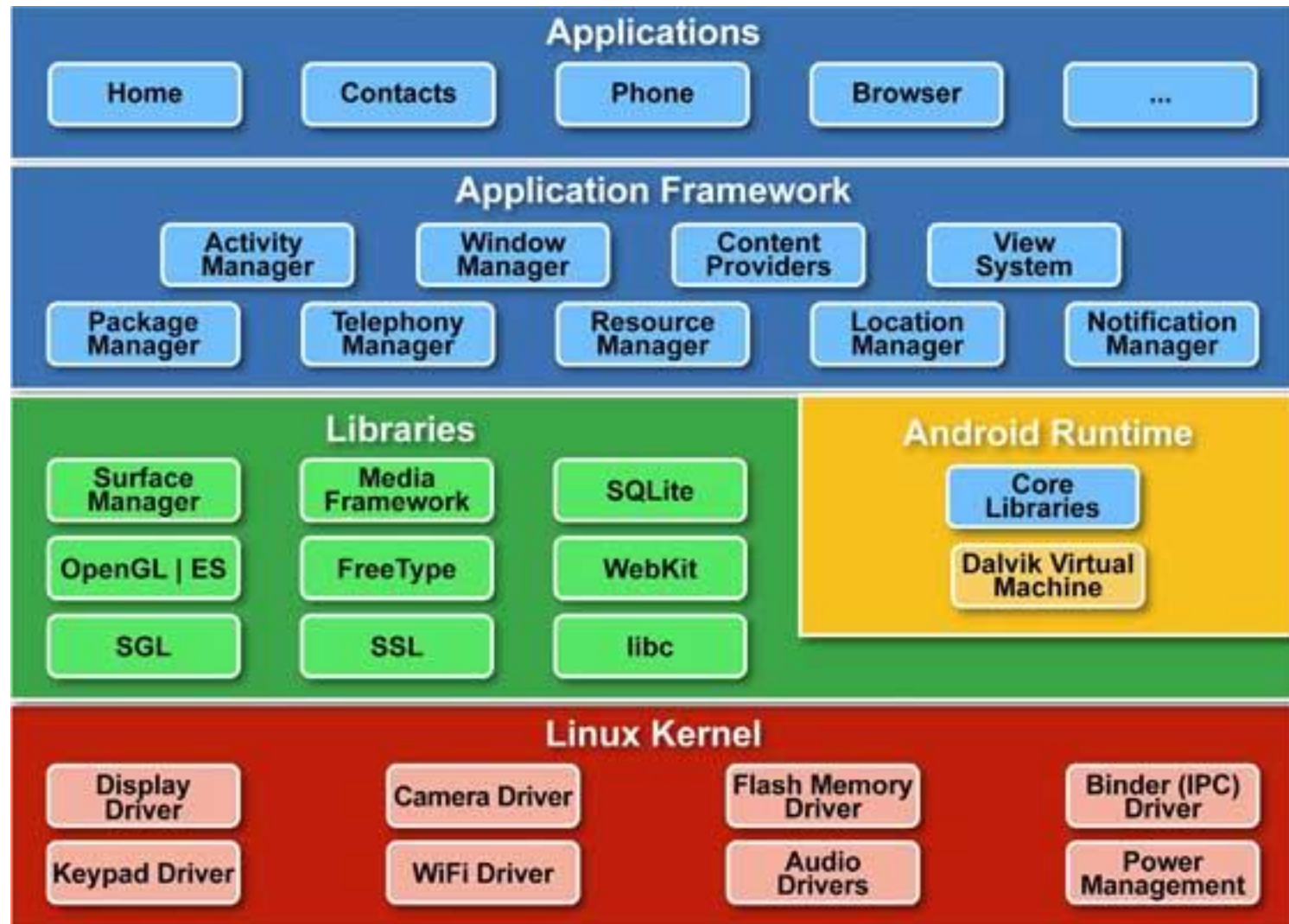


Introduction To Android

Android Architecture, Android App Structure

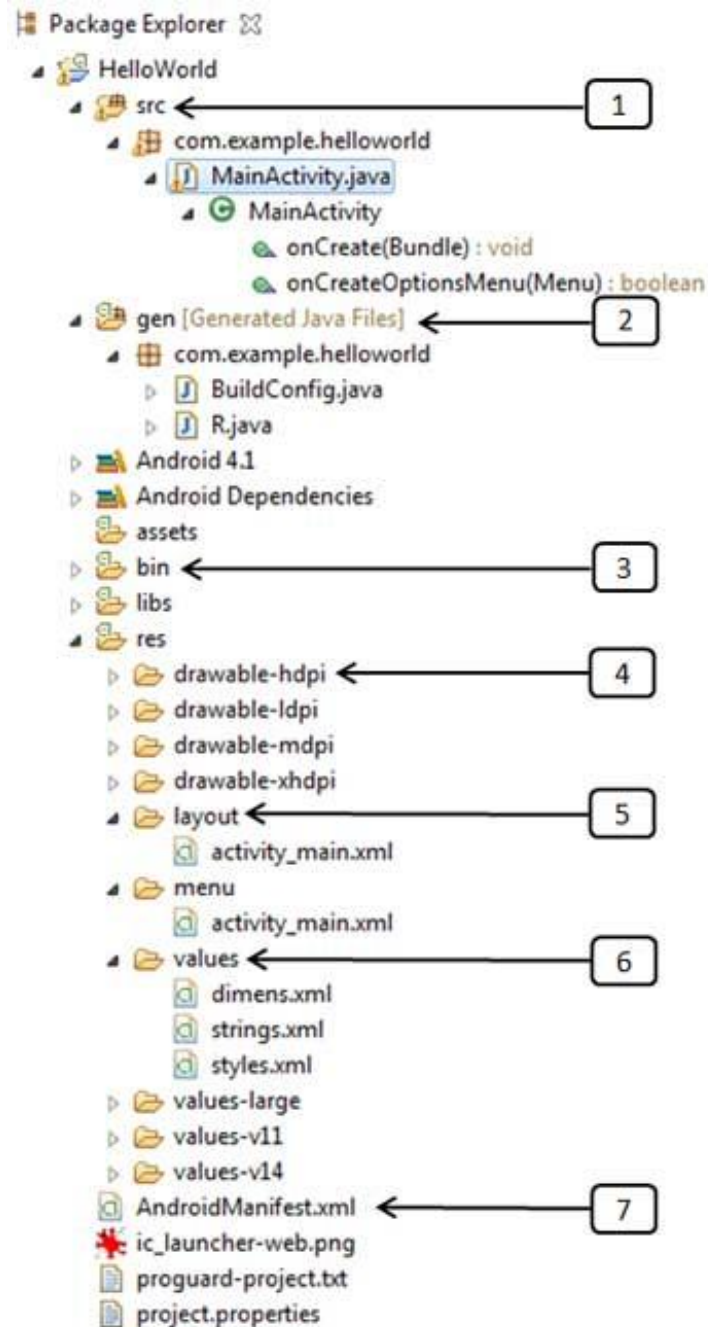
Android Architecture



Application Components

Components	Description
Activities	They dictate the UI and handle the user interaction to the smartphone screen
Services	They handle background processing associated with an application.
Broadcast Receivers	They handle communication between Android OS and applications.
Content Providers	They handle data and database management issues.

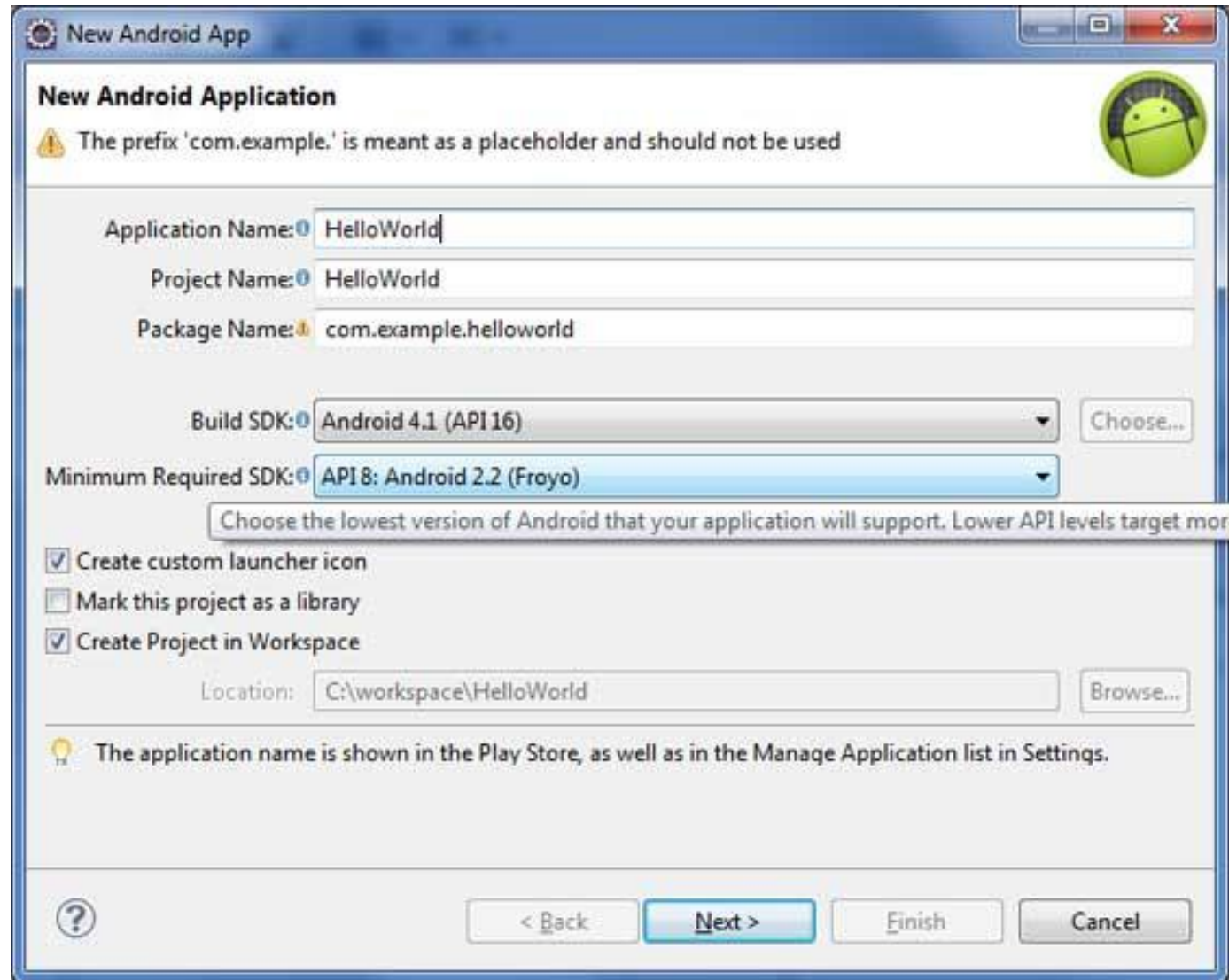
Application Structure



Application Folders/Files

١	<p>src</p> <p>This contains the .java source files for your project. By default, it includes an MainActivity.java source file having an activity class that runs when your app is launched using the app icon.</p>
٢	<p>gen</p> <p>This contains the .R file, a compiler-generated file that references all the resources found in your project. You should not modify this file.</p>
٣	<p>bin</p> <p>This folder contains the Android package files .apk built by the ADT during the build process and everything else needed to run an Android application.</p>
٤	<p>res/drawable-hdpi</p> <p>This is a directory for drawable objects that are designed for high-density screens.</p>
٥	<p>res/layout</p> <p>This is a directory for files that define your app's user interface.</p>
٦	<p>res/values</p> <p>This is a directory for other various XML files that contain a collection of resources, such as strings and colors definitions.</p>
٧	<p>AndroidManifest.xml</p> <p>This is the manifest file which describes the fundamental characteristics of the app and defines each of its components.</p>

Creating New Application in Eclipse



The screenshot shows the 'New Android App' dialog box in the Eclipse IDE. The dialog has a title bar with the text 'New Android App' and standard window controls. Inside, the title 'New Android Application' is followed by a warning icon and text: 'The prefix 'com.example.' is meant as a placeholder and should not be used'. A green Android robot icon is in the top right corner. The form contains several fields: 'Application Name' with 'HelloWorld', 'Project Name' with 'HelloWorld', and 'Package Name' with 'com.example.helloworld'. Below these are 'Build SDK' set to 'Android 4.1 (API 16)' and 'Minimum Required SDK' set to 'API8: Android 2.2 (Froyo)'. A tooltip for the Minimum Required SDK field reads: 'Choose the lowest version of Android that your application will support. Lower API levels target more...'. There are three checkboxes: 'Create custom launcher icon' (checked), 'Mark this project as a library' (unchecked), and 'Create Project in Workspace' (checked). The 'Location' field shows 'C:\workspace\HelloWorld' with a 'Browse...' button. At the bottom, a lightbulb icon and text state: 'The application name is shown in the Play Store, as well as in the Manage Application list in Settings.' The bottom of the dialog features a help icon, a '< Back' button, a 'Next >' button (highlighted in blue), a 'Finish' button, and a 'Cancel' button.

New Android App

New Android Application

⚠ The prefix 'com.example.' is meant as a placeholder and should not be used

Application Name: HelloWorld

Project Name: HelloWorld

Package Name: com.example.helloworld

Build SDK: Android 4.1 (API 16) Choose...

Minimum Required SDK: API8: Android 2.2 (Froyo)

Choose the lowest version of Android that your application will support. Lower API levels target more...

☒ Create custom launcher icon

☐ Mark this project as a library

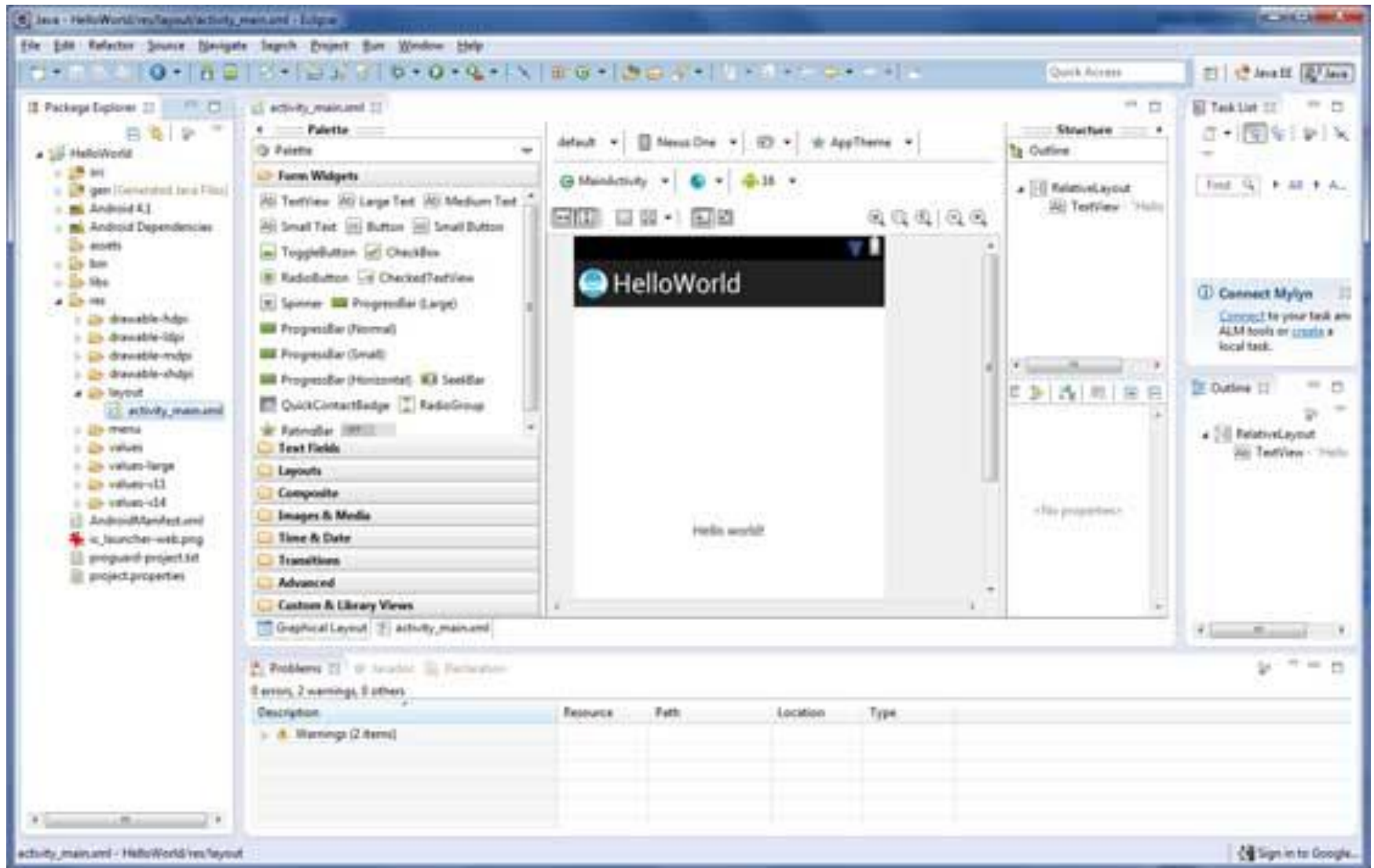
☒ Create Project in Workspace

Location: C:\workspace\HelloWorld Browse...

💡 The application name is shown in the Play Store, as well as in the Manage Application list in Settings.

? < Back Next > Finish Cancel

Creating New Application in Eclipse



The Main Activity File

```
package com.example.helloworld;

import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.view.MenuItem;
import android.support.v4.app.NavUtils;

public class MainActivity extends Activity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.activity_main, menu);
        return true;
    }
}
```


The Manifest File

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.helloworld"
    android:versionCode="1"
    android:versionName="1.0" >
    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="15" />
    <application
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name=".MainActivity"
            android:label="@string/title_activity_main" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER"/>
            </intent-filter>
        </activity>
    </application>
</manifest>
```

The String Resource File

```
<resources>
  <string name="app_name">HelloWorld</string>
  <string name="hello_world">Hello world!</string>
  <string name="menu_settings">Settings</string>
  <string name="title_activity_main">MainActivity</string>
</resources>
```

The Layout File

```
<RelativeLayout 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:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context=".MainActivity">
```

```
    <TextView android:text="@string/hello_world"
        android:id="@+id/txt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />
</RelativeLayout>
```