



**Tilak Education Society's  
S.K College of Science & Commerce  
(Affiliated to University of Mumbai)**

**NAAC Accredited "A" Grade with 3.17 CGPA & ISO 9001:2015 Certified Institution**

Plot 31, Sector 25, Seawoods, Nerul (East), Navi Mumbai.400706

Email:skc.nerul@gmail.com Website: www.tilakedu.com

Name of the Student: Kavya Balakrishnan

SRN: 2022010005

Experiment No: 3

Class: TYIT

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**PRACTICAL NO: 03**

**AIM:** Programs related to different Layouts Coordinate, Linear, Relative, Table, Absolute, Frame, List View, Grid View.

**CODE :**

**i. LINEAR LAYOUT :**

```
?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">
```

```
<Button android:id="@+id/btnStartService"
    android:layout_width="270dp"
    android:layout_height="wrap_content"
    android:text="start_service"/>
```

```
<Button android:id="@+id/btnPauseService"
    android:layout_width="270dp"
    android:layout_height="wrap_content"
    android:text="pause_service"/>
```

```
<Button android:id="@+id/btnStopService"
    android:layout_width="270dp"
    android:layout_height="wrap_content"
    android:text="stop_service"/>
```

```
</LinearLayout>
```



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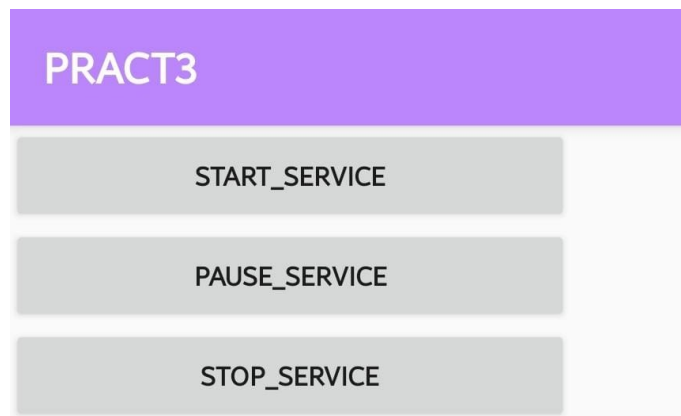
Name of the Student: Kavya Balakrishnan

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OUTPUT:



**ii. TABLE LAYOUT :**

New project > values> **colors.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
    <color name="gray">#6B6B6D</color>
    <color name="whiteback">#D6D6D6</color>
    <color name="boup">#F79261</color>
</resources>
```

**Activity\_main.xml:**



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```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
xmlns:app="http://schemas.android.com/apk/res-auto"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity"
android:background="@color/gray"
android:layout_gravity="fill"
android:layout_margin="0pt"
android:layout_weight="1"
android:orientation="vertical"
>

<EditText
    android:layout_width="match_parent"
    android:inputType="textPersonName"
    android:ems="10"
    android:background="@color/gray"
    android:id="@+id/etShowNumber"
    android:text="0"
    android:gravity="right|bottom"
    android:textColor="@color/white"
    android:textSize="36sp"
    android:layout_height="wrap_content"
    android:layout_weight="1" />

<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="bottom|fill"
    android:gravity="bottom|start|fill">
    <TableRow
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginBottom="1pt">
        <Button
            android:text="AC"
            android:background="@color/whiteback"
```



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```
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buAC"
        android:layout_weight="1"
        android:textSize="18sp"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="+/-"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buPlusMinus"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="%"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buPer"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buPercentEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="/"
        android:background="@color/boup"
        android:textColor="@color/white"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buDiv"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buOpEvent"/>
</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
```



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---

```
android:layout_marginBottom="1pt">
<Button
    android:text="7"
    android:background="@color/whiteback"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:id="@+id/bu7"
    android:layout_weight="1"
    android:textSize="18sp"
    android:onClick="buNumberEvent"
    android:layout_marginRight="1pt"/>
<Button
    android:text="8"
    android:background="@color/whiteback"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:id="@+id/bu8"
    android:layout_weight="1"
    android:textSize="18sp"
    android:onClick="buNumberEvent"
    android:layout_marginRight="1pt"/>
<Button
    android:text="9"
    android:background="@color/whiteback"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:id="@+id/bu9"
    android:layout_weight="1"
    android:textSize="18sp"
    android:onClick="buNumberEvent"
    android:layout_marginRight="1pt"/>
<Button
    android:text="x"
    android:background="@color/boup"
    android:textColor="@color/white"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:id="@+id/buMul"
    android:layout_weight="1"
    android:textSize="18sp"
```



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```
        android:onClick="buOpEvent" />
</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginBottom="1pt">
    <Button
        android:text="4"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/bu4"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="5"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/bu5"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="6"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/bu6"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="-"
        android:background="@color/boup"
        android:textColor="@color/white"
```



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---

```
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buSub"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buOpEvent" />
</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginBottom="1pt">
    <Button
        android:text="1"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/bu1"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="2"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/bu2"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="3"
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/bu3"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
```



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```
        android:layout_marginRight="1pt"/>
    <Button
        android:text="+"
        android:background="@color/boup"
        android:textColor="@color/white"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buAdd"
        android:layout_weight="1"
        android:textSize="18sp"
        android:onClick="buOpEvent" />
</TableRow>
</TableLayout>
<LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="bottom"
    android:baselineAligned="true">
    <Button
        android:text="0"
        android:background="@color/whiteback"
        android:layout_width="60pt"
        android:layout_height="30pt"
        android:id="@+id/bu0"
        android:layout_weight="3.7"
        android:textSize="18sp"
        android:onClick="buNumberEvent"
        android:layout_marginRight="1pt"/>
    <Button
        android:text="."
        android:background="@color/whiteback"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buDot"
        android:layout_weight="1.9"
        android:textSize="18sp"
        android:onClick="buNumberEvent" />
    <Button
        android:text="="
```





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---

```
        android:background="@color/boup"
        android:textColor="@color/white"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:id="@+id/buEq"
        android:layout_weight="1.9"
        android:textSize="18sp"
        android:onClick="buEqualEvent" />
</LinearLayout>
</LinearLayout>
```

**Gradle Scripts> build.gradle (Module):**

```
id 'com.android.application'
id 'org.jetbrains.kotlin.android'
id 'kotlin-android'
id 'kotlin-android-extensions'
```

**MainActivity.kt(Kotlin):**

```
package com.example.myapplication

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.view.View
import android.widget.Button
import kotlinx.android.synthetic.main.activity_main.*

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
    var isNewOp=true
    var dot=false
    fun buNumberEvent(view:View)
    {
```



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---

```
if(isNewOp)
{
    etShowNumber.setText("")
}
isNewOp=false
val buSelect = view as Button
var buClickValue:String=etShowNumber.text.toString()
when(buSelect.id) {
    bu0.id -> {
        buClickValue += "0"
    }
    bu1.id -> {
        buClickValue += "1"
    }
    bu2.id -> {
        buClickValue += "2"
    }
    bu3.id -> {
        buClickValue += "3"
    }
    bu4.id -> {
        buClickValue += "4"
    }
    bu5.id -> {
        buClickValue += "5"
    }
    bu6.id -> {
        buClickValue += "6"
    }
    bu7.id -> {
        buClickValue += "7"
    }
    bu8.id -> {
        buClickValue += "8"
    }
    bu9.id -> {
        buClickValue += "9"
    }
    buDot.id -> {
        if (dot == false) {
```



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---

```
        buClickValue += "."
    }
    dot = true
}
buPlusMinus.id-> {
    buClickValue = "-" + buClickValue
}
}
etShowNumber.setText(buClickValue)
}
var op = "X"
var oldNumber=""

fun buOpEvent(view: View)
{
    val buSelect=view as Button
    when(buSelect.id)
    {
        buMul.id->
        {
            op="X"
        }
        buDiv.id->
        {
            op="/"
        }
        buSub.id->
        {
            op="-"
        }
        buAdd.id->
        {
            op="+"
        }
    }
    oldNumber=etShowNumber.text.toString()
    isNewOp=true
    dot=false
}
fun buEqualEvent(view: View)
```



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**Experiment No: 3**

**Class: TYIT**

---

```
{
    val newNumber = etShowNumber.text.toString()
    var finalNumber: Double? = null
    when (op) {
        "X" -> {
            finalNumber = oldNumber.toDouble() * newNumber.toDouble()
        }
        "/" -> {
            finalNumber = oldNumber.toDouble() / newNumber.toDouble()
        }
        "-" -> {
            finalNumber = oldNumber.toDouble() - newNumber.toDouble()
        }
        "+" -> {
            finalNumber = oldNumber.toDouble() + newNumber.toDouble()
        }
    }
    etShowNumber.setText(finalNumber.toString())
    isNewOp = true
}
fun buPercentEvent(view: View)
{
    val number=(etShowNumber.text.toString().toDouble())/100
    etShowNumber.setText(number.toString())
    isNewOp=true
}
fun buCleanEvent(view: View)
{
    etShowNumber.setText("")
    isNewOp=true
    dot=false
}
}
```

**OUTPUT:**



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calc			
AC	+/-	%	
7	8	9	

iii. Frame Layout :



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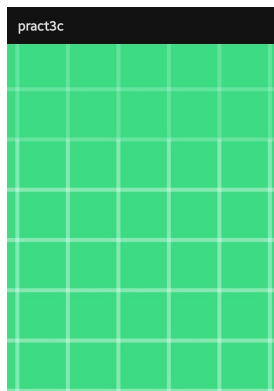
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <ImageView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:src="@drawable/ic_launcher_background"
        android:scaleType="centerCrop"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="100dp"
        android:text="Hello Munchkin"
        android:gravity="center"
        android:textColor="@color/purple_500"
        android:layout_marginTop="220dp"/>

</LinearLayout>
```

**OUTPUT:**



**iv. List View layout:**



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---

**Activity.xml :**

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="fill_parent" />

</android.support.constraint.ConstraintLayout>
```

**Values → String.xml :**

```
<resources>
    <string name="app_name">Practical new</string>
    <array name="insert_list">
        <item>one</item>
        <item>two</item>
        <item>three</item>
        <item>four</item>
        <item>five</item>
        <item>six</item>
        <item>seven</item>
        <item>eight</item>
        <item>nine</item>
        <item>ten</item>
    </array>
</resources>
```

**Gradle Script → Module →**

```
id 'kotlin-android'
id 'kotlin-android-exten
```

**MainActivity.kt :**



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---

package com.example.practicalnew

```
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.widget.AdapterView
import android.widget.ArrayAdapter
import android.widget.Toast
import kotlinx.android.synthetic.main.activity_main.*
```

```
class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val language:Array<String> = resources.getStringArray (R.array.insert_list)
        val arrayAdapter =
        ArrayAdapter<String>(this,android.R.layout.simple_list_item_1,language)
        listView.adapter=arrayAdapter
        listView.setOnItemClickListener(AdapterView.OnItemClickListener {
            adapterView,view,position,id->
                val selectedItem = adapterView.getItemAtPosition(position) as String
                val itemIdAtPos= adapterView.getItemIdAtPosition(position)
                Toast.makeText(applicationContext,"click item $selectedItem its position
                $itemIdAtPos",Toast.LENGTH_SHORT).show()
            }
        }
    }
}
```

**OUTPUT :**





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Practical new
one
two
three
four
five
six
seven
eight

v. Grid view:



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Email:skc.nerul@gmail.com Website: www.tilakedu.com

**Name of the Student: Kavya Balakrishnan**

**SRN: 2022010005**

**Experiment No: 3**

**Class: TYIT**

---

**Activity\_main.xml:**

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<RelativeLayout 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"
```

```
    tools:context=".MainActivity">
```

```
    <GridView
```

```
        android:id="@+id/idGRV"
```

```
        android:layout_width="match_parent"
```

```
        android:layout_height="match_parent"
```

```
        android:horizontalSpacing="6dp"
```

```
        android:numColumns="2"
```

```
        android:verticalSpacing="6dp" />
```

```
</RelativeLayout>
```

**Gridview\_item.xml:**



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---

<?xml version="1.0" encoding="utf-8"?>

<androidx.cardview.widget.CardView

xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_gravity="center"

android:layout\_margin="5dp"

app:cardCornerRadius="5dp"

app:cardElevation="5dp"

>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical">

<ImageView

android:id="@+id/idIVCourse"

android:layout\_width="80dp"

android:layout\_height="80dp"

android:layout\_gravity="center"



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---

```
android:layout_margin="5dp"
```

```
android:padding="4dp"
```

```
android:src="@mipmap/ic_launcher"/>
```

```
<TextView
```

```
    android:id="@+id/idTVCourse"
```

```
    android:layout_width="match_parent"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_gravity="center"
```

```
    android:layout_margin="5dp"
```

```
    android:padding="4dp"
```

```
    android:text="@string/app_name"
```

```
    android:textAlignment="center"
```

```
    android:textColor="@color/black"/>
```

```
</LinearLayout>
```

```
</androidx.cardview.widget.CardView>
```

**GridViewModal.kt:**



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---

package com.example.myapplication

data class GridViewModal (

    val courseName:String,

    val courseImg:Int

)

GridRVAdapter.kt:

package com.example.myapplication

import android.content.Context

import android.text.Layout

import android.view.LayoutInflater

import android.view.View

import android.view.ViewGroup

import android.widget.BaseAdapter

import android.widget.ImageView

import android.widget.TextView

internal class GridRVAdapter(

    private val courseList: List<GridViewModal>,

    private val context: Context

) :

    BaseAdapter() {

        private var inflater: LayoutInflater? = null



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**Class: TYIT**

---

```
private lateinit var courseTV: TextView

private lateinit var courseIV: ImageView

override fun getCount(): Int {

    return courseList.size

}

override fun getItem(position: Int): Any? {

    return null

}

override fun getItemId(position: Int): Long {

    return 0

}

override fun getView(position: Int, convertView: View?, parent: ViewGroup?): View? {

    var convertView = convertView

    if (layoutInflater == null) {

        layoutInflater =

            context.getSystemService(Context.LAYOUT_INFLATER_SERVICE) as
LayoutInflater

    }

    if (convertView == null) {
```



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---

```
        convertView = inflater!!.inflate(R.layout.gridview_item, null)

    }

    courseIV = convertView!!.findViewById(R.id.idIVCourse)

    courseTV = convertView!!.findViewById(R.id.idTVCourse)

    courseIV.setImageResource(courseList.get(position).courseImg)

    courseTV.setText(courseList.get(position).courseName)

    return convertView

}

}
```

**MainActivity.kt:**

```
package com.example.myapplication

import android.content.Context
import android.text.Layout
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.BaseAdapter
import android.widget.ImageView
import android.widget.TextView

internal class GridRVAdapter(

    private val courseList: List<GridViewModal>,
```



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---

```
private val context: Context

):

BaseAdapter() {

    private var layoutInflater: LayoutInflater? = null

    private lateinit var courseTV: TextView

    private lateinit var courseIV: ImageView

    override fun getCount(): Int {

        return courseList.size

    }

    override fun getItem(position: Int): Any? {

        return null

    }

    override fun getItemId(position: Int): Long {

        return 0

    }

    override fun getView(position: Int, convertView: View?, parent: ViewGroup?): View? {

        var convertView = convertView

        if (layoutInflater == null) {

            layoutInflater =

                context.getSystemService(Context.LAYOUT_INFLATER_SERVICE) as
LayoutInflater

        }

    }
```





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---

```
if (convertView == null) {  
    convertView = inflater!!.inflate(R.layout.gridview_item, null)  
}  
courseIV = convertView!!.findViewById(R.id.idIVCourse)  
courseTV = convertView!!.findViewById(R.id.idTVCourse)  
courseIV.setImageResource(courseList.get(position).courseImg)  
courseTV.setText(courseList.get(position).courseName)  
return convertView  
}  
}
```

**OUTPUT:**

