



Golden-Gate Int'l College

Affiliated to Tribhuvan University

Old Baneswor, Kathmandu

A

Lab Report on

Mobile Programming

(CACS 351)



Lab Title: Android UI Components Lab: Menus, Dialogs, and Adapter Views

Lab Sheet No: 2

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Task 2.1:

Create a menu driven android app that contains simple interest and area of triangle. Create separate fragment for each menu and perform task as their name.

menu/main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:title="Simple Interest"
        android:id="@+id/si"/>
    <item
        android:title="Area of Triangle"
        android:id="@+id/area"/>
</menu>
```

layout.xml:

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

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Simple Interest and Area of Triangle"
        android:layout_margin="15sp"
        android:textSize="35sp"
        android:textAlignment="center"
        />

    <androidx.fragment.app.FragmentContainerView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/frag"
        />

</LinearLayout>
```

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fragment_si.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/teal_200"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Simple Interest Claculator"
        android:textSize="29sp"
        android:textAlignment="center"
        android:layout_margin="15sp"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter the Principle"
        android:layout_margin="15sp"
        android:textSize="20sp"
        android:id="@+id/principle"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter the Time"
        android:layout_margin="15sp"
        android:textSize="20sp"
        android:id="@+id/time"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter the Rate"
        android:layout_margin="15sp"
        android:textSize="20sp"
        android:id="@+id/rate"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate"
        android:textSize="18sp"
        android:layout_margin="15sp"
        android:layout_gravity="center"
        android:id="@+id/calc"/>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Interest: "
        android:layout_margin="15sp"
        android:textSize="24sp"
        android:id="@+id/interest"/>
</LinearLayout>
```

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fragment_area.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/teal_200"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Area of Triangle Calculator"
        android:textSize="29sp"
        android:textAlignment="center"
        android:layout_margin="15sp"/>
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter the length of base"
        android:layout_margin="15sp"
        android:textSize="20sp"
        android:id="@+id/base"/>
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter the length of height"
        android:layout_margin="15sp"
        android:textSize="20sp"
        android:id="@+id/height"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate"
        android:textSize="18sp"
        android:layout_margin="15sp"
        android:layout_gravity="center"
        android:id="@+id/calc1"/>
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Area: "
        android:layout_margin="15sp"
        android:textSize="24sp"
        android:id="@+id/area"/>
</LinearLayout>
```

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si.java:

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
    Bundle savedInstanceState) {
    // Inflate the layout for this fragment
    // Inflate the layout for this fragment
    View v= inflater.inflate(R.layout.fragment_si, container, attachToRoot: false);
    EditText p = v.findViewById(R.id.principle);
    EditText r = v.findViewById(R.id.rate);
    EditText t = v.findViewById(R.id.time);
    TextView interest = v.findViewById(R.id.interest);
    Button calc = v.findViewById(R.id.calc);
    calc.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int principle, time, rate, Interest;
            principle= Integer.parseInt(p.getText().toString());
            time= Integer.parseInt(t.getText().toString());
            rate= Integer.parseInt(r.getText().toString());
            Interest= (principle*time*rate)/100;
            interest.setText("Interest: "+Interest);
        }
    });

    return v;
}
```

area.java:

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
    Bundle savedInstanceState) {
    // Inflate the layout for this fragment
    View v = inflater.inflate(R.layout.fragment_area, container, attachToRoot: false);
    EditText base = v.findViewById(R.id.base);
    EditText height = v.findViewById(R.id.height);
    TextView area = v.findViewById(R.id.area);
    Button calc = v.findViewById(R.id.calc1);

    calc.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int b, h , a;
            b = Integer.parseInt(base.getText().toString());
            h = Integer.parseInt(height.getText().toString());
            a = (b*h)/2;
            area.setText("Area: " +a);
        }
    });

    return v;
}
```

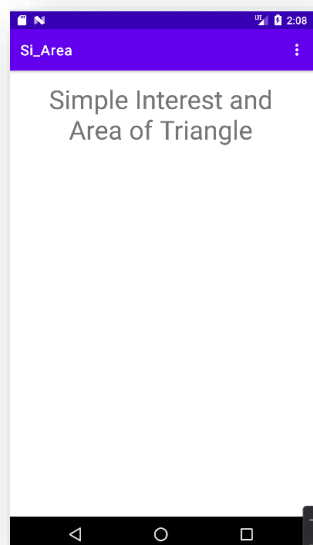
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MainActivity.java:

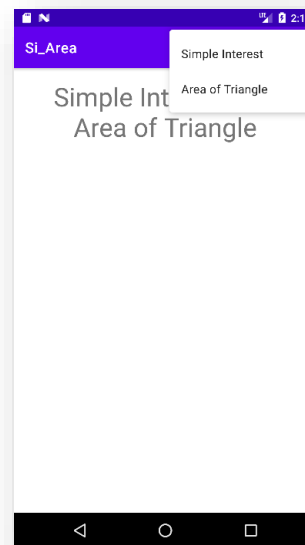
```
> import ...
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.layout);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        super.onCreateOptionsMenu(menu);
        MenuInflater inflater = new MenuInflater(context: this);
        inflater.inflate(R.menu.main, menu);
        return true;
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        if (item.getItemId() == R.id.si) {
            si s = new si();
            FragmentManager manager = getSupportFragmentManager();
            FragmentTransaction tran = manager.beginTransaction();
            tran.replace(R.id.frag, s);
            tran.commit();
        } else if (item.getItemId() == R.id.area) {
            area p = new area();
            FragmentManager manager = getSupportFragmentManager();
            FragmentTransaction tran = manager.beginTransaction();
            tran.replace(R.id.frag, p);
            tran.commit();
        }
        return super.onOptionsItemSelected(item);
    }
}
```

Output:

Entry Screen:

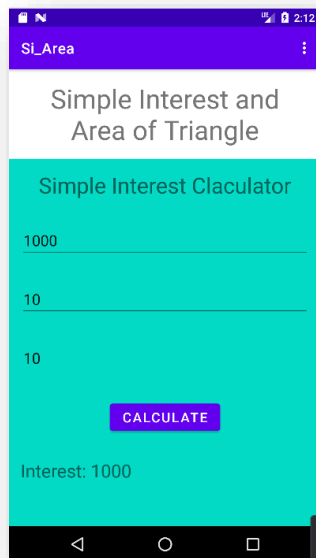


Display Screen with Option Menu:

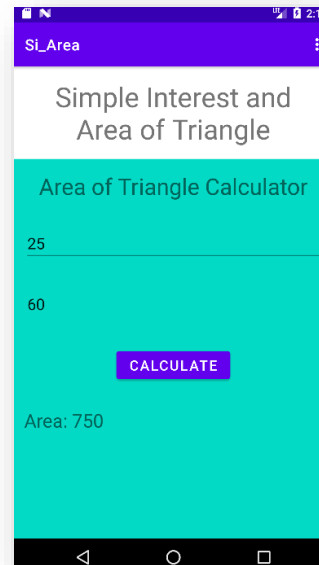


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Display Screen with SI:



Display Screen with Area of Triangle:



Task 2.2:

Demonstrate context menu and popup menu.

Context Menu:

layout.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Context Menu"
        android:textSize="25sp"
        android:layout_margin="15sp"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Context"
        android:textSize="15sp"
        android:layout_margin="15sp"
        android:layout_gravity="center"
        android:id="@+id/btn"/>
</LinearLayout>
```

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main.xml:

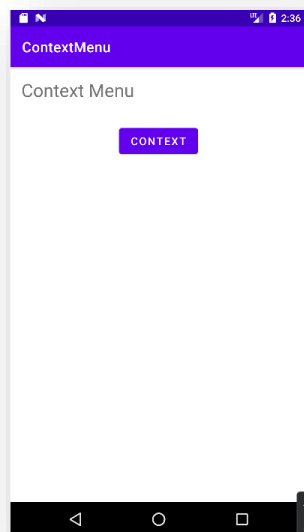
```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:title="copy"
        android:id="@+id/copy"/>
    <item
        android:title="paste"
        android:id="@+id/paste"/>
</menu>
```

MainActivity.java:

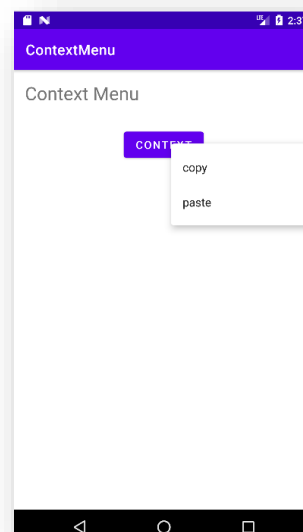
```
import ...
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.layout);
        Button b = findViewById(R.id.btn);
        registerForContextMenu(b); // <-- This line is required
    }
    @Override
    public void onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);
        MenuInflater inflater = new MenuInflater(context.this);
        inflater.inflate(R.menu.main, menu);
    }
    @Override
    public boolean onContextItemSelected(@NonNull MenuItem item) {
        if (item.getItemId() == R.id.copy) {
            Toast.makeText(context.this, text: "Copy is selected", Toast.LENGTH_LONG).show();
        } else if (item.getItemId() == R.id.paste) {
            Toast.makeText(context.this, text: "Paste is selected", Toast.LENGTH_LONG).show();
        }
        return super.onContextItemSelected(item);
    }
}
```

Output:

Entry Screen:

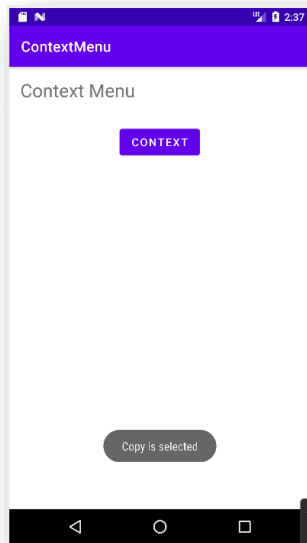


Display Screen with Context Menu:

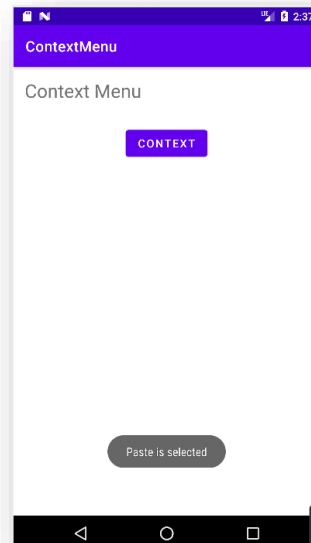


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Display Screen when copy is clicked:



Display Screen when paste is clicked:



Popup Menu:

layout.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Popup Menu"
        android:textSize="25sp"
        android:layout_margin="15sp"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Context"
        android:textSize="15sp"
        android:layout_margin="15sp"
        android:layout_gravity="center"
        android:id="@+id/btn"/>
</LinearLayout>
```

main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/item1"
        android:title="Option 1" />
    <item
        android:id="@+id/item2"
        android:title="Option 2" />
</menu>
```

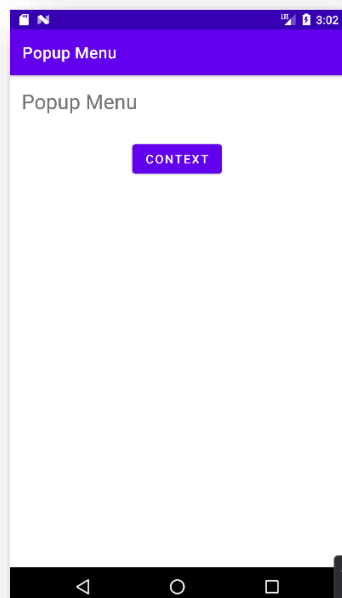
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MainActivity.java:

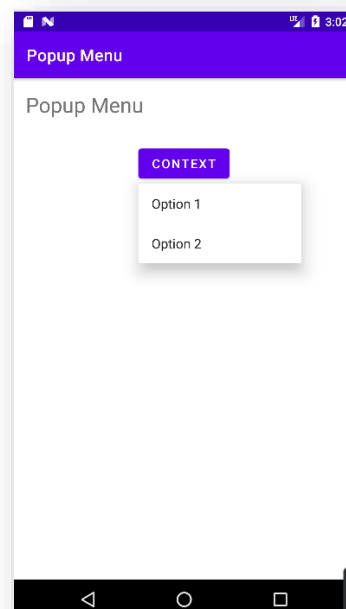
```
> import ...
public class MainActivity extends AppCompatActivity {
    3 usages
    Button button;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.layout);
        button = findViewById(R.id.btn);
        button.setOnClickListener(v -> {
            PopupMenu popupMenu = new PopupMenu(context, MainActivity.this, button);
            popupMenu.getMenuInflater().inflate(R.menu.main, popupMenu.getMenu());
            popupMenu.setOnMenuItemClickListener(item -> {
                if (item.getItemId() == R.id.item1) {
                    Toast.makeText(context, MainActivity.this, text: "Item 1 selected", Toast.LENGTH_SHORT).show();
                    return true;
                } else if (item.getItemId() == R.id.item2) {
                    Toast.makeText(context, MainActivity.this, text: "Item 2 selected", Toast.LENGTH_SHORT).show();
                    return true;
                }
                return false;
            });
            popupMenu.show();
        });
    }
}
```

Output:

Entry Screen:

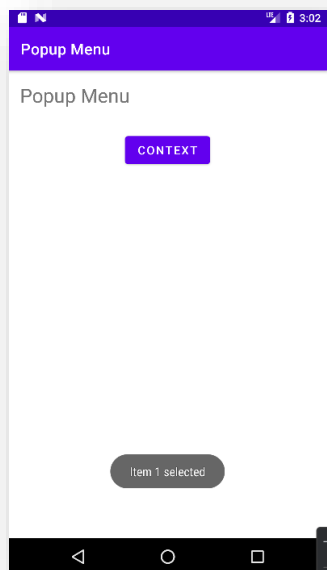


Display Screen with Popup Menu:

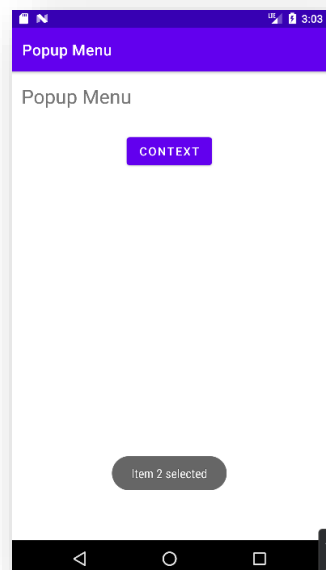


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Display Screen when Option 1 is clicked:



Display Screen when Option 2 is clicked:



Task 2.3:

Create an android app with custom dialog box. Dialog box should ask for Student detail (Name, roll, MP, NP, AJ, AE, DS). When save button is pressed. Student detail should be displayed in activity along with result and grade.

Student.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Student's Name "
        android:textSize="20sp"
        android:layout_margin="5sp"
        android:id="@+id/name" />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Roll No: "
        android:textSize="20sp"
        android:layout_margin="5sp"
        android:id="@+id/roll" />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter marks in DS: "
        android:textSize="20sp"
        android:layout_margin="5sp"
        android:id="@+id/ds" />
```

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```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint=" Enter marks in MP: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/mp" />

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint=" Enter marks in AJ: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/aj" />

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint=" Enter marks in AE: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/ae" />

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint=" Enter marks in NP: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/np" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="save"
    android:layout_margin="15sp"
    android:id="@+id/save"
    android:layout_gravity="center"/>

</LinearLayout>
```

layout.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Student Dialog Box"
        android:textSize="25sp"
        android:layout_margin="15sp"
        android:textAlignment="center"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter"
        android:layout_margin="15sp"
        android:id="@+id/btn"
        android:layout_gravity="center"/>
</LinearLayout>
```

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```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Student Name: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_name" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Roll No: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_roll" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Marks in DS: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_ds" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Marks in MP: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_mp" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Marks in AJ: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_aj" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Marks in AE: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_ae" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Marks in NP: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/r_np" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Result: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/result" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Grade: "
    android:textSize="20sp"
    android:layout_margin="5sp"
    android:id="@+id/grade" />
</LinearLayout>
```

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MainActivity.java:

```
> import ...

public class MainActivity extends AppCompatActivity {
    2 usages
    TextView r_name, r_roll, r_ds, r_mp, r_aj, r_ae, r_np, result, grade;
    2 usages
    Button btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.layout);
        r_name = findViewById(R.id.r_name);
        r_roll = findViewById(R.id.r_roll);
        r_ds = findViewById(R.id.r_ds);
        r_mp = findViewById(R.id.r_mp);
        r_aj = findViewById(R.id.r_aj);
        r_ae = findViewById(R.id.r_ae);
        r_np = findViewById(R.id.r_np);
        btn = findViewById(R.id.btn);
        result = findViewById(R.id.result);
        grade = findViewById(R.id.grade);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                showdialog();
            }
        });
    }
}

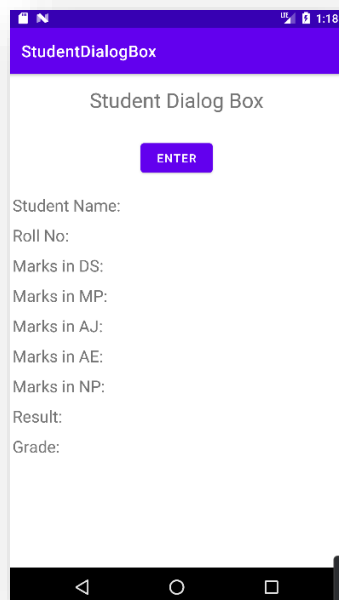
1 usage
public void showdialog(){
    AlertDialog.Builder builder = new AlertDialog.Builder(context: MainActivity.this);
    builder.setTitle("Student Results");
    builder.setCancelable(true);
    LayoutInflater inflater = getLayoutInflater();
    View v = inflater.inflate(R.layout.student, root: null);
    EditText name = v.findViewById(R.id.name);
    EditText roll = v.findViewById(R.id.roll);
    EditText ds = v.findViewById(R.id.ds);
    EditText mp = v.findViewById(R.id.mp);
    EditText aj = v.findViewById(R.id.aj);
    EditText ae = v.findViewById(R.id.ae);
    EditText np = v.findViewById(R.id.np);
    Button save = v.findViewById(R.id.save);
    builder.setView(v);
    AlertDialog dialog = builder.create();
    save.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            r_name.setText("Student Name: " + name.getText().toString());
            r_roll.setText("Roll No: " + roll.getText().toString());
            r_ds.setText("Marks in DS: " + ds.getText().toString());
            r_mp.setText("Marks in MP: " + mp.getText().toString());
            r_aj.setText("Marks in AJ: " + aj.getText().toString());
            r_ae.setText("Marks in AE: " + ae.getText().toString());
            r_np.setText("Marks in NP: " + np.getText().toString());
        }
    });
}
```

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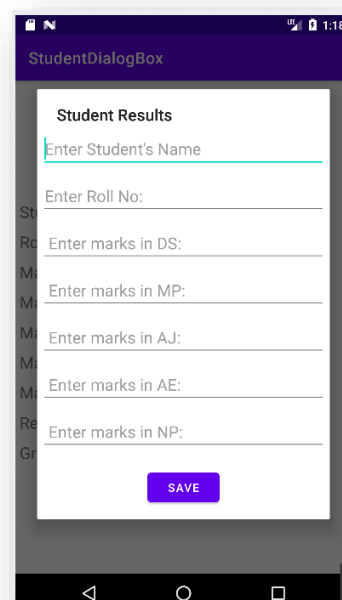
```
double mds = Double.parseDouble(ds.getText().toString());
double mmp = Double.parseDouble(mp.getText().toString());
double maj = Double.parseDouble(aj.getText().toString());
double mae = Double.parseDouble(ae.getText().toString());
double mnp = Double.parseDouble(np.getText().toString());
if (mds >= 40 && mmp >= 40 && maj >= 40 && mae >= 40 && mnp >= 40) {
    result.setText("Result: Pass");
    double average = (mds + mmp + maj + mae + mnp) / 5.0;
    if (average >= 80) {
        grade.setText("Grade: A");
    } else if (average >= 60) {
        grade.setText("Grade: B");
    } else {
        grade.setText("Grade: C");
    }
} else {
    result.setText("Result: Fail");
    grade.setText("Grade: F");
}
dialog.dismiss();
}
});
dialog.show();
}
```

Output:

Entry Screen:

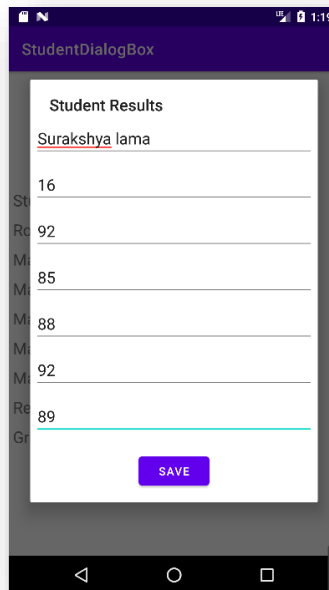


Display Screen with Custom Dialog Box:

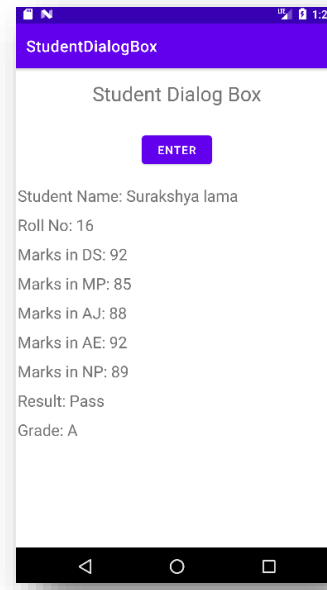


Lab Report 2

Display Screen when inserting data:



Display Screen with Student's Results:



Task 2.4:

Create a Custom List View with icon.

layout.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Custom List View"
        android:textSize="40sp"
        android:layout_margin="15sp"
        android:textAlignment="center"/>
    <ListView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_margin="15sp"
        android:id="@+id/list"/>
</LinearLayout>
```


Lab Report 2

list_item.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="#00456f">

    <ImageView
        android:layout_width="80sp"
        android:layout_height="80sp"
        android:src="@drawable/ic_launcher_foreground"
        android:layout_margin="10sp"
        android:id="@+id/img"/>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10sp"
        android:text="Name"
        android:textSize="30sp"
        android:layout_toRightOf="@+id/img"
        android:id="@+id/name"/>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginHorizontal="10sp"
        android:text="Price"
        android:textSize="20sp"
        android:layout_toRightOf="@+id/img"
        android:layout_below="@+id/name"
        android:id="@+id/price"
        android:textColor="#ff0000"/>

</RelativeLayout>
```

MainActivity.java:

```
> import ...

public class MainActivity extends AppCompatActivity {
    2 usages
    ListView list;

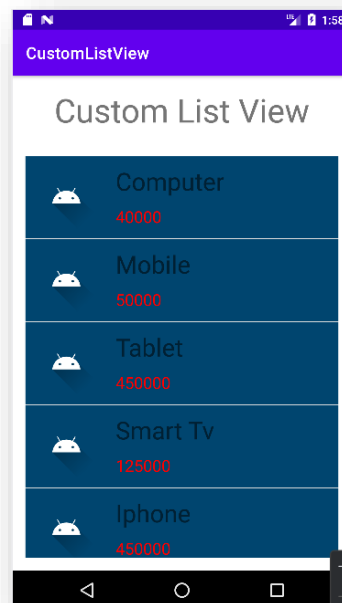
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.layout);
        list = findViewById(R.id.list);
        String[] names = {"Computer", "Mobile", "Tablet", "Smart Tv", "Iphone"};
        String[] prices = {"40000", "50000", "450000", "125000", "450000"};
        int[] imgs = {R.drawable.ic_launcher_foreground, R.drawable.ic_launcher_foreground,
            R.drawable.ic_launcher_foreground, R.drawable.ic_launcher_foreground,
            R.drawable.ic_launcher_foreground};
        MyAdapter adapter = new MyAdapter(context: this, names, prices, imgs);
        list.setAdapter(adapter);
    }
}
```

Lab Report 2

MyAdapter.java:

```
public class MyAdapter extends ArrayAdapter<String> {  
    2 usages  
    Activity context;  
    2 usages  
    String [] names;  
    2 usages  
    String[] prices;  
    2 usages  
    int[] imgs;  
    1 usage  
    public MyAdapter (Activity context,String [] names,String[] prices, int[] imgs){  
        super(context, R.layout.list_item, names);  
        this.context = context;  
        this.names= names;  
        this.prices= prices;  
        this.imgs = imgs;  
    }  
    @NonNull  
    @Override  
    public View getView(int position, @Nullable View convertView, @NonNull ViewGroup parent) {  
        LayoutInflater inflater = context.getLayoutInflater();  
        View v = inflater.inflate(R.layout.list_item, root: null, attachToRoot: true);  
        TextView name = v.findViewById(R.id.name);  
        TextView price = v.findViewById(R.id.price);  
        ImageView img = v.findViewById(R.id.img);  
        name.setText(names[position]);  
        price.setText(prices[position]);  
        img.setImageResource(imgs[position]);  
        return v;  
    }  
}
```

Output:



Lab Report 2

Task 2.5:

Create a Custom Grid View with icon.

layout.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Custom Grid View"
        android:textSize="30sp"
        android:layout_margin="15dp"
        android:textAlignment="center" />
    <GridView
        android:id="@+id/grid"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_margin="15dp"
        android:numColumns="2"
        android:verticalSpacing="10dp"
        android:horizontalSpacing="10dp"
        android:gravity="center"/>
</LinearLayout>
```

list_item.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:gravity="center"
    android:padding="10dp"
    android:background="#00456f">
    <ImageView
        android:id="@+id/img"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:src="@drawable/ic_launcher_foreground"
        android:scaleType="centerCrop"
        android:layout_gravity="center" />
    <TextView
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name"
        android:textSize="16sp"
        android:textColor="#FFFFFF"
        android:layout_marginTop="8dp"
        android:textAlignment="center" />
    <TextView
        android:id="@+id/price"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Price"
        android:textSize="14sp"
        android:textColor="#FF0000"
        android:layout_marginTop="4dp"
        android:textAlignment="center" />
</LinearLayout>
```

Lab Report 2

MyAdapter.java:

```
> import ...

2 usages
public class MyAdapter extends ArrayAdapter<String> {
    2 usages
    Activity context;
    2 usages
    String[] names;
    2 usages
    String[] prices;
    2 usages
    int[] imgs;
    1 usage
    public MyAdapter(Activity context, String[] names, String[] prices, int[] imgs) {
        super(context, R.layout.list_item, names);
        this.context = context;
        this.names = names;
        this.prices = prices;
        this.imgs = imgs;
    }
}

@NonNull
@Override
public View getView(int position, @Nullable View convertView, @NonNull ViewGroup parent) {
    ViewHolder holder;
    if (convertView == null) {
        LayoutInflater inflater = context.getLayoutInflater();
        convertView = inflater.inflate(R.layout.list_item, parent, attachToRoot: false);
        holder = new ViewHolder();
        holder.name = convertView.findViewById(R.id.name);
        holder.price = convertView.findViewById(R.id.price);
        holder.img = convertView.findViewById(R.id.img);
        convertView.setTag(holder);
    } else {
        holder = (ViewHolder) convertView.getTag();
    }
    holder.name.setText(names[position]);
    holder.price.setText(prices[position]);
    holder.img.setImageResource(imgs[position]);
    return convertView;
}

3 usages
static class ViewHolder {
    2 usages
    TextView name;
    2 usages
    TextView price;
    2 usages
    ImageView img;
}
}
```

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MainActivity.java:

```
> import ...

public class MainActivity extends AppCompatActivity {
    2 usages
    GridView grid;

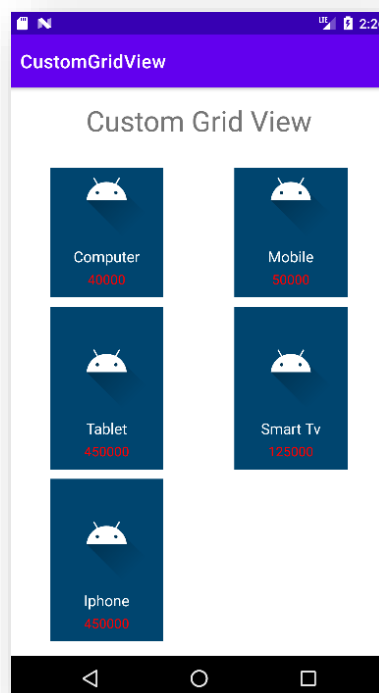
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.layout);

        grid = findViewById(R.id.grid);

        String[] names = {"Computer", "Mobile", "Tablet", "Smart Tv", "Iphone"};
        String[] prices = {"40000", "50000", "450000", "125000", "450000"};
        int[] imgs = {
            R.drawable.ic_launcher_foreground,
            R.drawable.ic_launcher_foreground,
            R.drawable.ic_launcher_foreground,
            R.drawable.ic_launcher_foreground,
            R.drawable.ic_launcher_foreground
        };

        MyAdapter adapter = new MyAdapter(context: this, names, prices, imgs);
        grid.setAdapter(adapter);
    }
}
```

Output:



Lab Report 2

Task 2.6:

Create a RecyclerView with Icon and event.

activity_main.xml:

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

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/recyclerView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:padding="10dp" />

</LinearLayout>
```

item_view.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:padding="10dp"
    android:gravity="center_vertical"
    android:background="#4234">
    <ImageView
        android:id="@+id/icon"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:src="@drawable/ic_launcher_foreground"
        android:layout_marginEnd="16dp" />
    <TextView
        android:id="@+id/title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Item Title"
        android:textSize="20sp" />
</LinearLayout>
```

MyAdapter.java:

```
> import ...

3 usages
public class MyAdapter extends RecyclerView.Adapter<MyAdapter.MyViewHolder> {
    4 usages
    String[] titles;
    2 usages
    int[] icons;
    3 usages
    Context context;
    1 usage
    public MyAdapter(Context context, String[] titles, int[] icons) {
        this.context = context;
        this.titles = titles;
        this.icons = icons;
    }
}
```

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```
@Override
public int getItemCount() {
    return titles.length;
}
4 usages
public static class MyViewHolder extends RecyclerView.ViewHolder {
    2 usages
    TextView title;
    2 usages
    ImageView icon;

    1 usage
    public MyViewHolder(@NonNull View itemView) {
        super(itemView);
        title = itemView.findViewById(R.id.title);
        icon = itemView.findViewById(R.id.icon);
    }
}
```

```
@Override
public int getItemCount() {
    return titles.length;
}
4 usages
public static class MyViewHolder extends RecyclerView.ViewHolder {
    2 usages
    TextView title;
    2 usages
    ImageView icon;

    1 usage
    public MyViewHolder(@NonNull View itemView) {
        super(itemView);
        title = itemView.findViewById(R.id.title);
        icon = itemView.findViewById(R.id.icon);
    }
}
```

MainActivity.java:

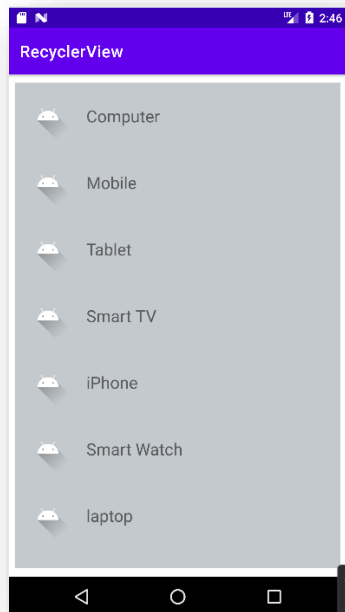
```
> import ...

public class MainActivity extends AppCompatActivity {
    3 usages
    RecyclerView recyclerView;
    1 usage
    String[] titles = {"Computer", "Mobile", "Tablet",
        "Smart TV", "iPhone", "Smart Watch", "Laptop", "MacBook"};
    1 usage
    int[] icons = {
        R.drawable.ic_launcher_foreground, R.drawable.ic_launcher_foreground,
        R.drawable.ic_launcher_foreground, R.drawable.ic_launcher_foreground,
        R.drawable.ic_launcher_foreground, R.drawable.ic_launcher_foreground,
        R.drawable.ic_launcher_foreground, R.drawable.ic_launcher_foreground,
    };
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        recyclerView = findViewById(R.id.recyclerView);
        MyAdapter adapter = new MyAdapter(context: this, titles, icons);
        recyclerView.setLayoutManager(new LinearLayoutManager(context: this));
        recyclerView.setAdapter(adapter);
    }
}
```

Lab Report 2

Output:

Display Screen with RecyclerView:



Display Screen when an item is clicked:

