Lesson-7 – Day 1
Menus, Fragments and Tab layout with Swipe views

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  - Options Menu
  - Contextual menus
  - Popup menus
- Day 2
  - Fragments
  - Tab Layouts and Swipe Views
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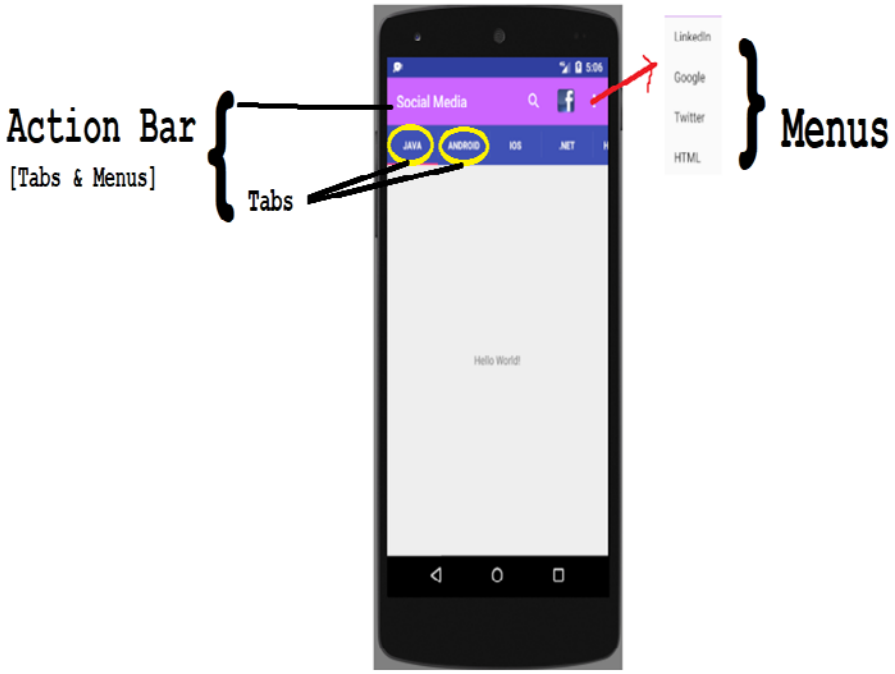
Android Menus

- Option Menu
  - Option Menus are the primary menus of android.
  - They can be used for settings, search, delete item etc.
  - we are inflating the menu by calling the inflate() method of MenuInflater class.
  - To perform event handling on menu items, you need to override onOptionsItemSelected() method of Activity class.

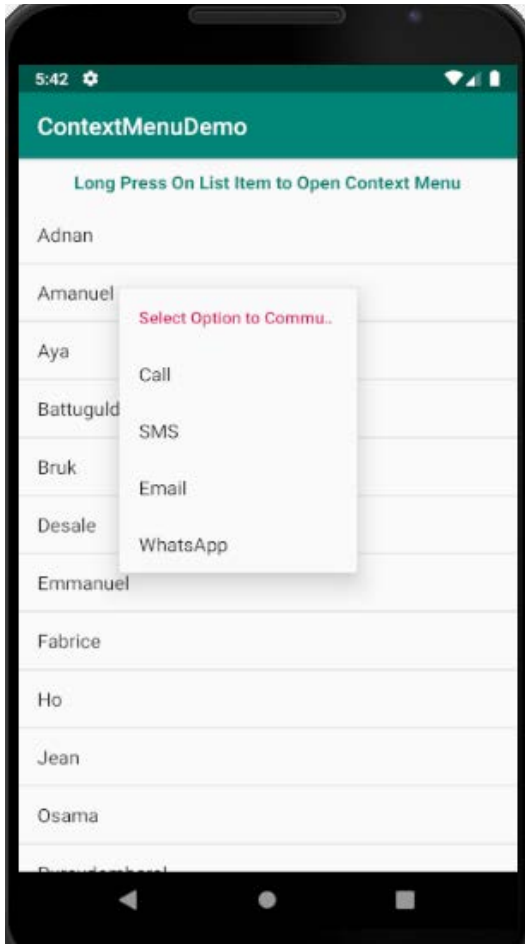


Android Menus

- Popup Menu
  - Popup Menu displays a list of items in a modal popup window that is anchored to the view.
  - The popup menu will appear below the view if there is a room or above the view in case if there is no space and it will be closed automatically when we touch outside of the popup.
  - To show the popup menu for the view, we need to instantiate Popup constructor and use MenuInflater to load the defined menu resource using MenuInflater.inflate()
  - To perform an action when the user selects a menu item, need to implement the PopupMenu.OnMenuItemClickListener interface and register it with the PopupMenu by calling setOnMenuItemclickListener().
  - When the user selects an item, the system calls the onMenuItemClick() callback in your interface.

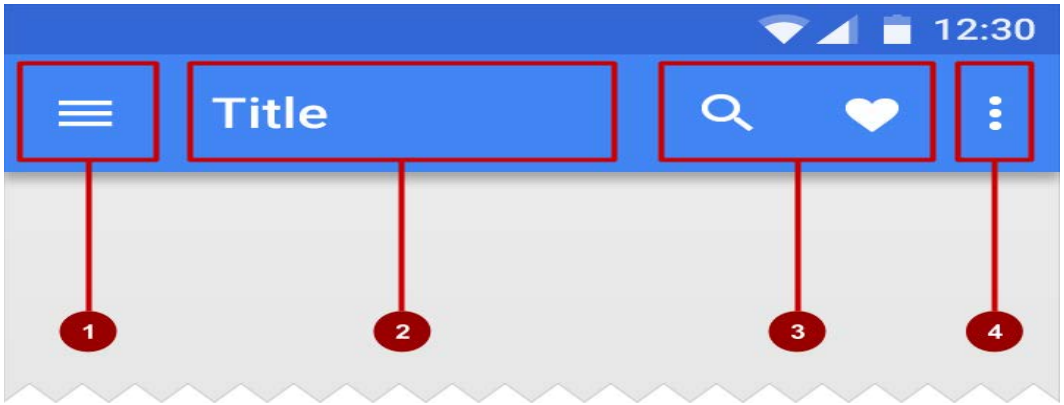
Android Menus

- Context Menu / Floating Menu
  - Context Menu Android context menu appears when user press long click on the element.
  - The action performs on context menu affect only on the selected content.
  - Context Menu can be implemented on any view, but it is mostly used with items of ListView, GridView or other view collections.
  - Context Menu is created by overriding the **onCreateContextMenu()** function. The menu resource is inflated by and calling the **inflate()** method of **MenuInflater** class.
  - To act on menu items, override the onContextItemSelected () function.



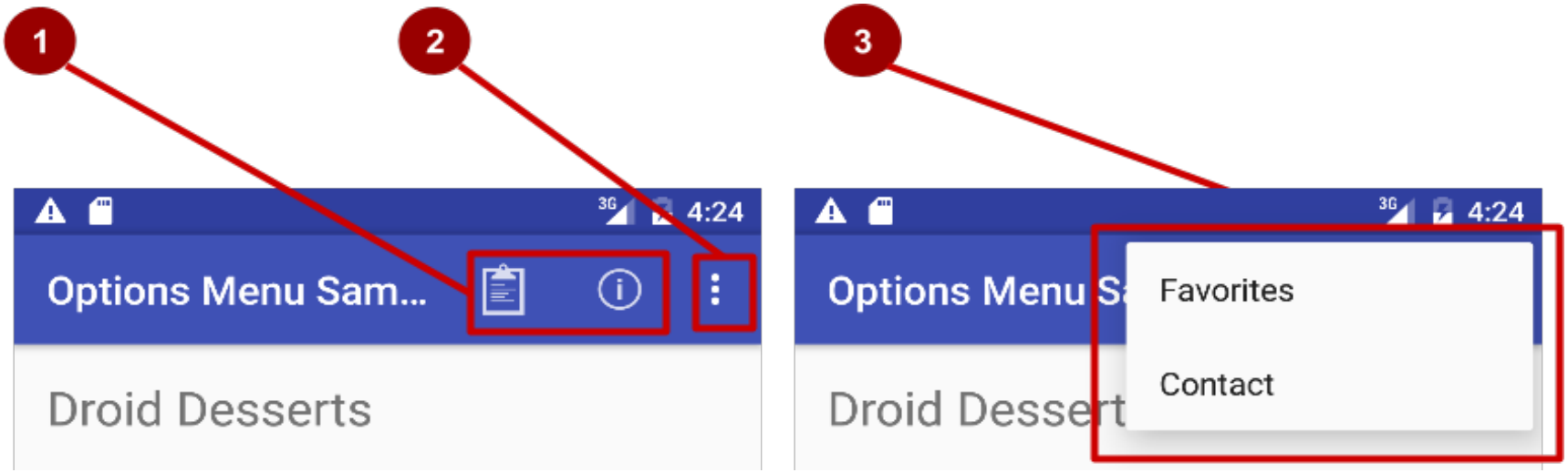
What is the App Bar?

Bar at top of each screen—(usually) the same for all screens



1. Navigation icon to open navigation drawer
2. Title of current activity
3. Icons for options menu items
4. Action overflow button for the rest of the options menu

What is the options menu?



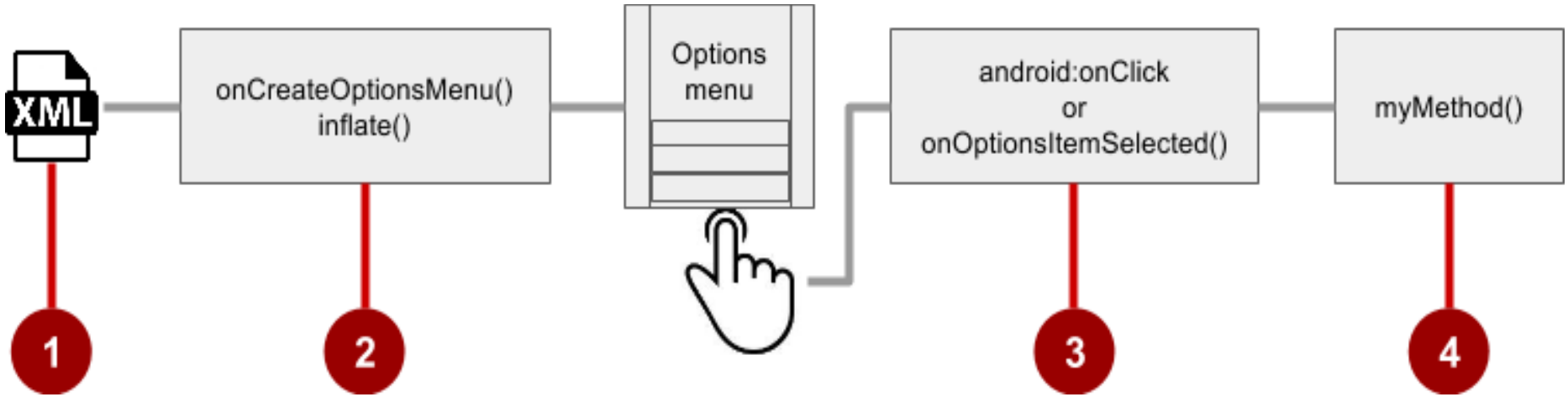
- Action icons in the app bar for important items (1)
- Tap the three dots, the "action overflow button" to see the options menu (2)
- Appears in the right corner of the app bar (3)
- For navigating to other activities

Adding Options Menu

Steps to implement options menu

1. XML menu resource (menu_main.xml)
2. onCreateOptionsMenu() to inflate the menu
3. onClick attribute or onOptionsItemSelected()
4. Method to handle item click

Refer https://developer.android.com/guide/topics/ui/menus.html to knows more information.

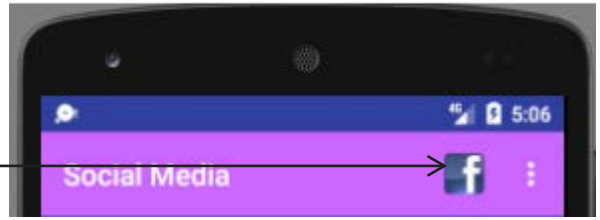


Step 1 : Create menu resource

- Menus in Android are usually xml resource files.
- Write click on app→res→New→resource directory and choose the resource type as menu then click OK.
- Menu file : To create a menus xml file, Just right click on menu folder New->Resource file, give the file name and then click OK.
- Edit the menu directly in xml
- Menus are defined within <menu> Menu name <menu> tag pairs.
- Each menu item is defined in an <item> Item name<item/> Tag
- Submenus are defined as <menus> within an <item>. Only one level of sub-menu is allowed.

Adding menu items

```
<menu
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto">
<!--name space is needed to use app:showAsAction="ifRoom“-->
<item
    android:id="@+id/m1"
    android:title="Facebook"
    android:icon="@drawable/fb_icon"
    app:showAsAction="ifRoom"/>
<!-- Here app is name space name which is defined in the menu header part-->
</menu>
```



Adding menu items

- Items are added to the menu using the <item> element. Each action item is described using a separate <item>.
- The <item> element has a number of attributes you can use, here are some of the most common ones:

android:id	Gives the item a unique ID. You need this in order to refer to the item in your activity code.
android:icon	The item's icon. This is a drawable resource.
android:title	The item's text. This may not get displayed if your item has an icon if there's not space in the action bar for both. If the item appears in the action bar's overflow, only the text will be displayed.
android: orderInCategory	An integer value that helps Android decide the order in which items should appear in the action bar.

Adding menu items

- **app:showAsAction**: The showAsAction attribute is used to say how you want the item to appear in the action bar.
- If you are not using this attribute, always occurred in the overflow dot menu. As an example, you can use it to get an item to appear in the overflow rather than the main action bar, or to place an item on the main action bar only if there's room. The attribute can take the following values:

"ifRoom"	Place the item in the action bar if there's space. If there's not space, put it in the overflow.
"withText"	Include the item's title text.
"never"	Put the item in the overflow area, and never in the main action bar.
"always"	Always place the item in the main area of the action bar. This value should be used sparingly; if you apply this to many items, they may overlap each other.

Step 2 : Inflate options menu

- Override onCreateOptionsMenu() in main activity
- Must import android.View.Menu, android.View.Menuinflater, and android.View.Menuitem

```
class MainActivity : AppCompatActivity() {
 ....
override fun onCreateOptionsMenu(menu: Menu?):
Boolean {
 getMenuInflater().inflate(R.menu.menu_main, menu);
      return true;
    }
 }
```

Name of the menu xml file

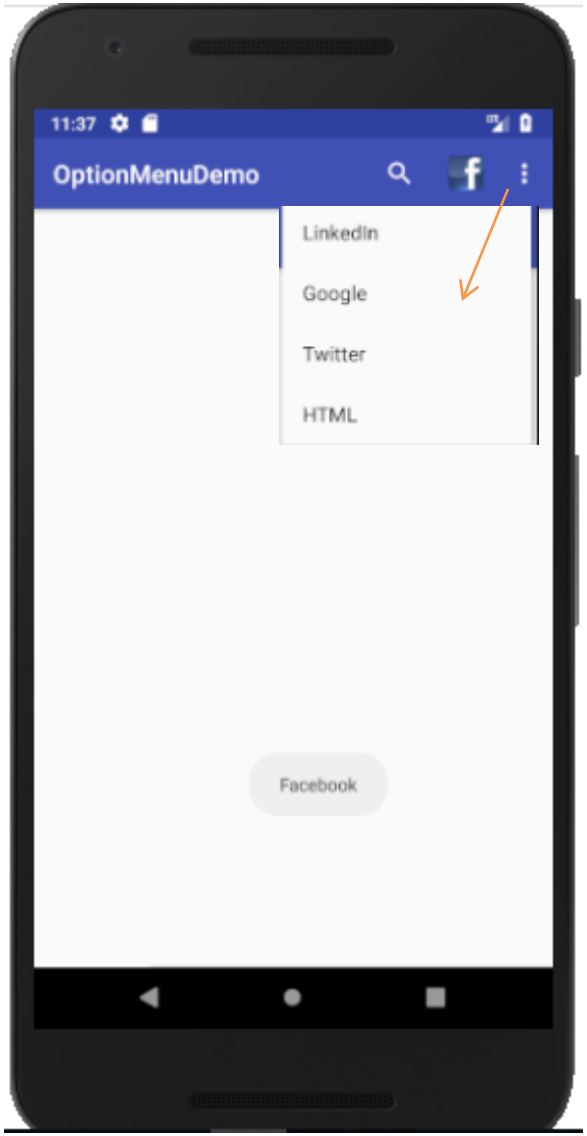
Step 3 : Override onOptionsItemSelected()

- The onOptionsItemSelected() method takes one attribute, a MenuItem object that represents the item on the action bar that was clicked.
- You can use the MenuItem's getItemId() method to get the ID of the item on the action bar that was clicked so that you can perform an appropriate action, such as starting a new activity.

```
override fun onOptionsItemSelected(item: MenuItem): Boolean {
    // Handle presses on the action bar menu items
    when (item.itemId) {
        R.id.action_cut -> {
            text_view.text = "Cut"
            return true
        }
        R.id.action_copy -> {
            text_view.text = "Copy"
            return true
        }
        R.id.action_paste -> {
            text_view.text = "Paste"
            return true
        }
        R.id.action_new -> {
            text_view.text = "New"
            return true
        }
    }
    return super.onOptionsItemSelected(item)
}
```

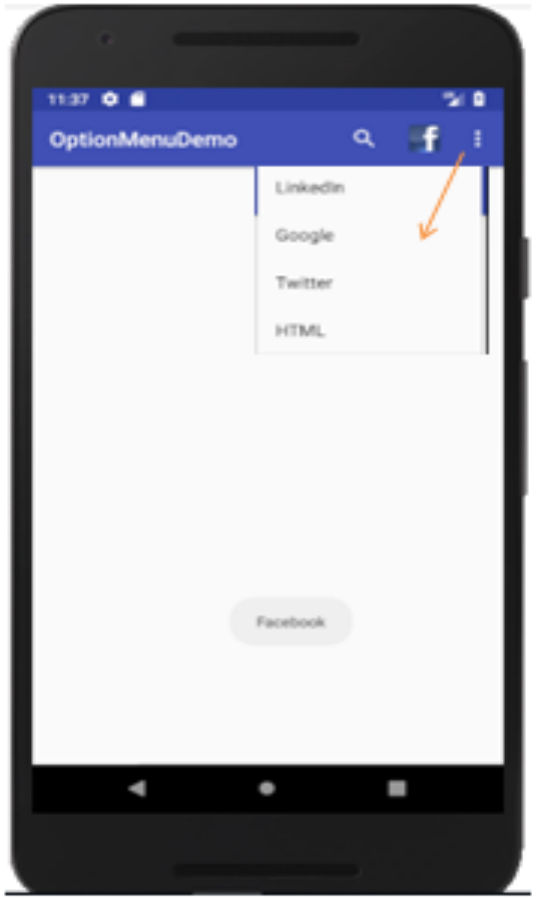
Hands on Example 1 : OptionMenu

- Refer Lesson6\OptionMenuDemo folder.
- The Appbar shows search and facebook icon.
- Over folw dot button shows additional option menus.



Hands on Example 1 : main_menu.xml

```xml
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <item
        android:id="@+id/searchbar"
        android:title="Search"
        app:actionViewClass="android.widget.SearchView"
        app:showAsAction="always"/>
    <item
        android:id="@+id/m1"
        android:title="Facebook"
        android:icon="@drawable/fb_icon"
        app:showAsAction="ifRoom"/>
    <item
        android:id="@+id/m2"
        android:title="LinkedIn"
        android:icon="@drawable/lin_icon"/>
    <item
        android:id="@+id/m3"
        android:title="Google"
        android:icon="@drawable/g_logo"
        app:showAsAction="ifRoom"/>
    <item
        android:id="@+id/m4"
        android:title="Twitter"
        android:icon="@drawable/twitter_logo"/>
    <item
        android:id="@+id/m5"
        android:title="HTML"
        android:icon="@drawable/html_logo"/>
</menu>
```



Hands on Example 1 :MainActivity.kt

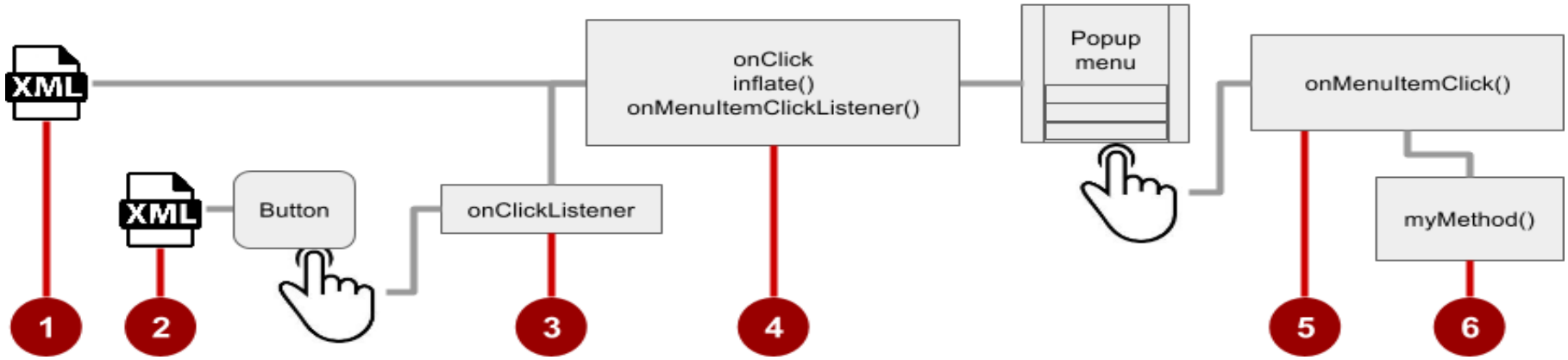
```
import android.app.SearchManager
import android.content.Context
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.Menu;
import android.view.MenuItem;
import android.widget.SearchView;
import android.widget.Toast;
class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
```

Hands on Example 1 :MainActivity.kt

```
override fun onCreateOptionsMenu(menu: Menu?): Boolean {
    menuInflater.inflate(R.menu.main_menu,menu)
    // Code to get the title and icon on the option overflow
    if (menu is MenuBuilder) {
        menu.setOptionalIconsVisible(true)
    }
    return super.onCreateOptionsMenu(menu)
}

override fun onOptionsItemSelected(item:MenuItem):Boolean {
    Toast.makeText(
        applicationContext,
        item.title.toString(),
        Toast.LENGTH_LONG).show()
    return super.onOptionsItemSelected(item)
}}
```

Popup Menus

- Vertical list of items anchored to a view. You have to follow these steps



1. Create XML menu resource file and assign appearance and position attributes
2. Add an `Button` for the popup menu icon in the XML activity layout file
3. Assign `onClickListener` to the button
4. Override `onClick()` to inflate the popup and register it with `onMenuItemClickListener()`
5. Implement `onMenuItemClick()`
6. Create a method to perform an action for each popup menu item

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"
    android:id="@+id/rl"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/tv"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="My text color is changing."
        android:textSize="50sp"
        android:textStyle="bold"
        android:fontFamily="sans-serif-condensed"/>
    <Button
        android:id="@+id/bt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="214dp"
        android:fontFamily="sans-serif-condensed"
        android:text="Click to get Popup."
        android:textSize="20sp"
        android:textStyle="bold" />
</RelativeLayout>
```

popup_menu

```
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/red"
        android:title="Red"/>
    <item
        android:id="@+id/green"
        android:title="Green"/>
    <item
        android:id="@+id/blue"
        android:title="Blue"/>
</menu>
```

MainActivity.kt

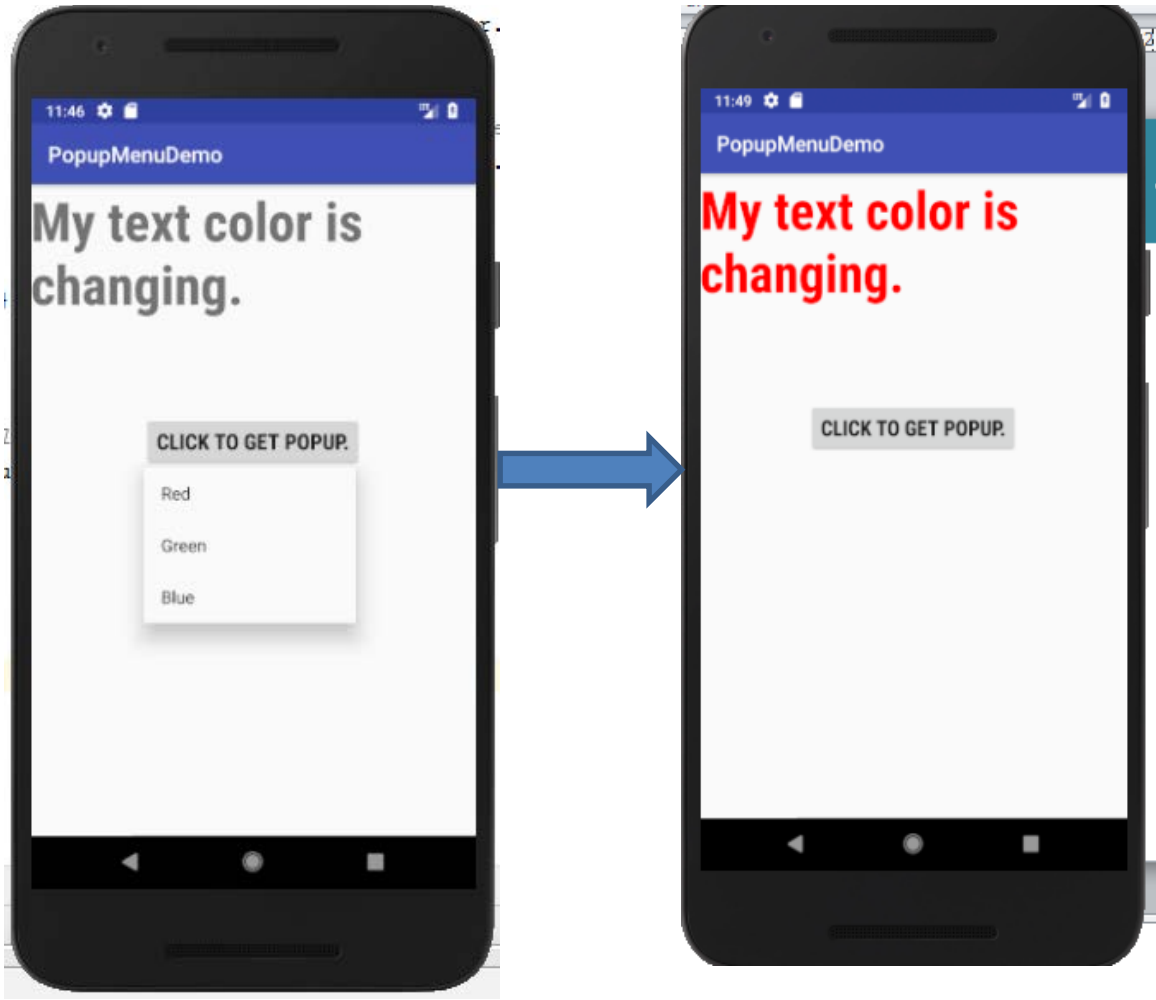
```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.MenuItem;
import android.view.View;
import android.widget.PopupMenu;
import android.graphics.Color

import kotlinx.android.synthetic.main.activity_main.*
class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
            // Set click listener to the button
            bt.setOnClickListener(object:View.OnClickListener {
           override fun onClick(view:View) {
                // Initialize a new instance of popup menu
                val popupMenu = PopupMenu(this@MainActivity.applicationContext, bt)

                // Inflate the popup menu
                popupMenu.getMenuInflater().inflate(R.menu.popup_menuu, popupMenu.getMenu())
```

MainActivity.kt

```
// Set a click listener for menu item click
            popupMenu.setOnMenuItemClickListener(
object:PopupMenu.OnMenuItemClickListener {
              override fun
onMenuItemClick(menuItem:MenuItem):Boolean
    {
                when (menuItem.getItemId()) {
                  // Handle the menu items here
                  R.id.red -> {
                    // Set the text color to red
                    tv.setTextColor(Color.RED)
                    return true
                  }
                  R.id.green -> {
                    // Set the text color to green
                   tv.setTextColor(Color.GREEN)
                    return true
                  }
R.id.blue -> {
      // Set the text color to blue
       tv.setTextColor(Color.BLUE)
        return true
                    }
        else -> return false
                  }
                }
              })
// Finally, show the popup menu
              popupMenu.show()
            }
        })
    }
}
```

Hands on Example - 2

- Popup menu is fixed for the button control.
- If the user select the Red option, text color will change in Red, similarly for other options.
- Refer **Lesson6\ PopupMenuDemo**



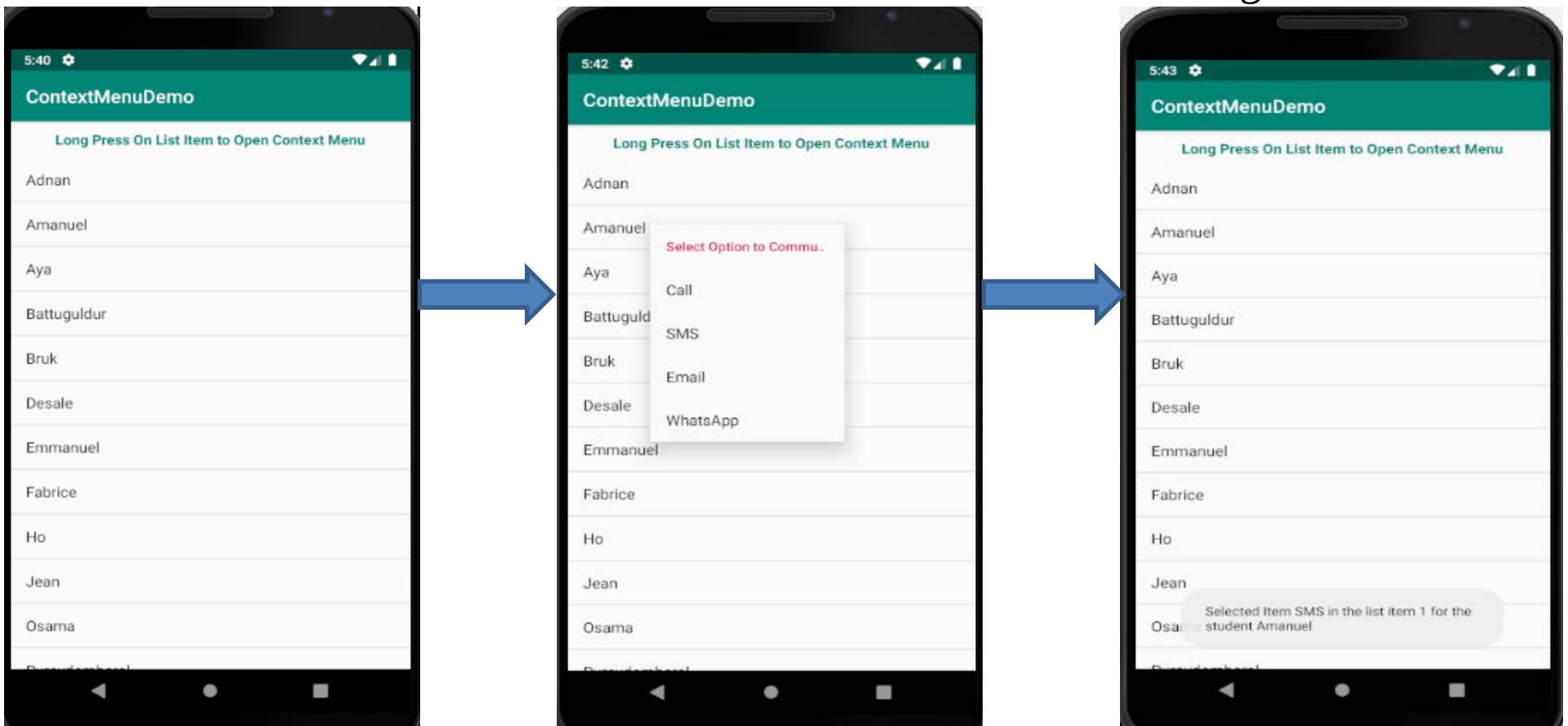
Hands on Example 3 – ContextMenu Demo

Context Menu – Programmatically add menus.

List of Students

Performing a long Press

Get Toast after selecting context menu



MainActivity.kt

```
class MainActivity : AppCompatActivity() {
  private val callid:Int =1
  private val smsid:Int =2
  private val mailid:Int =3
  private val whatsid:Int =4
  lateinit var students: Array<String>
  override fun onCreate(savedInstanceState: Bundle?) {
     super.onCreate(savedInstanceState)
     setContentView(R.layout.activity_main)
    students = arrayOf("Adnan", "Amanuel", "Aya","Battuguldur", "Bruk", "Desale", "Emmanuel",
       "Fabrice", "Ho", "Jean",  "Osama", "Purevdemberel", "Resty", "Samiksha", "Sibtain",
       "Xingke",  "Yared",   "Yousef", "Ahmed")
     //Creating Adapter
     val adp = ArrayAdapter(this@MainActivity, android.R.layout.simple_list_item_1, students)
     //Set Adapter to ListView
   lv.adapter = adp
    //Register ListView for Context Menu. Accepts a view argument that should show a context menu.
     registerForContextMenu(lv)
  }
```

MainActivity.kt

```
override fun onCreateContextMenu(menu: ContextMenu?, v: View?, menuInfo:
ContextMenu.ContextMenuInfo?) {
    super.onCreateContextMenu(menu, v, menuInfo)
    //Set Header of Context Menu
    menu!!.setHeaderTitle("Select Option to Communicate")
    menu.add(0, callid, 0, "Call")
    menu.add(0, smsid, 1, "SMS")
    menu.add(0, mailid, 2, "Email")
    menu.add(0, whatsid, 3, "WhatsApp")

    /*  menu.add get 4 Parameters
       1. groupId if you want to add multiple Group than for every group Id is Different Here
          we have only One Group so We take 0(Zero) as GroupId
       2. menu id for Item Id
       3. Set Order of Our Item(Position Of Item) if you Change order of Call to 1 and SMS to 0
           than in Menu SMS Display First.
       4. Title to Display on Context menu
    */
}
```

MainActivity.kt

```
override fun onContextItemSelected(item: MenuItem?): Boolean {
    //Get Order of Selected Item such as 0,1,2,3
    val selectedItemOrder = item!!.order
    //Get Title Of Selected Item such as Call, SMS, Email and WhatsApp
    val selectedItemTitle = item.title
    // Get the id of the menu selected
    val id = item.itemId
    //To get Name of student Click on ListView
    val info = item.menuInfo as AdapterView.AdapterContextMenuInfo
    val listPosition = info.position
    val name = students[listPosition]
    Toast.makeText(this@MainActivity,
        "Context Menu $selectedItemTitle in the order $selectedItemOrder with the id $id " +
            "for the student $name",
      Toast.LENGTH_LONG).show()
    return true
  }
}
```

Adding Search Bar

Refer : ContextMenuDemo

Need to add menu for SearchBar in your menu.xml layout file.

```
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:android="http://schemas.android.com/apk/res/android">

   <item
      app:showAsAction="always"
      android:icon="@android:drawable/ic_menu_search"
      android:id="@+id/menu_item_search"
      android:title="Search"
      app:actionViewClass="android.widget.SearchView" />
</menu>
```

Adding Search Bar

Override fun onCreateOptionsMenu() to inflate the Search menu into your activity by writing the below code

```
override fun onCreateOptionsMenu(menu: Menu):Boolean {
    // Inflate the menu; this adds items to the action bar if it is present.
    menuInflater.inflate(R.menu.main, menu)
    // Whatever you typed to search the content, will be received using SearchManager object
    val searchManager = getSystemService(Context.SEARCH_SERVICE) as SearchManager
    // get the currently set action view for this menu item which returns View and cast it as a SearchView
    val searchView = menu.findItem(R.id.menu_item_search).actionView as SearchView
    // Set Search bar hint
    searchView.queryHint= "Search"
    // Gets information about a searchable activity (Activity exist, searchable activity or null)
    searchView.setSearchableInfo(searchManager.getSearchableInfo(componentName))
   /* Listener to perform the search based on the types text, need to implement
     SearchView.OnQueryTextListener */
    searchView.setOnQueryTextListener(this)
    return super.onCreateOptionsMenu(menu)
  }
```

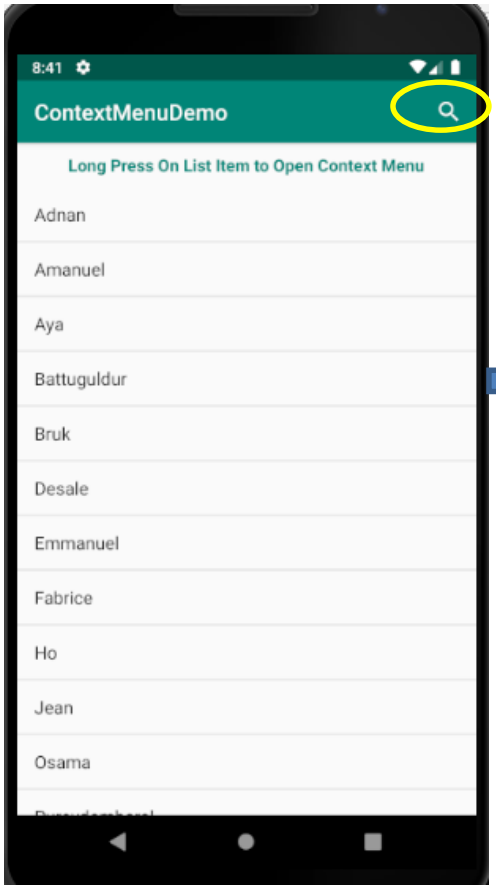
Adding Search Bar

need to implement interface SearchView.OnQueryTextListener and override the below methods

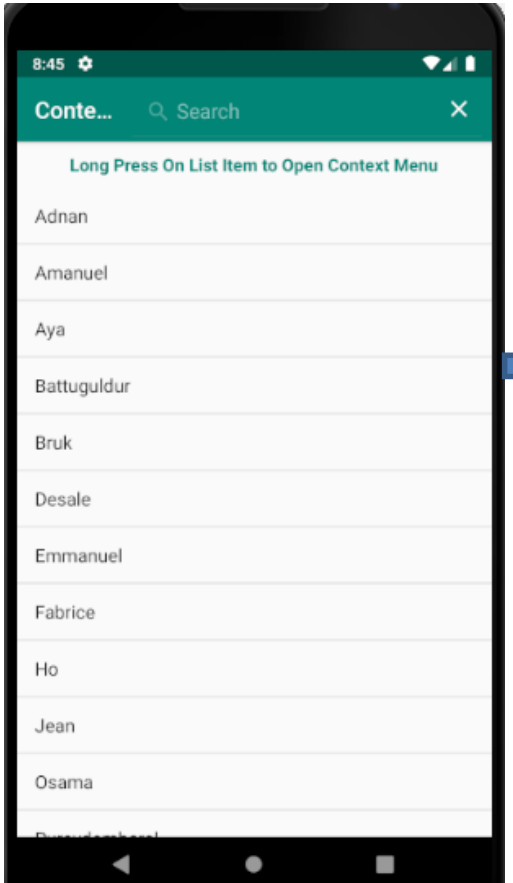
```
// Filter the text from the List items
    override fun onQueryTextChange(newText: String?): Boolean {
     // adp is an ArrayAdapter for the ListView to filter the searched data
      adp?.filter?.filter(newText)
        return true
    }
   override fun onQueryTextSubmit(query: String?): Boolean {
        return false
    }
```

Example-3 is used to add SearchBar

ListView
With SearchBar



After Clicking
Search Icon



Filter the Text
typed from the
ListView