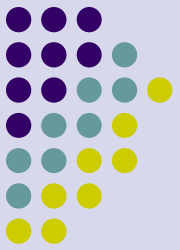


# Music Player

---

Nick



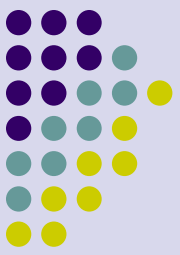
# Agenda

---

**Project Info**

**Material Design**

**Basic UI**

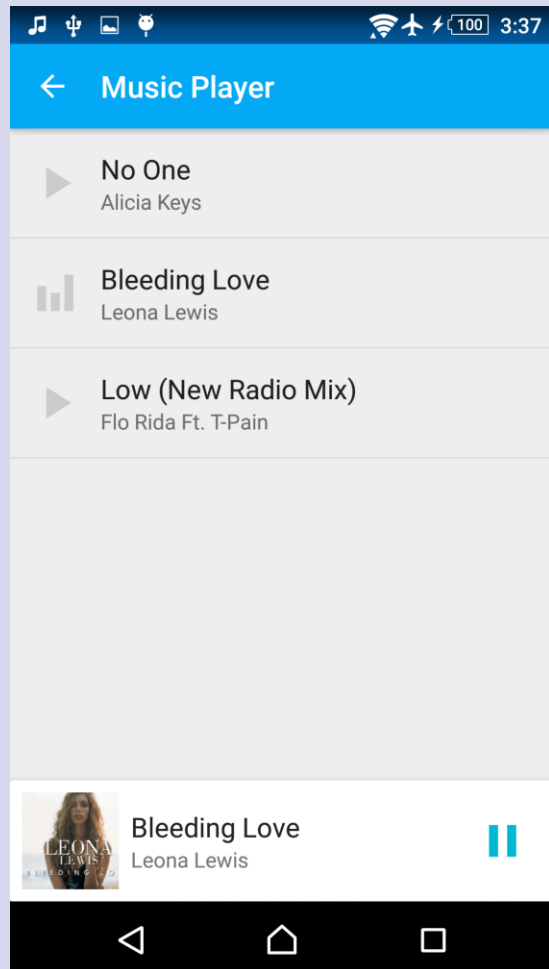
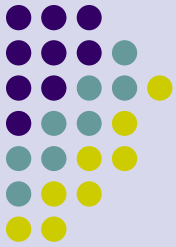


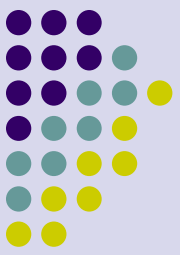
# Project Info

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- Target : basic music player with audio files(mp3, wav, etc.)
- Basic player control
  - Play, pause, stop, next, previous
- Material design

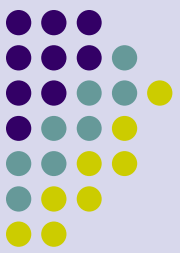
# Project Info





# About Project Delivery

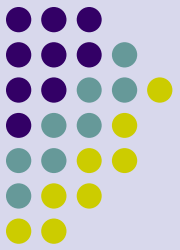
- One Project needs to delivery as final project
- Group or personal delivery both fine
  - For group delivery:
    - Max team member: 3
    - Each team member must own one module.
  - For personal delivery, just delivery one project.
- Personal project is fine for this course
  - Delivery whole project or github link both fine.



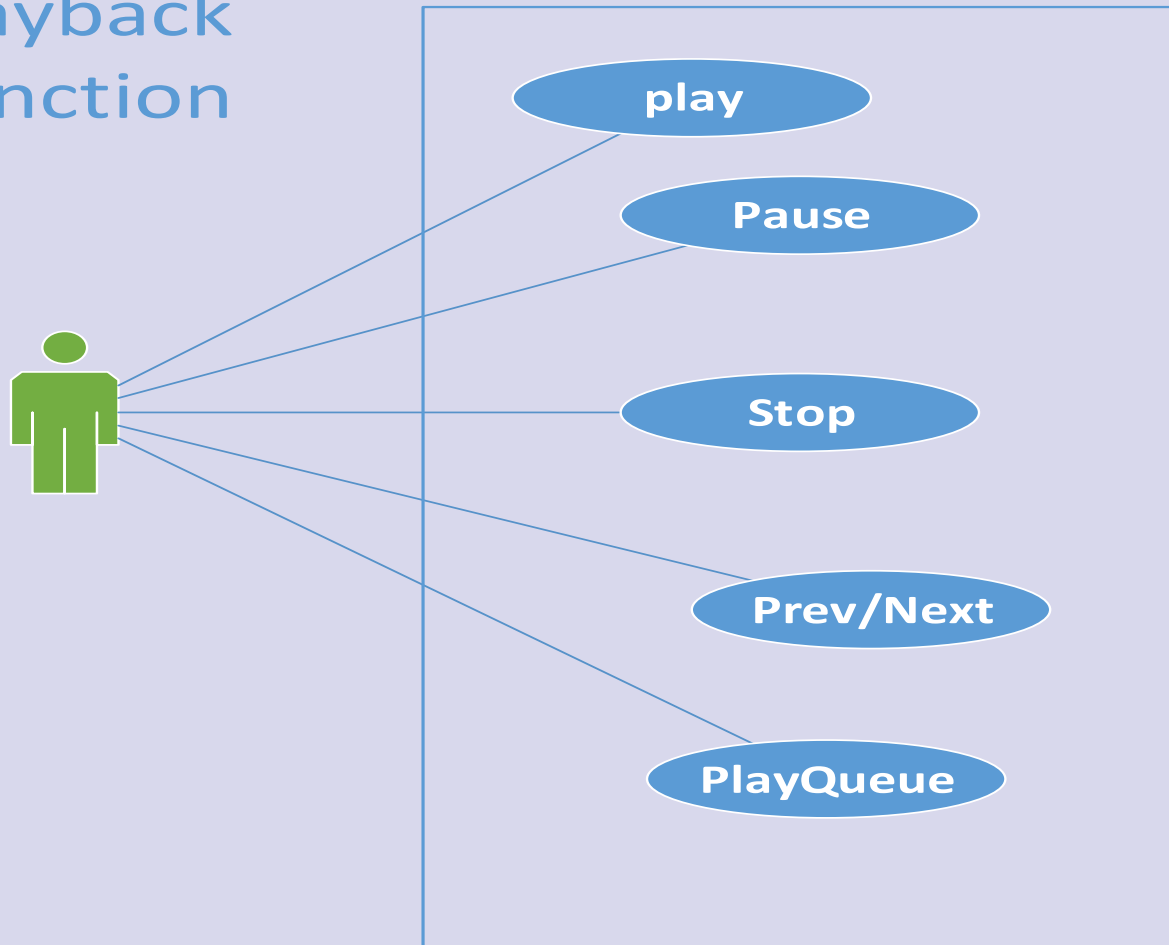
# System Analysis

- Playback Control Module
  - Playback control
  - Play queue control
- Audio File Browse Module
  - Browse all audio file supported
  - List by Album, Singer, etc.

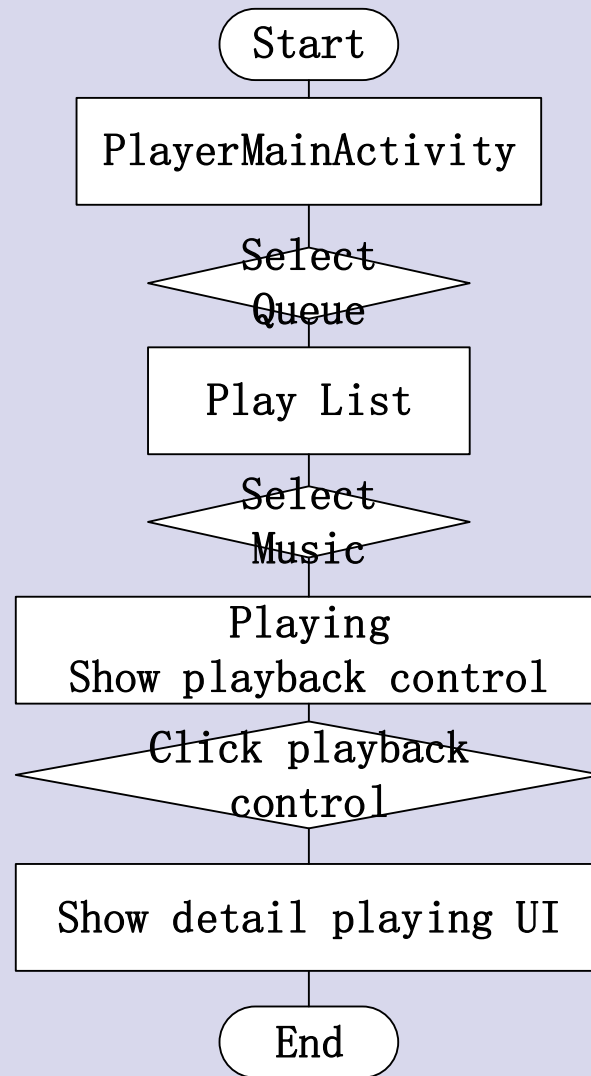
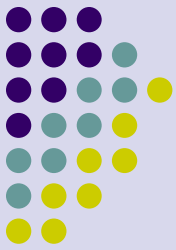
# System Analysis



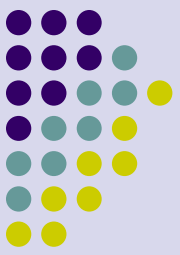
Playback  
Function



# System Workflow





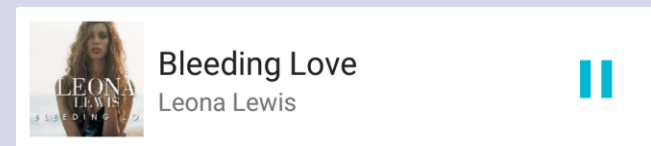
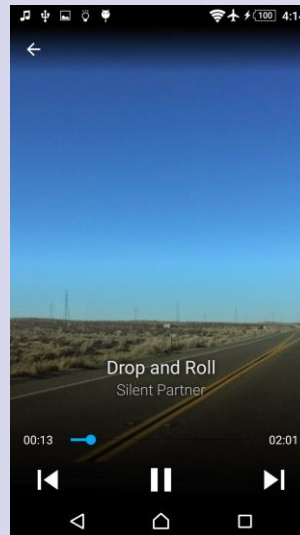
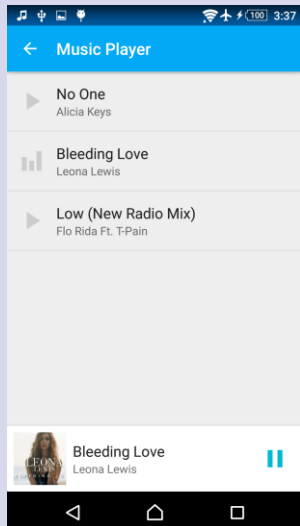
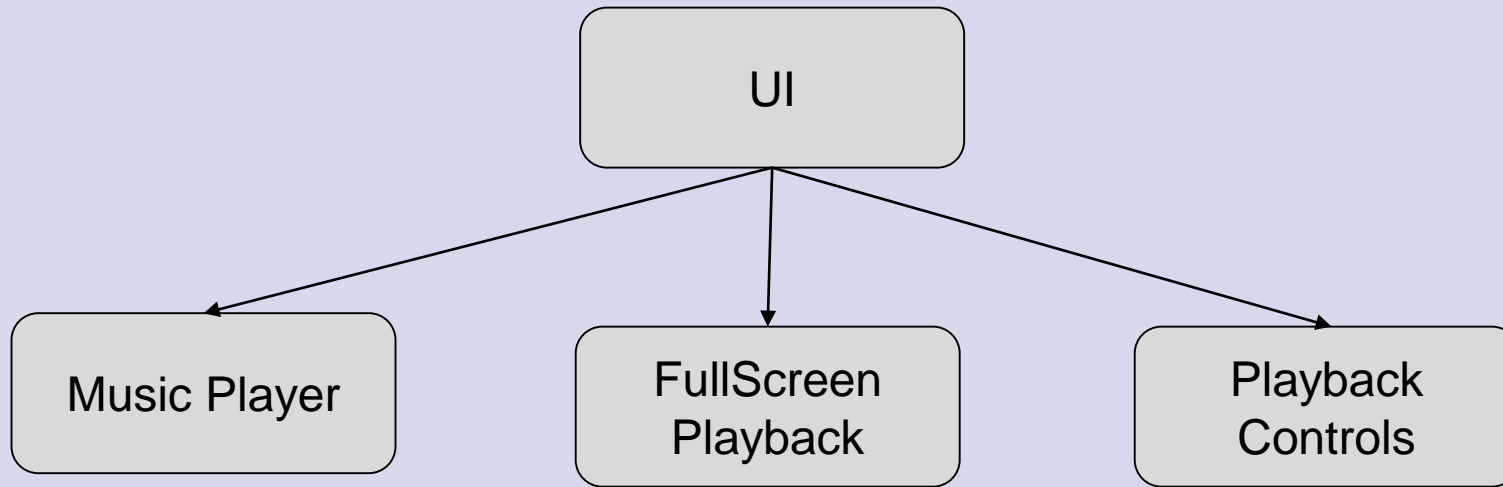
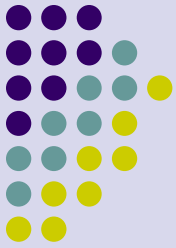


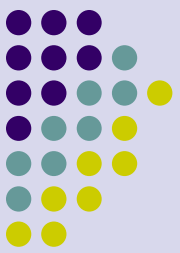
# UI Requirement

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- User friendly layout
- Comfort Color using
- Nice button controls
- Following google app style

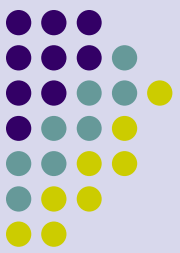
# Structure





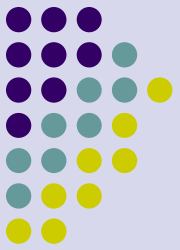
# UI Performance

- According to UI ANR response time:
  - Play music : delay less than 5 seconds
  - Pause music : delay less than 5 seconds
  - Stop music : delay less than 5 seconds
  - Prev/Next music : delay less than 5 seconds
  - Enter into player UI : delay less than 5 seconds



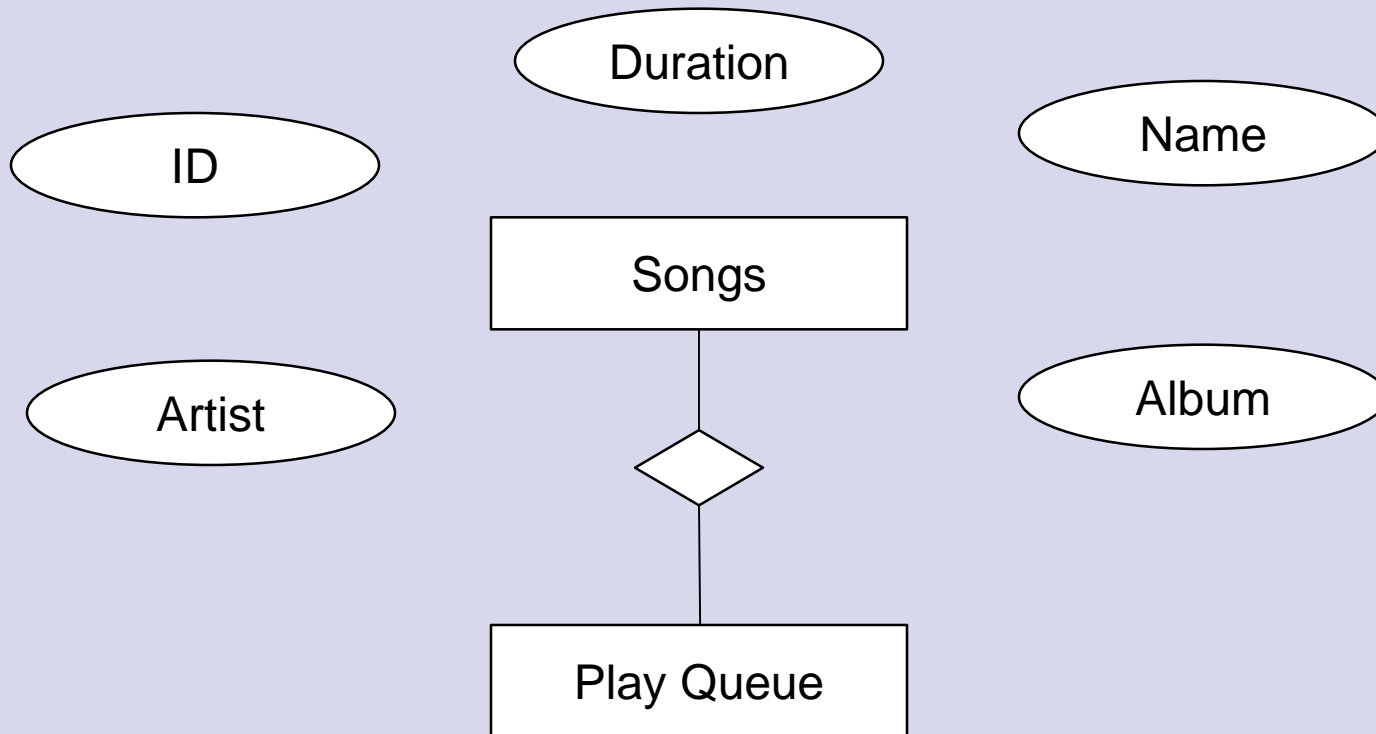
# Running Environment

- Target mobile OS: Android
- Target Android Version:
  - Min : Android 4.4 , version: 19, Kitkat
  - Target : Android 5.0 21 Lollipop
- Development Environment:
  - Android Studio (Eclipse + ADT)

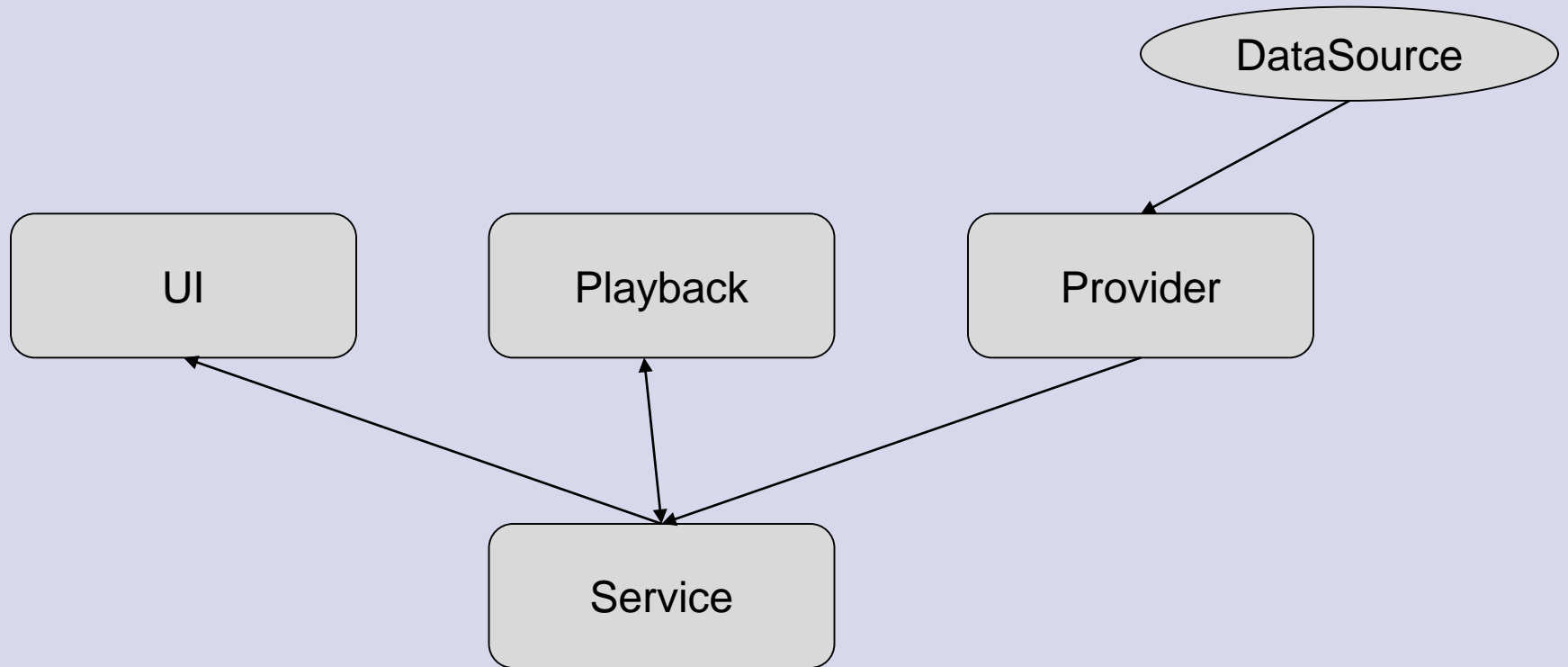
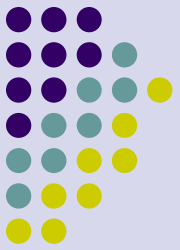


# DataBase

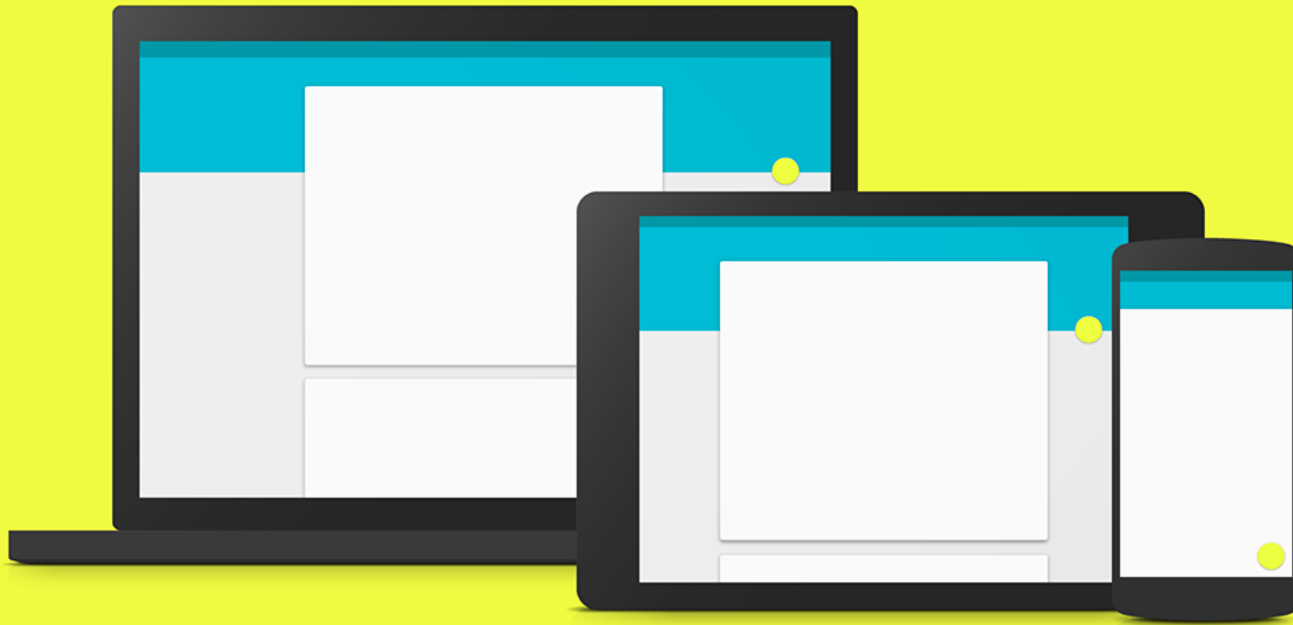
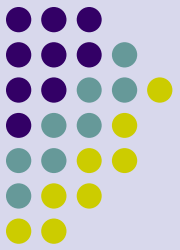
- Use system **MediaStore** database

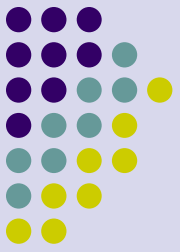


# Structure



# Material Design



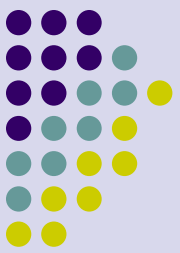


# Principles

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- Material is the metaphor
- Bold, graphic, intentional
- Motion provides meaning

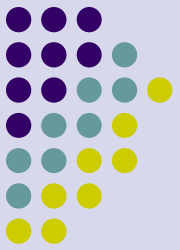




# Material Design

---

- A new theme
- New widgets for complex views
- New APIs for custom shadows and animations



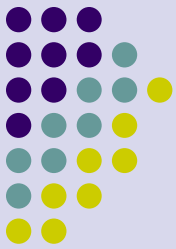
# Material Theme

A smartphone screen displaying the 'Material Dark' theme. The status bar at the top shows the time as 9:46. The app title 'Material Dark' is in the top header. Below it, there are input fields for 'First Name:' and 'Last Name:'. The 'Visit Type:' section has two radio buttons: 'Business' (selected) and 'Social'. At the bottom are 'CONTINUE' and 'CANCEL' buttons.

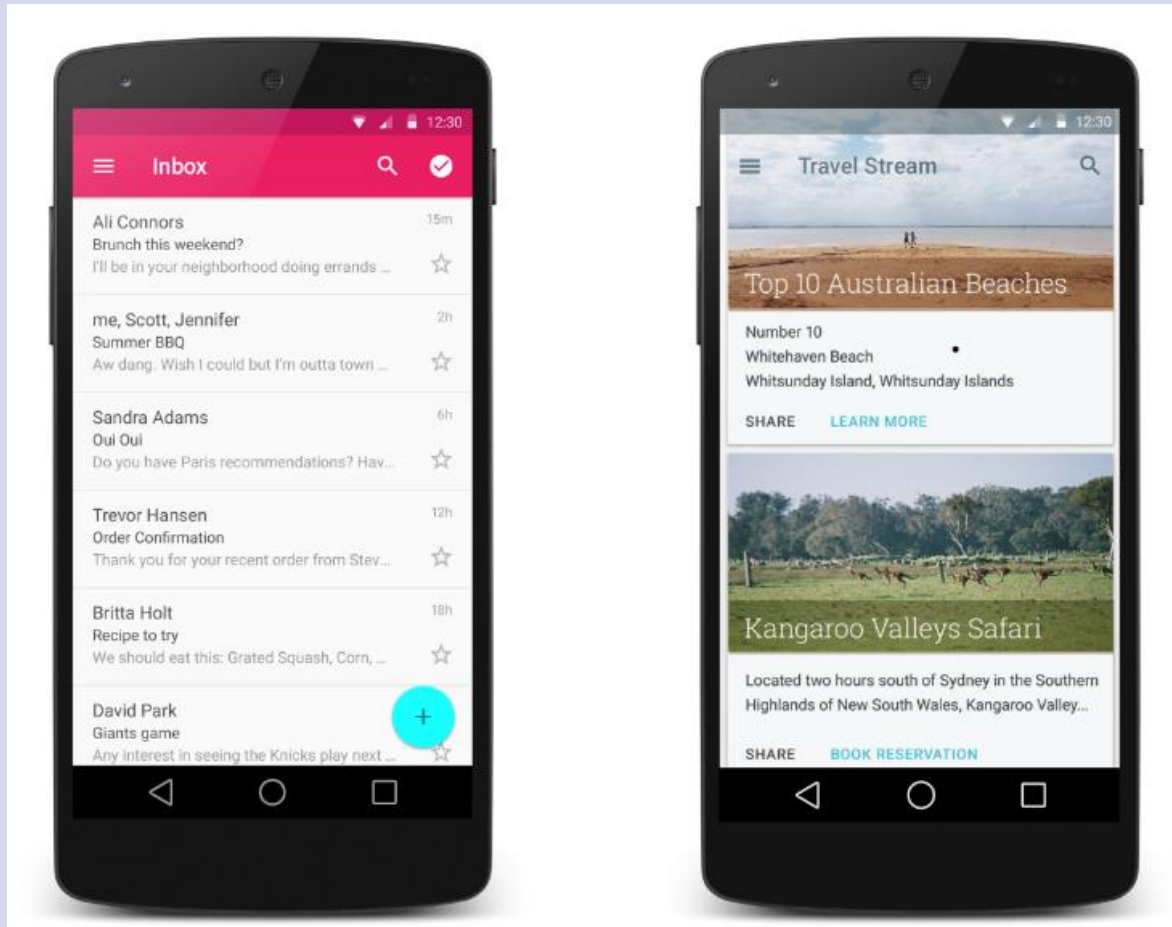
Dark material theme

A smartphone screen displaying the 'Material Light' theme. The status bar at the top shows the time as 9:48. The app title 'Material Light' is in the top header. Below it, there are input fields for 'First Name:' and 'Last Name:'. The 'Visit Type:' section has two radio buttons: 'Business' (selected) and 'Social'. At the bottom are 'CONTINUE' and 'CANCEL' buttons.

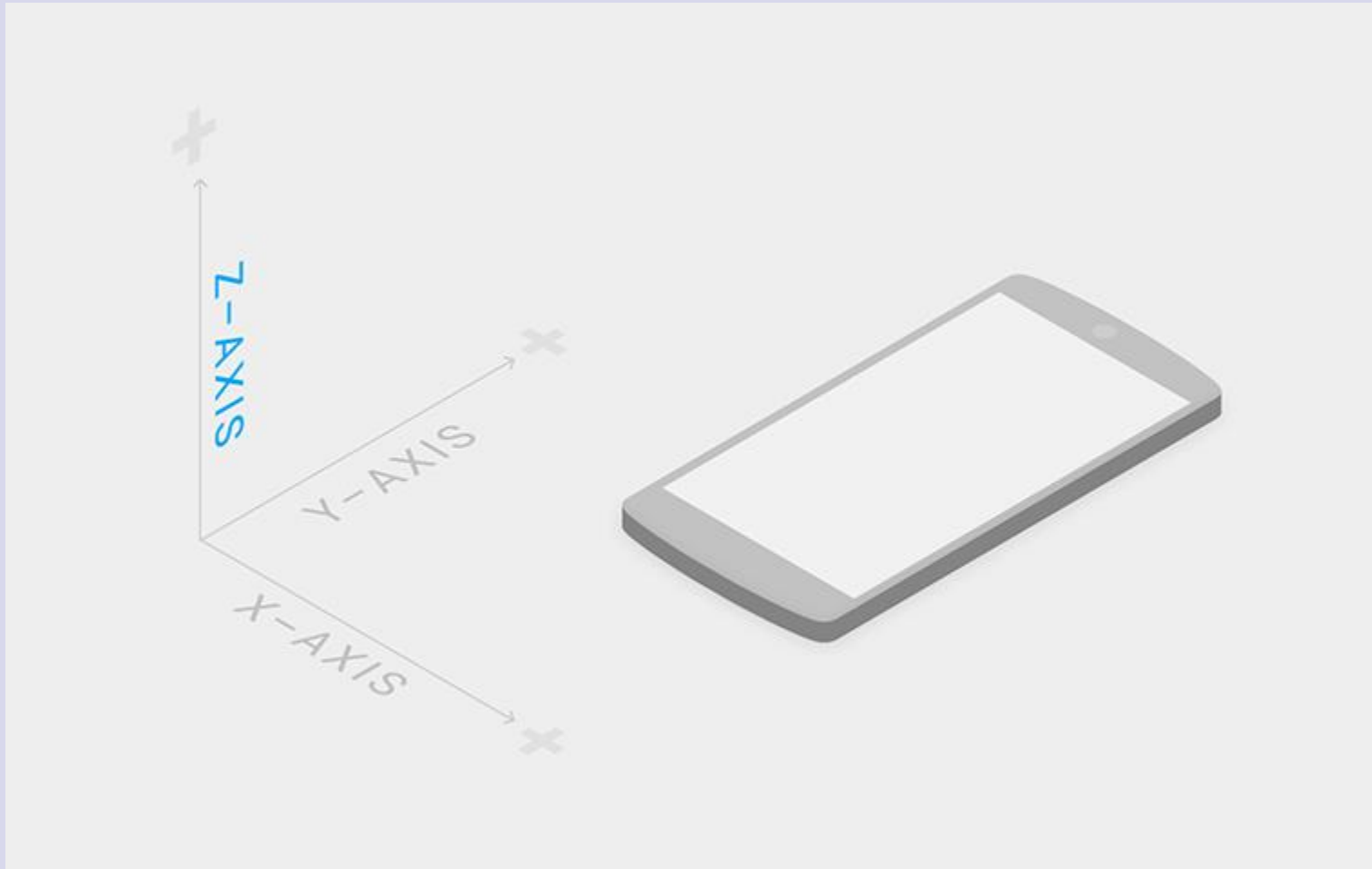
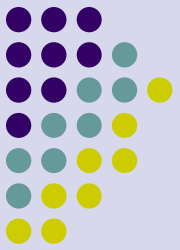
Light material theme

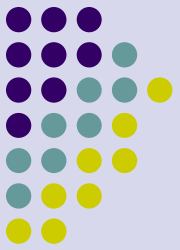


# Lists and Cards

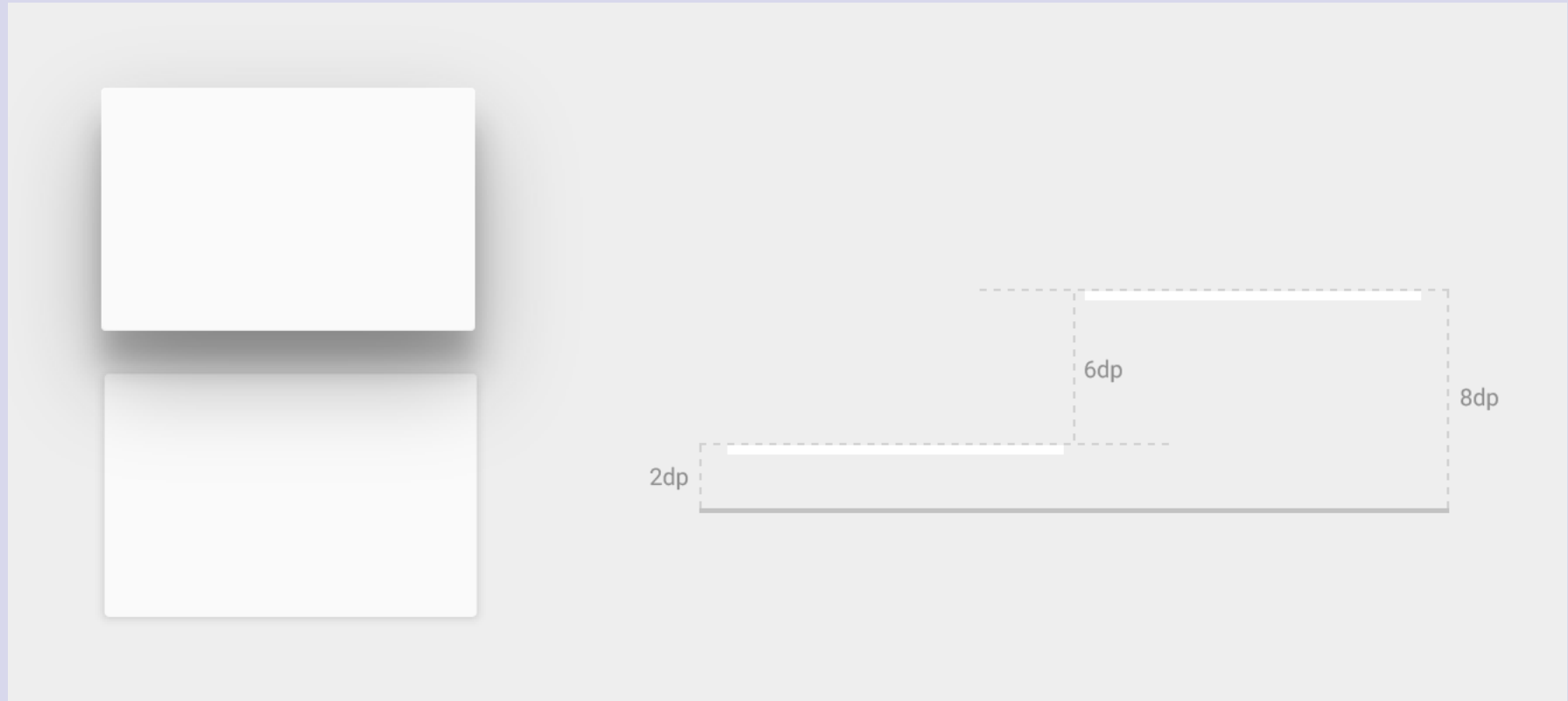


# Z-order

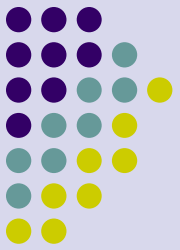




# View Shadows

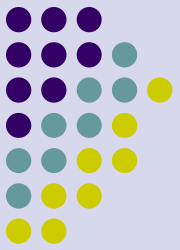


$Z = \text{elevation} + \text{translationZ}$



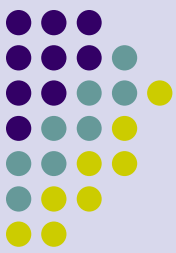
# Elevation in Views

```
<TextView  
    android:id="@+id/my_textview"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="@string/next"  
    android:background="@color/white"  
    android:elevation="5dp" />
```



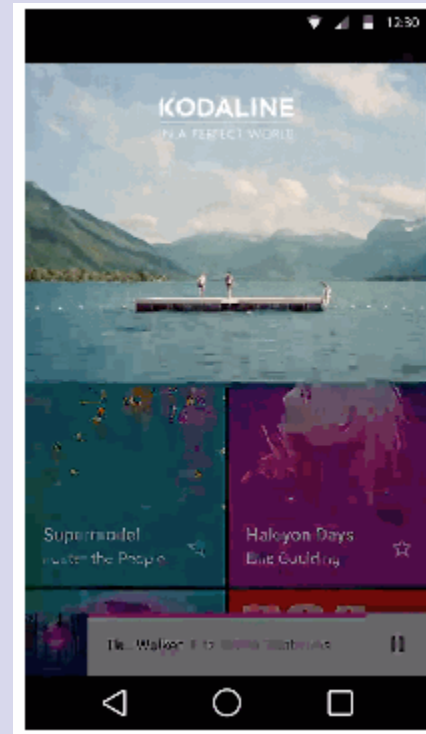
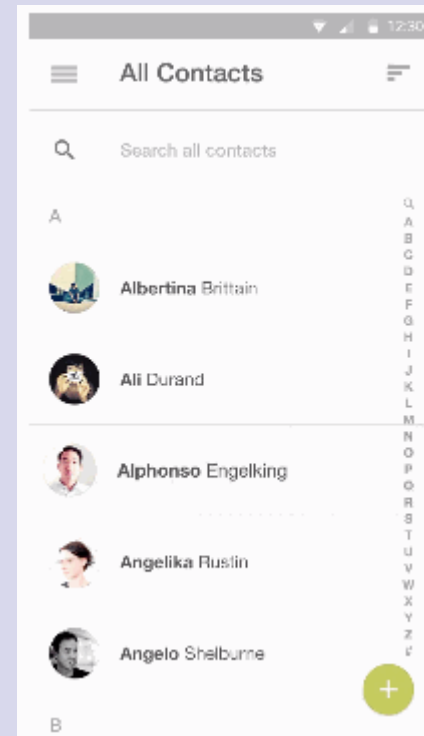
# Background in Views

```
<!-- res/drawable/myrect.xml -->
<shape
xmlns:android="http://schemas.android.com
/apk/res/android"
    android:shape="rectangle">
    <solid android:color="#42000000" />
    <corners android:radius="5dp" />
</shape>
```

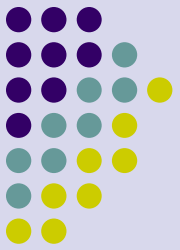


# Animation

- touch feedback
- circular reveal
- activity transition
- curved motion.
- view state change
- state list drawables



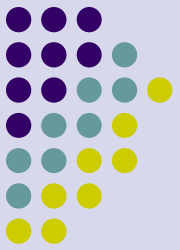




# Drawables

---

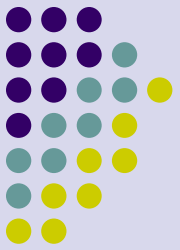
- Drawable tinting
- Prominent color extraction
- Vector drawables



# Tint Drawable Resources

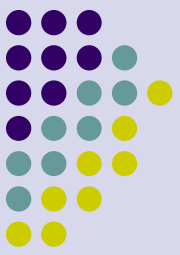
- Drawables defined as alpha masks
- Tint with color resources
- Tint with theme attributes

# Extract Prominent Colors from an Image



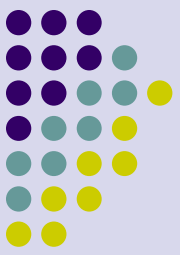
- Use palette class:
  - Vibrant
  - Vibrant dark
  - Vibrant light
  - Muted
  - Muted dark
  - Muted light

```
dependencies {  
    ...  
    compile 'com.android.support:palette-v7:21.0.0'  
}
```



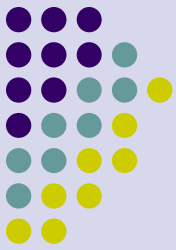
# Prepare icons

- Icons sizes
- xxhdpi -- 5.0 1080p (2k or 4k also in this)
- xhdpi – 4.7 720p



# Prepare icons

- Drawable
  - For bitmap files (PNG, JPEG, or GIF), 9-Patch image files, and XML files that describe Drawable shapes or Drawable objects that contain multiple states (normal, pressed, or focused).
- Mipmap
  - For app launcher icons. The Android system retains the resources in this folder (and density-specific folders such as mipmap-xxxhdpi) regardless of the screen resolution of the device where your app is installed.

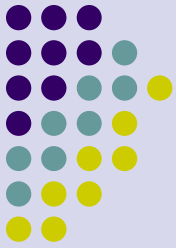


# Prepare Colors

- **colorPrimary**
- **colorPrimaryDark**
- **colorAccent**

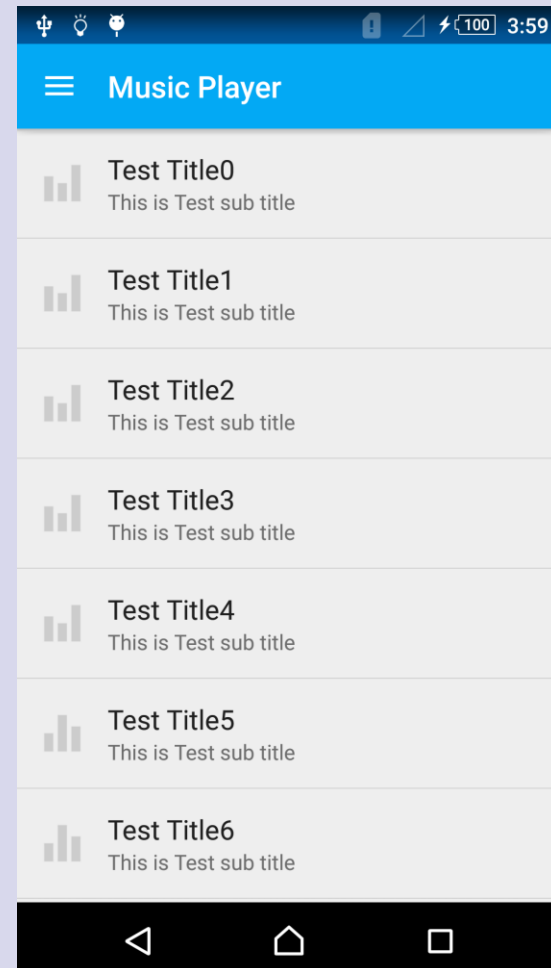
<https://www.google.com/design/spec/style/color.html#color-color-palette>

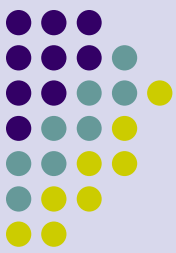
Light Blue	
500	#03A9F4
50	#E1F5FE
100	#B3E5FC
200	#81D4FA
300	#4FC3F7
400	#29B6F6
500	#03A9F4
600	#039BE5
700	#0288D1
800	#0277BD
900	#01579B



# Build Project UI

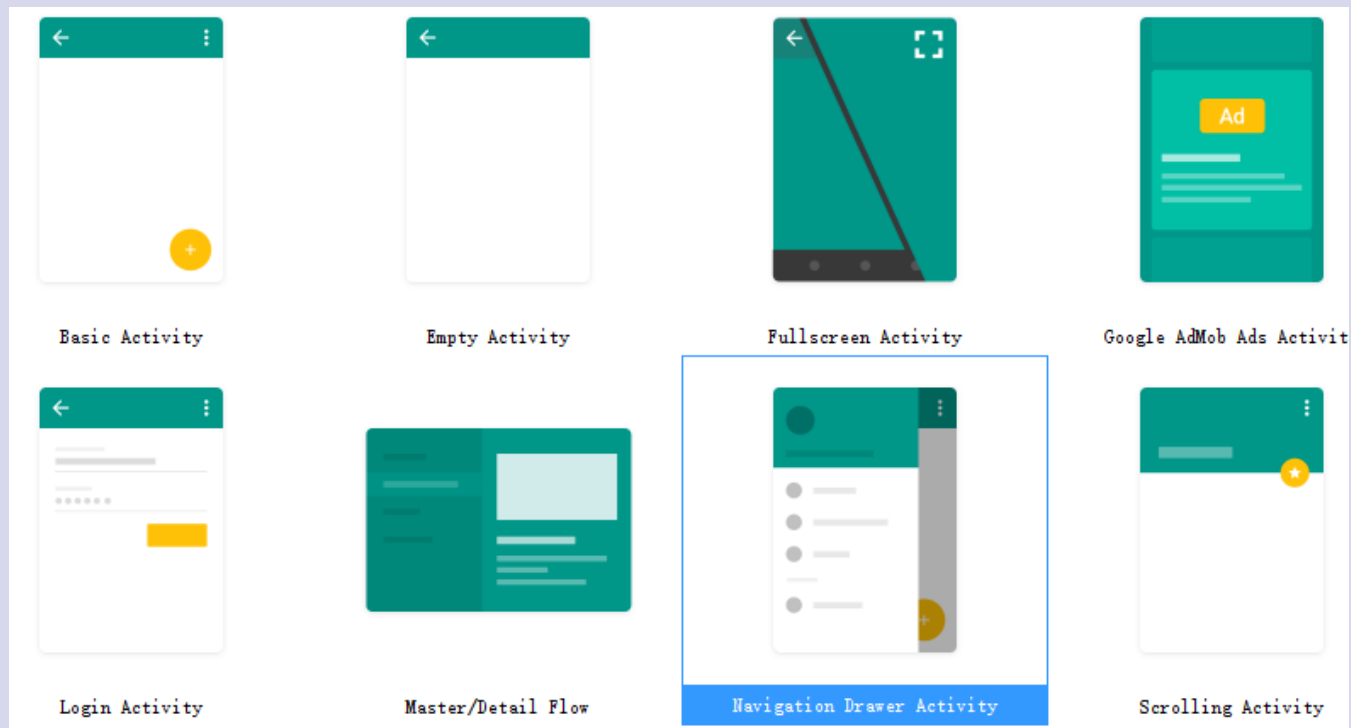
- Action Bar
- Drawer Layout
- Music List



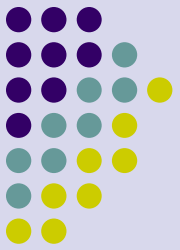


# Create Project

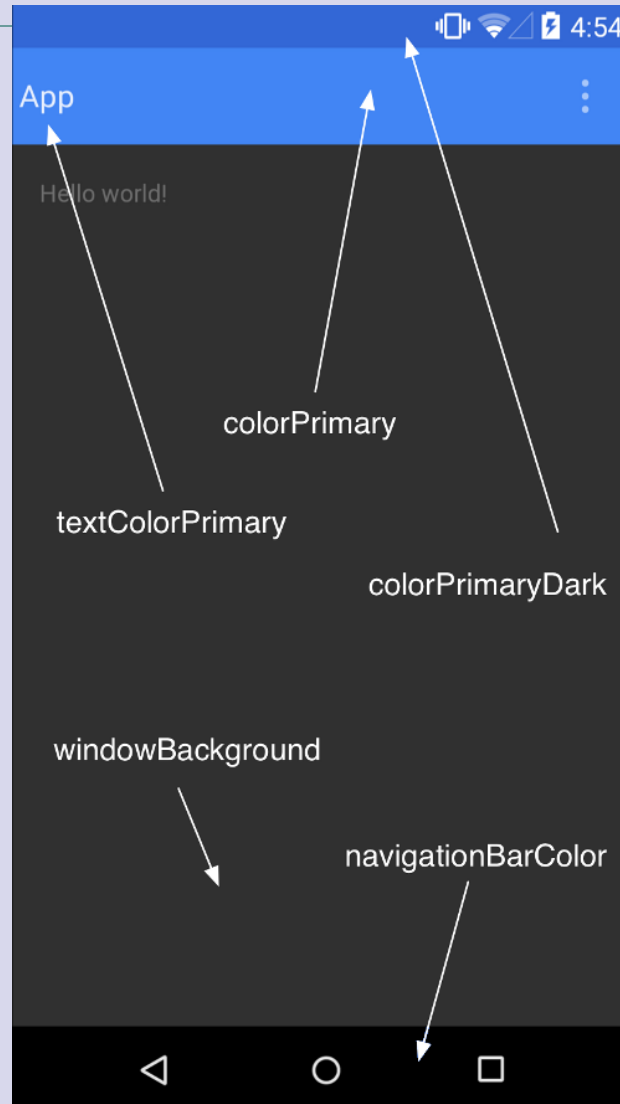
- Add an Activity to Mobile
  - Navigation Drawer Activity

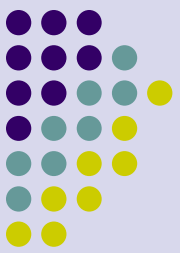






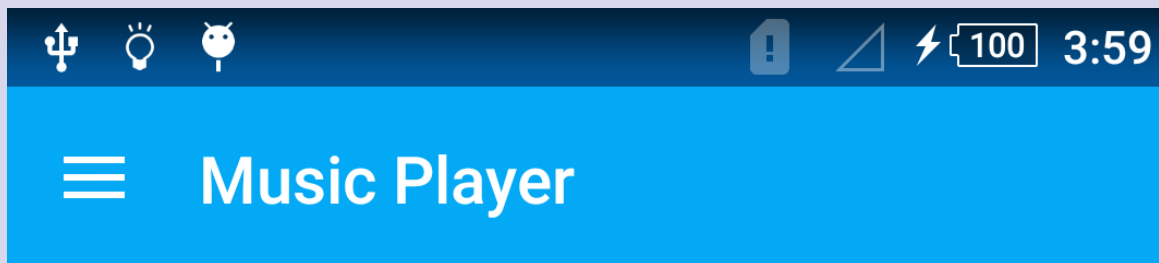
# Status bar



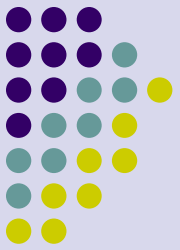


# Status bar

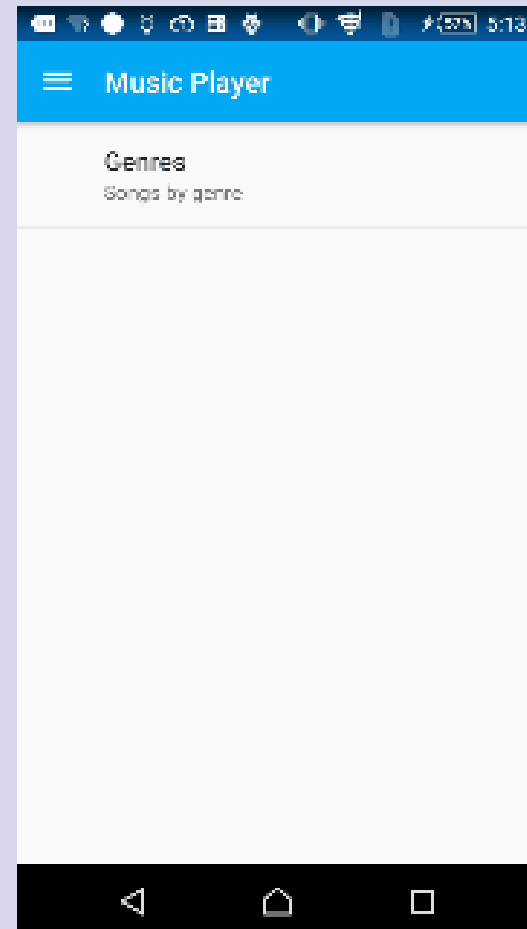
- ActionBar
  - Theme : set noActionBar
- Add ToolBar

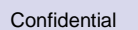


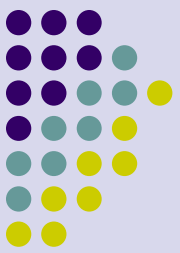
# DrawerLayout



- appcompat-v7
- Use Toolbar



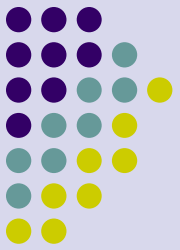




# Get Music Data

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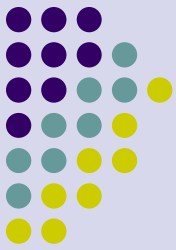
- MediaStore
- Add Permission for external storage read



# BrowserAdapter

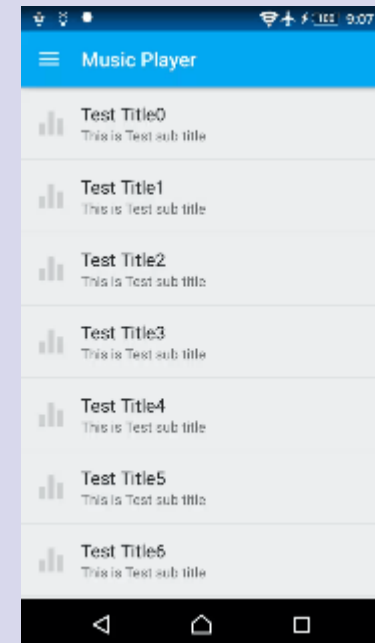
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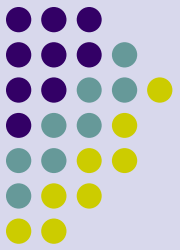
- Create View Holder
- Item layout



# Playing Animation

- Frame animation





# Thanks