42 </RelativeLayout>
43

```



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XML Layout Code

```

13         android:text="Lyla" />
14
15     <TextView
16         android:id="@+id/jennie_text_view"
17         android:layout_width="wrap_content"
18         android:layout_height="wrap_content"
19         android:layout_alignParentBottom="true"
20         android:layout_alignParentRight="true"
21         android:textSize="24sp"
22         android:text="Jennie" />
23
24     <TextView
25         android:id="@+id/omoju_text_view"
26         android:layout_width="wrap_content"
27         android:layout_height="wrap_content"
28         android:layout_alignParentRight="true"
29         android:layout_above="@+id/jennie_text_view"
30         android:textSize="24sp"
31         android:text="Omoju" />
32
33     <TextView
34         android:id="@+id/ben_text_view"
35         android:layout_width="wrap_content"
36         android:layout_height="wrap_content"
37         android:layout_alignParentTop="true"
38         android:layout_centerHorizontal="true"
39         android:textSize="24sp"
40         android:text="Ben" />
41
42

```



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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="wrap_content"
5     android:layout_height="wrap_content">
6
7     <TextView
8         android:text="Guest List"
9         android:layout_width="wrap_content"
10        android:layout_height="wrap_content"
11        android:textSize="24sp" />
12
13     <TextView
14         android:text="Kunal"
15         android:layout_width="wrap_content"
16         android:layout_height="wrap_content"
17         android:textSize="24sp" />
18
19     <TextView
20         android:text="Kunal"
21         android:layout_width="wrap_content"
22         android:layout_height="wrap_content"
23         android:textSize="24sp" />
24 </LinearLayout>

```

AVAILABLE IMAGES CHEAT SHEET

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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="horizontal"
4     android:layout_width="wrap_content"
5     android:layout_height="wrap_content">
6
7     <TextView
8         android:text="Guest List"
9         android:layout_width="wrap_content"
10        android:layout_height="wrap_content"
11        android:textSize="24sp" />
12
13     <TextView
14         android:text="Kunal"
15         android:layout_width="wrap_content"
16         android:layout_height="wrap_content"
17         android:textSize="24sp" />
18
19     <TextView
20         android:text="Kunal"
21         android:layout_width="wrap_content"
22         android:layout_height="wrap_content"
23         android:textSize="24sp" />
24 </LinearLayout>

```

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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent" />
6
7     <TextView
8         android:text="VIP List"
9         android:layout_width="wrap_content"
10        android:layout_height="wrap_content"
11        android:textSize="24sp" />
12
13     <TextView
14         android:text="Kunal"
15         android:layout_width="match_parent"
16         android:layout_height="wrap_content"
17         android:textSize="24sp" />
18
19     <TextView
20         android:text="Kagure"
21         android:layout_width="wrap_content"
22         android:layout_height="wrap_content"
23         android:textSize="24sp" />
24
25     <TextView
26         android:text="Lyla"
27         android:layout_width="wrap_content"
28         android:layout_height="wrap_content"
29         android:textSize="24sp" />

```

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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent"
6     android:background="#android:color/darker_gray">
7
8     <TextView
9         android:text="VIP List"
10        android:layout_width="wrap_content"
11        android:layout_height="wrap_content"
12        android:background="#4CAF50"
13        android:textSize="24sp" />
14
15     <TextView
16         android:text="Kunal"
17         android:layout_width="wrap_content"
18         android:layout_height="wrap_content"
19         android:background="#4CAF50"
20         android:textSize="24sp" />
21
22     <TextView
23         android:text="Kagure"
24         android:layout_width="wrap_content"
25         android:layout_height="wrap_content"
26         android:background="#4CAF50"
27         android:textSize="24sp" />
28
29     <TextView

```

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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent"
6     android:background="@android:color/darker_gray">
7
8     <TextView
9         android:text="VIP List"
10        android:layout_width="wrap_content"
11        android:layout_height="match_parent"
12        android:background="#4CAF50"
13        android:textSize="24sp" />
14
15     <TextView
16         android:text="Kunal"
17         android:layout_width="wrap_content"
18         android:layout_height="wrap_content"
19         android:background="#4CAF50"
20         android:textSize="24sp" />
21
22     <TextView
23         android:text="Kagure"
24         android:layout_width="wrap_content"
25         android:layout_height="wrap_content"
26         android:background="#4CAF50"
27         android:textSize="24sp" />
28
29     <TextView

```



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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent"
6     android:background="@android:color/darker_gray">
7
8     <TextView
9         android:text="VIP List"
10        android:layout_width="match_parent"
11        android:layout_height="wrap_content"
12        android:background="#4CAF50"
13        android:textSize="24sp" />
14
15     <TextView
16         android:text="Kunal"
17         android:layout_width="wrap_content"
18         android:layout_height="wrap_content"
19         android:background="#4CAF50"
20         android:textSize="24sp" />
21
22     <TextView
23         android:text="Kagure"
24         android:layout_width="wrap_content"
25         android:layout_height="wrap_content"
26         android:background="#4CAF50"
27         android:textSize="24sp" />
28
29     <TextView

```



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XML Layout Code

```

1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent"
6     android:background="@android:color/darker_gray">
7
8     <TextView
9         android:text="VIP List"
10        android:layout_width="match_parent"
11        android:layout_height="wrap_content"
12        android:background="#4CAF50"
13        android:textSize="24sp" />
14
15     <TextView
16         android:text="Kunal"
17         android:layout_width="match_parent"
18         android:layout_height="wrap_content"
19         android:background="#4CAF50"
20         android:textSize="24sp" />
21
22     <TextView
23         android:text="Kagure"
24         android:layout_width="match_parent"
25         android:layout_height="wrap_content"
26         android:background="#4CAF50"
27         android:textSize="24sp" />
28
29     <TextView

```



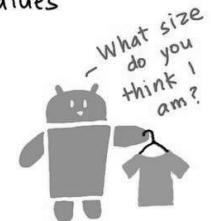
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WIDTH and HEIGHT

- Try different width and height values for each TextView

- fixed dp values
- wrap-content
- match-parent

* Remember that width and height
don't have to match *

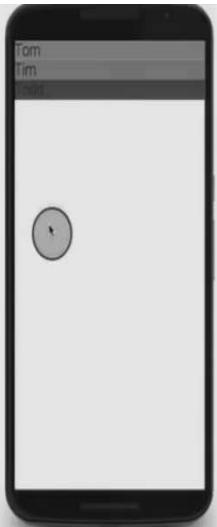


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LAYOUT WEIGHT

XML Layout Code

```
1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent">
6
7     <TextView
8         android:text="Tom"
9         android:layout_width="match_parent"
10        android:layout_height="wrap_content"
11        android:textSize="24sp"
12        android:background="#4CAF50" />
13
14     <TextView
15         android:text="Tim"
16         android:layout_width="match_parent"
17         android:layout_height="wrap_content"
18         android:textSize="24sp"
19         android:background="#2196F3" />
20
21     <TextView
22         android:text="Todd"
23         android:layout_width="match_parent"
24         android:layout_height="wrap_content"
25         android:textSize="24sp"
26         android:background="#673AB7" />
27
28 </LinearLayout>
```



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XML Layout Code

```
1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent">
6
7     <TextView
8         android:text="Tom"
9         android:layout_width="match_parent"
10        android:layout_height="0dp"
11        android:layout_weight="1"
12        android:textSize="24sp"
13        android:background="#4CAF50" />
14
15     <TextView
16         android:text="Tim"
17         android:layout_width="match_parent"
18         android:layout_height="wrap_content"
19         android:textSize="24sp"
20         android:background="#2196F3" />
21
22     <TextView
23         android:text="Todd"
24         android:layout_width="match_parent"
25         android:layout_height="wrap_content"
26         android:textSize="24sp"
27         android:background="#673AB7" />
28
29 </LinearLayout>
```



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XML Layout Code

```
1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent">
6
7     <TextView
8         android:text="Tom"
9         android:layout_width="match_parent"
10        android:layout_height="0dp"
11        android:layout_weight="1"
12        android:textSize="24sp"
13        android:background="#4CAF50" />
14
15     <TextView
16         android:text="Tim"
17         android:layout_width="match_parent"
18         android:layout_height="0dp"
19         android:layout_weight="1"
20         android:textSize="24sp"
21         android:background="#2196F3" />
22
23     <TextView
24         android:text="Todd"
25         android:layout_width="match_parent"
26         android:layout_height="0dp"
27         android:layout_weight="1"
28         android:textSize="24sp"
29         android:background="#673AB7" />
```



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XML Layout Code

```
1 <LinearLayout
2     xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent">
6
7     <TextView
8         android:text="Tom"
9         android:layout_width="match_parent"
10        android:layout_height="0dp"
11        android:layout_weight="1"
12        android:textSize="24sp"
13        android:background="#4CAF50" />
14
15     <TextView
16         android:text="Tim"
17         android:layout_width="match_parent"
18         android:layout_height="0dp"
19         android:layout_weight="8"
20         android:textSize="24sp"
21         android:background="#2196F3" />
22
23     <TextView
24         android:text="Todd"
25         android:layout_width="match_parent"
26         android:layout_height="0dp"
27         android:layout_weight="1"
28         android:textSize="24sp"
29         android:background="#673AB7" />
```



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