
# Lecture 07: Search View & Shared Preferences
# IN721: Design and Development of Applications for Mobile Devices
# Semester One, 2020

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Wednesday, 11 March

# Lecture 06: Card View & Parcelable Topics

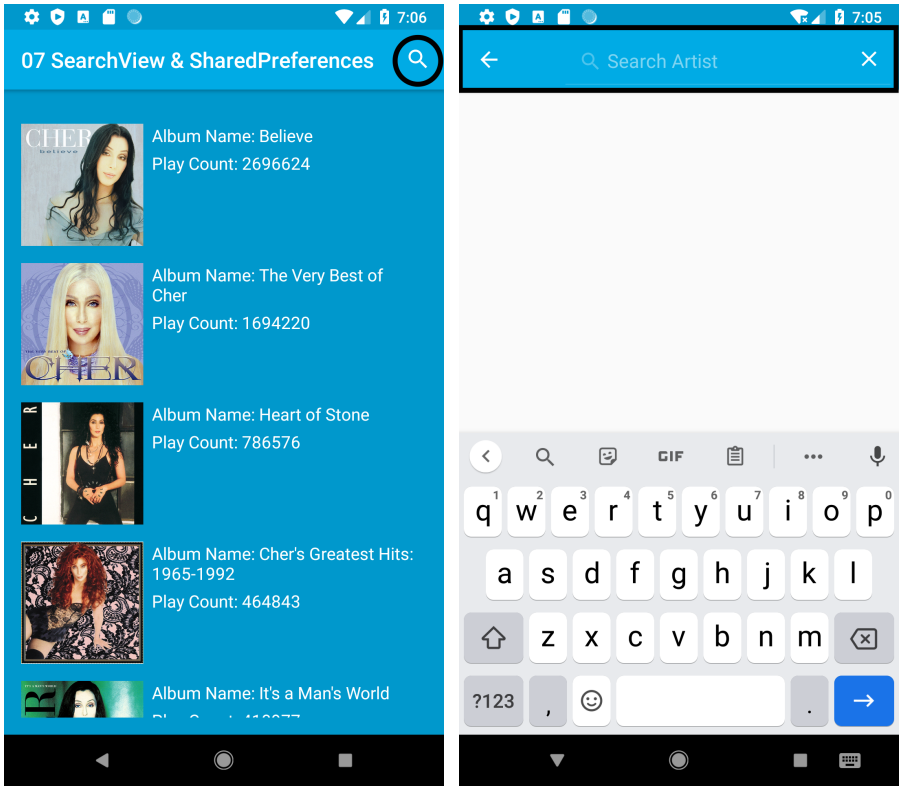
- File structure
- Card view
- Parcelable

# Lecture 07: Search View & Shared Preferences Topics

- File structure
- SearchActivity.kt
- Search view
  - menu_search.xml
  - searchable.xml
  - AndroidManifest.xml
- Shared preferences

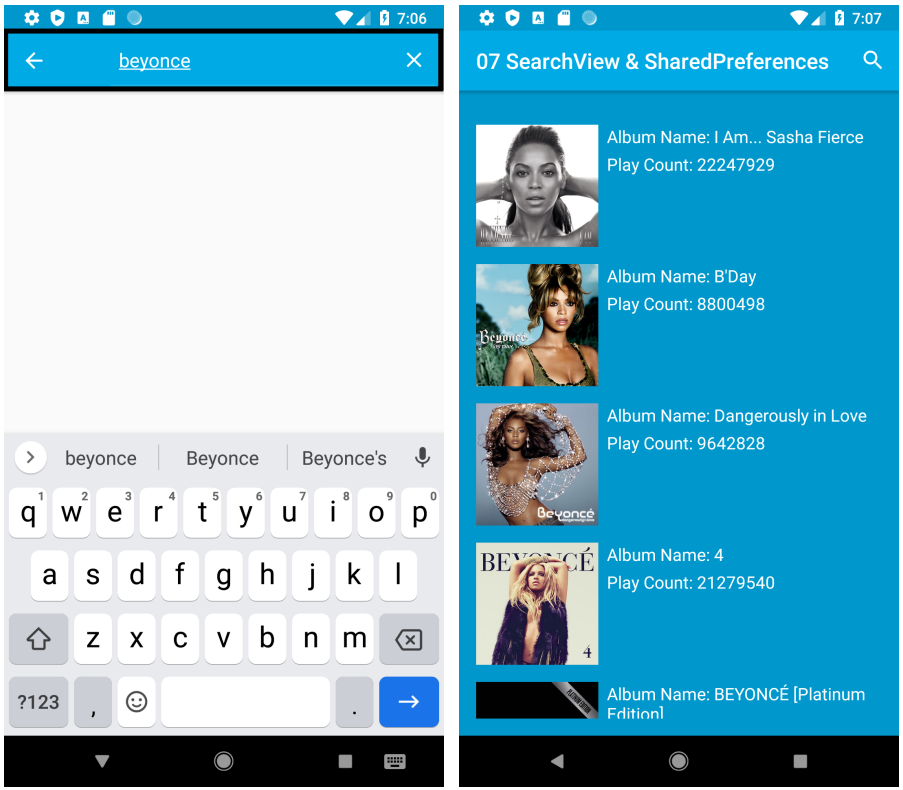
# Application Screenshot

- Recycler view of Cher albums
- Search icon in the top right-hand corner of the application
- Click on the search icon - start new activity called **SearchActivity**



# Application Screenshot

- Type **beyonce** into the search view toolbar
- Activity is destroyed & starts new activity - MainActivity
- Recycler view of Beyonce albums



# File Structure

- Adding one file to our current structure:
  - SearchActivity.kt - activities directory
    - Create a basic activity
    - Delete floating action button from activity XML file
    - Delete content XML file

# SEARCHACTIVITY.KT

- SearchActivity implements BaseActivity

```
class SearchActivity : BaseActivity() {

    private lateinit var searchView: SearchView

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_search)
        displayToolbar( isHomeEnabled: true)
    }

    override fun onCreateOptionsMenu(menu: Menu): Boolean {
        menuInflater.inflate(R.menu.menu_search, menu)

        val searchManager: SearchManager = getSystemService(Context.SEARCH_SERVICE) as SearchManager
        val searchableInfo: SearchableInfo? = searchManager.getSearchableInfo(componentName)

        searchView = menu.findItem(R.id.action_search).actionView as SearchView
        searchView.setSearchableInfo(searchableInfo)
        searchView.isIconified = false

        searchView.setOnQueryTextListener(object : SearchView.OnQueryTextListener {
            override fun onQueryTextSubmit(query: String?): Boolean {
                val sharedPref: SharedPreferences = PreferenceManager.getDefaultSharedPreferences(applicationContext)
                sharedPref.edit().putString("album_query", query).apply()
                searchView.clearFocus()
                finish()
                return true
            }

            override fun onQueryTextChange(newText: String?): Boolean {
                return false
            }
        })

        searchView.setOnCloseListener {
            finish()
            false ^setOnCloseListener
        }

        return true
    }
}
```

# SEARCHACTIVITY.KT

- Inflate the menu_search.xml layout
- SearchManager - provides access to the system search services
- SearchableInfo - only applications that search other applications should need to use this class

```
class SearchActivity : BaseActivity() {

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                finish()
                return true
            }

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            }
        })

        searchView.setOnCloseListener {
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        }

        return true
    }
}
```

# SearchActivity.KT

- Declare search view widget - late initialisation
- Find search icon menu item & bind to search view
- setSearchableInfo - display labels, hints, suggestions
- isIconified - return the current iconified state of the search view
  - Focuses on search view when activity is launched
  - If set to true, you need to click on the search icon

```
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    private lateinit var searchView: SearchView

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        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_search)
        displayToolbar( isHomeEnabled: true)
    }

    override fun onCreateOptionsMenu(menu: Menu): Boolean {
        menuInflater.inflate(R.menu.menu_search, menu)

        val searchManager: SearchManager = getSystemService(Context.SEARCH_SERVICE) as SearchManager
        val searchableInfo: SearchableInfo? = searchManager.getSearchableInfo(componentName)

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        searchView.isIconified = false

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            override fun onQueryTextSubmit(query: String?): Boolean {
                val sharedPref: SharedPreferences = PreferenceManager.getDefaultSharedPreferences(applicationContext)
                sharedPref.edit().putString("album_query", query).apply()
                searchView.clearFocus()
                finish()
                return true
            }

            override fun onQueryTextChange(newText: String?): Boolean {
                return false
            }
        })

        searchView.setOnCloseListener {
            finish()
            false ^setOnCloseListener
        }

        return true
    }
}
```

# SearchActivity.KT

- setOnQueryTextListener - sets a listener for user actions within the search view
- Two override functions
  - onQueryTextSubmit - called when the user submits the query
  - onQueryTextChange - called when the query text is changed by the user

```
class SearchActivity : BaseActivity() {

    private lateinit var searchView: SearchView

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_search)
        displayToolbar( isHomeEnabled: true)
    }

    override fun onCreateOptionsMenu(menu: Menu): Boolean {
        menuInflater.inflate(R.menu.menu_search, menu)

        val searchManager: SearchManager = getSystemService(Context.SEARCH_SERVICE) as SearchManager
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                val sharedPref: SharedPreferences = PreferenceManager.getDefaultSharedPreferences(applicationContext)
                sharedPref.edit().putString("album_query", query).apply()
                searchView.clearFocus()
                finish()
                return true
            }

            override fun onQueryTextChange(newText: String?): Boolean {
                return false
            }
        })

        searchView.setOnCloseListener {
            finish()
            false ^setOnCloseListener
        }

        return true
    }
}
```

# SEARCHACTIVITY.KT

- setOnCloseListener - sets a listener to inform when the user closes the SearchView

```
class SearchActivity : BaseActivity() {

    private lateinit var searchView: SearchView

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_search)
        displayToolbar( isHomeEnabled: true)
    }

    override fun onCreateOptionsMenu(menu: Menu): Boolean {
        menuInflater.inflate(R.menu.menu_search, menu)

        val searchManager: SearchManager = getSystemService(Context.SEARCH_SERVICE) as SearchManager
        val searchableInfo: SearchableInfo? = searchManager.getSearchableInfo(componentName)

        searchView = menu.findItem(R.id.action_search).actionView as SearchView
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            override fun onQueryTextSubmit(query: String?): Boolean {
                val sharedPref: SharedPreferences = PreferenceManager.getDefaultSharedPreferences(applicationContext)
                sharedPref.edit().putString("album_query", query).apply()
                searchView.clearFocus()
                finish()
                return true
            }

            override fun onQueryTextChange(newText: String?): Boolean {
                return false
            }
        })

        searchView.setOnCloseListener {
            finish()
            false ^setOnCloseListener
        }

        return true
    }
}
```

# Activity_Search.XML

- Boilerplate activity XML file - you only need the toolbar widget

activity_search.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout 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=".activities.SearchActivity">

    <android.support.design.widget.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:theme="@style/AppTheme.AppBarOverlay">

        <android.support.v7.widget.Toolbar
            android:id="@+id/toolbar"
            android:layout_width="match_parent"
            android:layout_height="?attr/actionBarSize"
            android:background="?attr/colorPrimary"
            app:popupTheme="@style/AppTheme.PopupOverlay" />

    </android.support.design.widget.AppBarLayout>

</android.support.design.widget.CoordinatorLayout>
```

# Search View: Menu Layouts

- menu_main.xml & menu_search.xml
- Menu resources directory
- app:actionViewClass attribute
  - Class of a widget that implements the action - SearchView widget

menu_main.xml

```xml
<menu 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"
    tools:context=".activities.MainActivity">

    <item
        android:id="@+id/action_main"
        android:icon="@drawable/ic_search_white_24dp"
        android:title="Main"
        app:showAsAction="ifRoom" />
</menu>
```

menu_search.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">

    <item
        android:id="@+id/action_search"
        android:icon="@drawable/ic_search_white_24dp"
        android:title="Search"
        app:actionViewClass="android.widget.SearchView"
        app:showAsAction="ifRoom" />
</menu>
```

# Search View: Menu_Main.XML

- Inflate the menu_main.xml layout in **MainActivity.kt**
- Start a new activity when the search icon is clicked

```
override fun onCreateOptionsMenu(menu: Menu): Boolean {
    menuInflater.inflate(R.menu.menu_main, menu)
    return true
}

override fun onOptionsItemSelected(item: MenuItem): Boolean {
    return when (item.itemId) {
        R.id.action_main -> {
            startActivity(Intent( packageContext: this@MainActivity, SearchActivity::class.java))
            true
        }
        else -> super.onOptionsItemSelected(item)
    }
}
```

# Search View: Searchable.XML

- Create a new resource directory called xml
- Create a xml file called searchable.xml

searchable.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <searchable xmlns:android="http://schemas.android.com/apk/res/android"
3      android:hint="Search Artist"
4      android:label="Search Artist" />
```

# Search View: AndroidManifest.XML

- intent-filter
  - android.intent.action.SEARCH
- meta-data
  - android:resource="@xml/searchable"

```
<activity
        android:name=".activities.SearchActivity"
        android:parentActivityName=".activities.MainActivity"
        android:theme="@style/AppTheme.NoActionBar">
    <meta-data
            android:name="android.support.PARENT_ACTIVITY"
            android:value="graysono.com.cp08searchviewsharedpreferences.activities.MainActivity"/>
    <intent-filter>
        <action android:name="android.intent.action.SEARCH"/>
    </intent-filter>
    <meta-data android:name="android.app.searchable"
               android:resource="@xml/searchable"/>
</activity>
```

# Shared Preferences

- If you have a relatively small collection of key-values that you'd like to save
- SharedPreferences object points to a file containing key/value pairs
- Provides methods to read and write
- SharedPreferences file is managed by the framework & can be private or shared
  - For simplicity, we will use shared

# Shared Preferences

- album_query key/value data passed from **SearchActivity.kt** to **MainActivity.kt**
- PreferenceManager.getDefaultSharedPreferences - points to the default file that is used by the preference framework
  - this@SearchActivity or applicationContext

```
searchView.setOnQueryTextListener(object : SearchView.OnQueryTextListener {
    override fun onQueryTextSubmit(query: String?): Boolean {
        val sharedPref: SharedPreferences = PreferenceManager.getDefaultSharedPreferences(applicationContext)
        sharedPref.edit().putString("album_query", query).apply()
        searchView.clearFocus()
        finish()
        return true
    }

    override fun onQueryTextChange(newText: String?): Boolean {
        return false
    }
})
```

# Shared Preferences: OnResume

- In **MainActivity.kt**
- Check for value in album_query key
- If there is data, download the artist's album data from Last.fm via async task
- Display the data in the recycler view

```
override fun onResume() {
    super.onResume()
    val sharedPref: SharedPreferences = PreferenceManager.getDefaultSharedPreferences(applicationContext)
    val queryResult: String? = sharedPref.getString("album_query", "")

    if (queryResult!!.isNotEmpty()) {
        val url: String = createURI(
            "http://ws.audioscrobbler.com/2.0/", "artist.gettopalbums",
            queryResult, "58384a2141a4b9737eacb9d0989b8a8c", "json"
        )
        rawDataAsyncTask = RawDataAsyncTask( listener: this)
        rawDataAsyncTask.execute(url)
    }
}
```

# Practical

- Series of tasks covering today's lecture
- Worth 1% of your final mark for the Design and Development of Applications for Mobile Devices course
- Deadline: Friday, 12 June at 5pm

# Exam 01

- Series of questions covering lectures 01-04
- Worth 6% of your final mark for the Design and Development of Applications for Mobile Devices course
- Deadline: Friday, 13 March at 10am