Replacing the Action Bar

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In this article

Overview

One of the most common uses for the `Toolbar` is to replace the default action bar with a custom `Toolbar` (when a new Android project is created, it uses the default action bar). Because the `Toolbar` provides the ability to add branded logos, titles, menu items, navigation buttons, and even custom views to the app bar section of an Activity's UI, it offers a significant upgrade over the default action bar.

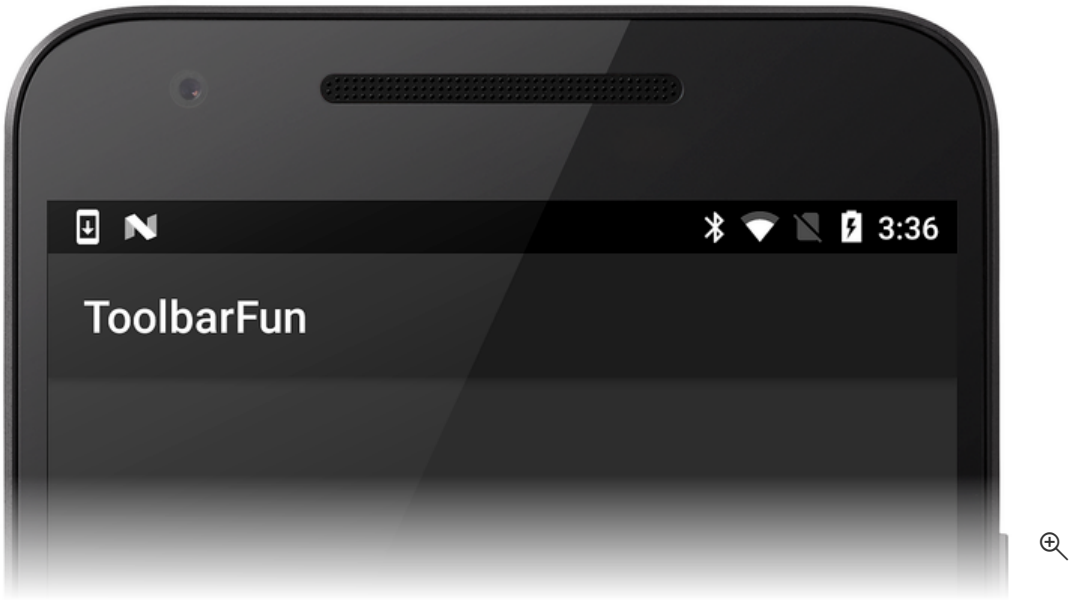
To replace an app's default action bar with a `Toolbar`:

1. Create a new custom theme and modify the app's properties so that it uses this new theme.
2. Disable the `windowActionBar` attribute in the custom theme and enable the `windowNoTitle` attribute.
3. Define a layout for the `Toolbar`.
4. Include the `Toolbar` layout in the Activity's **Main.axml** layout file.
5. Add code to the Activity's `OnCreate` method to locate the `Toolbar` and call `SetActionBar` to install the `ToolBar` as the action bar.

The following sections explain this process in detail. A simple app is created and its action bar is replaced with a customized `Toolbar`.

Start an App Project

Create a new Android project called **ToolbarFun** (see Hello, Android for more information about creating a new Android project). After this project is created, set the target and minimum Android API levels to **Android 5.0 (API Level 21 - Lollipop)** or later. For more information about setting Android version levels, see Understanding Android API Levels. When the app is built and run, it displays the default action bar as seen in this screenshot:



Create a Custom Theme

Open the **Resources/values** directory and a create a new file called **styles.xml**. Replace its contents with the following XML:

XML Copy

```xml
<?xml version="1.0" encoding="utf-8" ?>
<resources>
  <style name="MyTheme" parent="@android:style/Theme.Material.Light.DarkActionBar">
    <item name="android:windowNoTitle">true</item>
    <item name="android:windowActionBar">false</item>
    <item name="android:colorPrimary">#5A8622</item>
  </style>
</resources>
```

This XML defines a new custom theme called **MyTheme** that is based on the **Theme.Material.Light.DarkActionBar** theme in Lollipop. The `windowNoTitle` attribute is set to `true` to hide the title bar:

XML Copy

```xml
<item name="android:windowNoTitle">true</item>
```

To display the custom toolbar, the default `ActionBar` must be disabled:

XML Copy

```xml
<item name="android:windowActionBar">false</item>
```

An olive-green `colorPrimary` setting is used for the background color of the toolbar:

XML Copy

```xml
<item name="android:colorPrimary">#5A8622</item>
```

Apply the Custom Theme

Edit **Properties/AndroidManifest.xml** and add the following `android:theme` attribute to the `<application>` element so that the app uses the `MyTheme` custom theme:

XML Copy

```xml
<application android:label="@string/app_name" android:theme="@style/MyTheme"></application>
```

For more information about applying a custom theme to an app, see Using Custom Themes.

Define a Toolbar Layout

In the **Resources/layout** directory, create a new file called **toolbar.xml**. Replace its contents with the following XML:

XML Copy

```xml
<?xml version="1.0" encoding="utf-8"?>
<Toolbar xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/toolbar"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:minHeight="?android:attr/actionBarSize"
    android:background="?android:attr/colorPrimary"
    android:theme="@android:style/ThemeOverlay.Material.Dark.ActionBar"/>
```

This XML defines the custom `Toolbar` that replaces the default action bar. The minimum height of the `Toolbar` is set to the size of the action bar that it replaces:

C# Copy

```
android:minHeight="?android:attr/actionBarSize"
```

The background color of the `Toolbar` is set to the olive-green color defined earlier in **styles.xml**:

C# Copy

```
android:background="?android:attr/colorPrimary"
```

Beginning with Lollipop, the `android:theme` attribute can be used to style an individual view. The `ThemeOverlay.Material` themes introduced in Lollipop make it possible to overlay the default `Theme.Material` themes, overwriting relevant attributes to make them either light or dark. In this example, the `Toolbar` uses a dark theme so that its contents are light in color:

C# Copy

```
android:theme="@android:style/ThemeOverlay.Material.Dark.ActionBar"
```

This setting is used so that menu items contrast with the darker background color.

Include the Toolbar Layout

Edit the layout file **Resources/layout/Main.axml** and replace its contents with the following XML:

XML Copy

```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="match_parent">
    <include
        android:id="@+id/toolbar"
        layout="@layout/toolbar" />
</RelativeLayout>
```

This layout includes the `Toolbar` defined in **toolbar.xml** and uses a `RelativeLayout` to specify that the `Toolbar` is to be placed at the very top of the UI (above the button).

Find and Activate the Toolbar

Edit **MainActivity.cs** and add the following using statement:

C# Copy

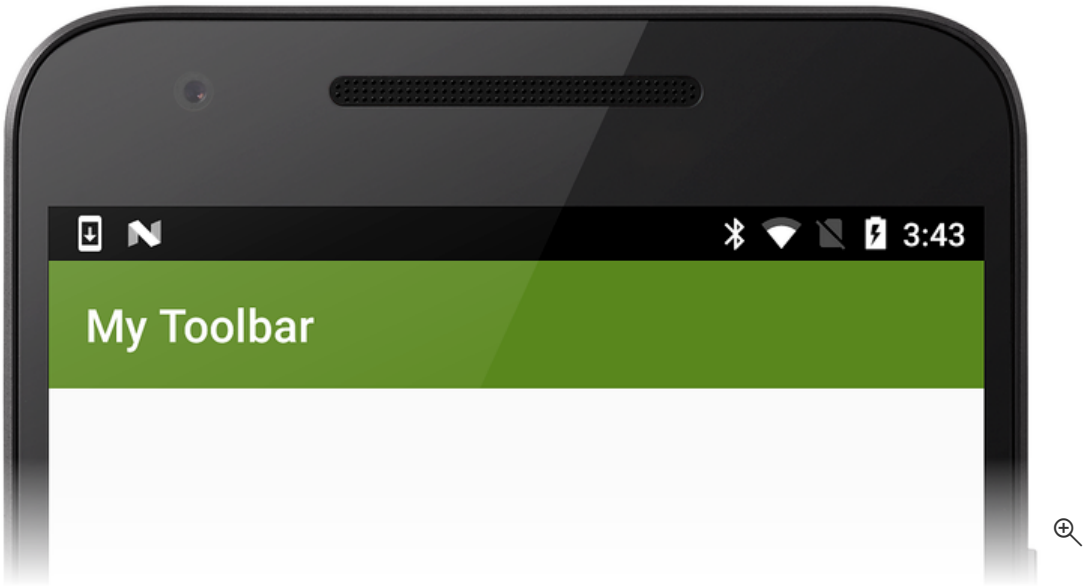
```
using Android.Views;
```

Also, add the following lines of code to the end of the `OnCreate` method:

C# Copy

```
var toolbar = FindViewById<Toolbar>(Resource.Id.toolbar);
SetActionBar(toolbar);
ActionBar.Title = "My Toolbar";
```

This code finds the `Toolbar` and calls `SetActionBar` so that the `Toolbar` will take on default action bar characteristics. The title of the Toolbar is changed to **My Toolbar**. As seen in this code example, the `ToolBar` can be directly referenced as an action bar. Compile and run this app – the customized `Toolbar` is displayed in place of the default action bar:



Notice that the `Toolbar` is styled independently of the `Theme.Material.Light.DarkActionBar` theme that is applied to the remainder of the app.

If an exception occurs while running the app, see the Troubleshooting section below.

Add Menu Items

In this section, menus are added to the `Toolbar`. The upper right area of the `ToolBar` is reserved for menu items – each menu item (also called an *action item*) can perform an action within the current activity or it can perform an action on behalf of the entire app.

To add menus to the `Toolbar`:

1. Add menu icons (if required) to the `mipmap-` folders of the app project. Google provides a set of free menu icons on the Material icons page.
2. Define the contents of the menu items by adding a new menu resource file under **Resources/menu**.

3. Implement the `OnCreateOptionsMenu` method of the Activity – this method inflates the menu items.
4. Implement the `OnOptionsItemSelected` method of the Activity – this method performs an action when a menu item is tapped.

The following sections demonstrate this process in detail by adding **Edit** and **Save** menu items to the customized `Toolbar`.

Install Menu Icons

Continuing with the `ToolbarFun` example app, add menu icons to the app project. Download toolbar icons, unzip, and copy the contents of the extracted *mipmap-* folders to the project *mipmap-* folders under **ToolbarFun/Resources** and include each added icon file in the project.

Define a Menu Resource

Create a new **menu** subdirectory under **Resources**. In the **menu** subdirectory, create a new menu resource file called **top_menus.xml** and replace its contents with the following XML:

XML Copy

```
<?xml version="1.0" encoding="utf-8" ?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
  <item
       android:id="@+id/menu_edit"
       android:icon="@mipmap/ic_action_content_create"
       android:showAsAction="ifRoom"
       android:title="Edit" />
  <item
       android:id="@+id/menu_save"
       android:icon="@mipmap/ic_action_content_save"
       android:showAsAction="ifRoom"
       android:title="Save" />
  <item
       android:id="@+id/menu_preferences"
       android:showAsAction="never"
       android:title="Preferences" />
</menu>
```

This XML creates three menu items:

- An **Edit** menu item that uses the `ic_action_content_create.png` icon (a pencil).
- A **Save** menu item that uses the `ic_action_content_save.png` icon (a diskette).
- A **Preferences** menu item that does not have an icon.

The `showAsAction` attributes of the **Edit** and **Save** menu items are set to `ifRoom` – this setting causes these menu items to appear in the `Toolbar` if there is sufficient room for them to be displayed. The **Preferences** menu item sets `showAsAction` to `never` – this causes the **Preferences** menu to appear in the *overflow* menu (three vertical dots).

Implement OnCreateOptionsMenu

Add the following method to **MainActivity.cs**:

C# Copy

```
public override bool OnCreateOptionsMenu(IMenu menu)
{
    MenuInflater.Inflate(Resource.Menu.top_menus, menu);
    return base.OnCreateOptionsMenu(menu);
}
```

Android calls the `OnCreateOptionsMenu` method so that the app can specify the menu resource for an activity. In this method, the **top_menus.xml** resource is inflated into the passed `menu`. This code causes the new **Edit**, **Save**, and **Preferences** menu items to appear in the `Toolbar`.

Implement OnOptionsItemSelected

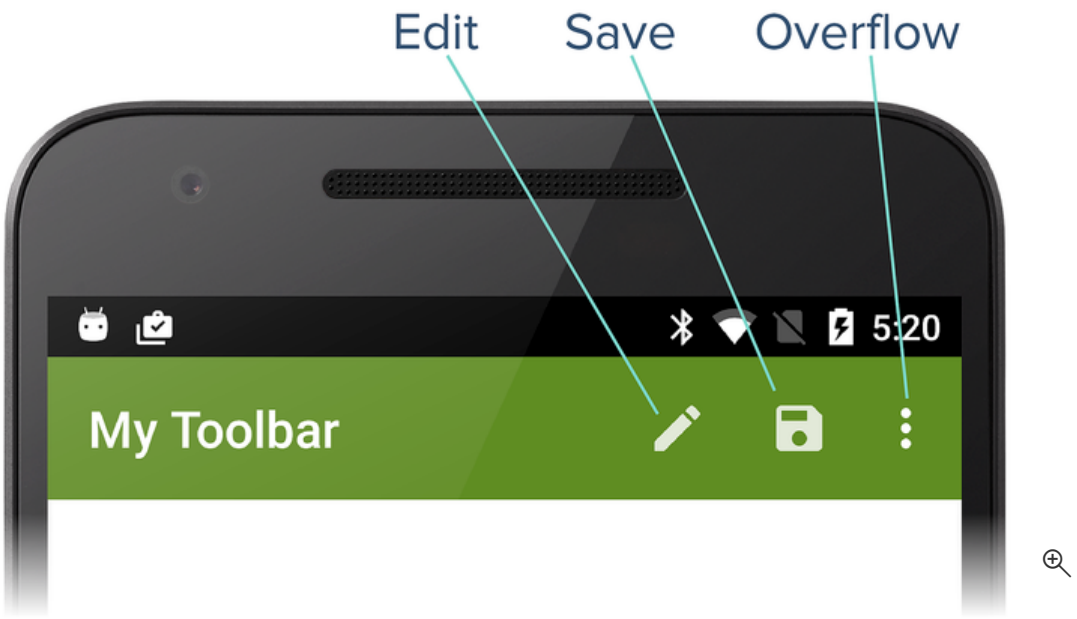
Add the following method to **MainActivity.cs**:

C# Copy

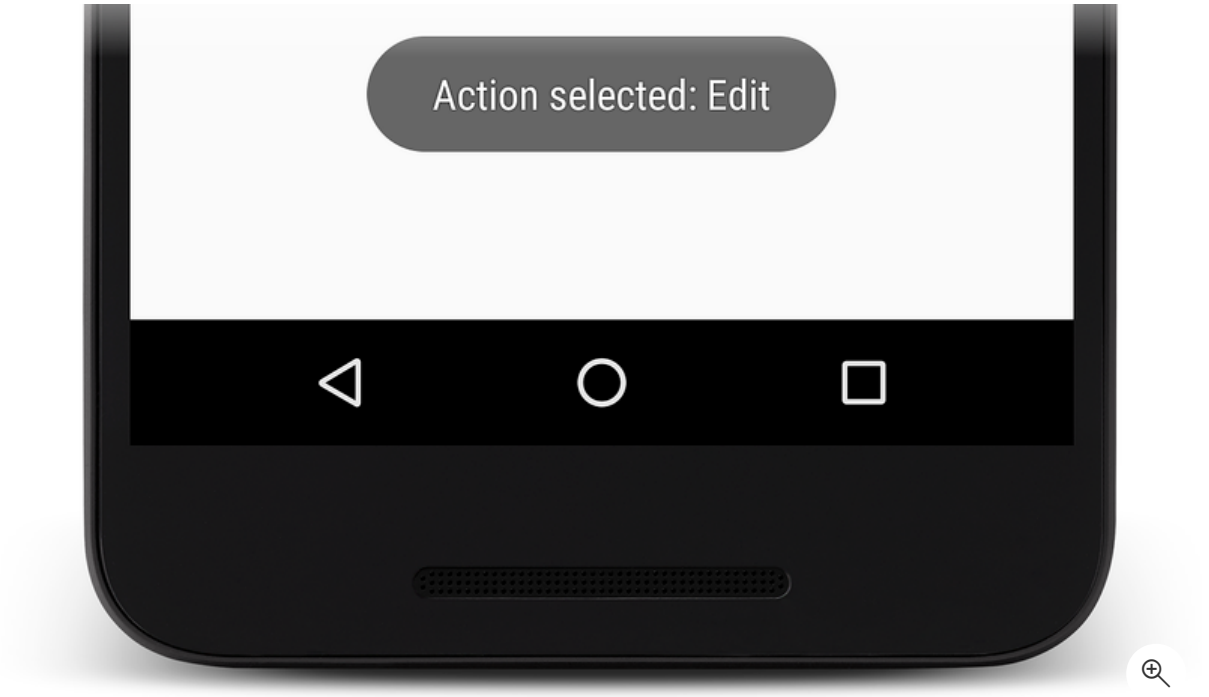
```
public override bool OnOptionsItemSelected(IMenuItem item)
{
    Toast.MakeText(this, "Action selected: " + item.TitleFormatted,
        ToastLength.Short).Show();
    return base.OnOptionsItemSelected(item);
}
```

When a user taps a menu item, Android calls the `OnOptionsItemSelected` method and passes in the menu item that was selected. In this example, the implementation just displays a toast to indicate which menu item was tapped.

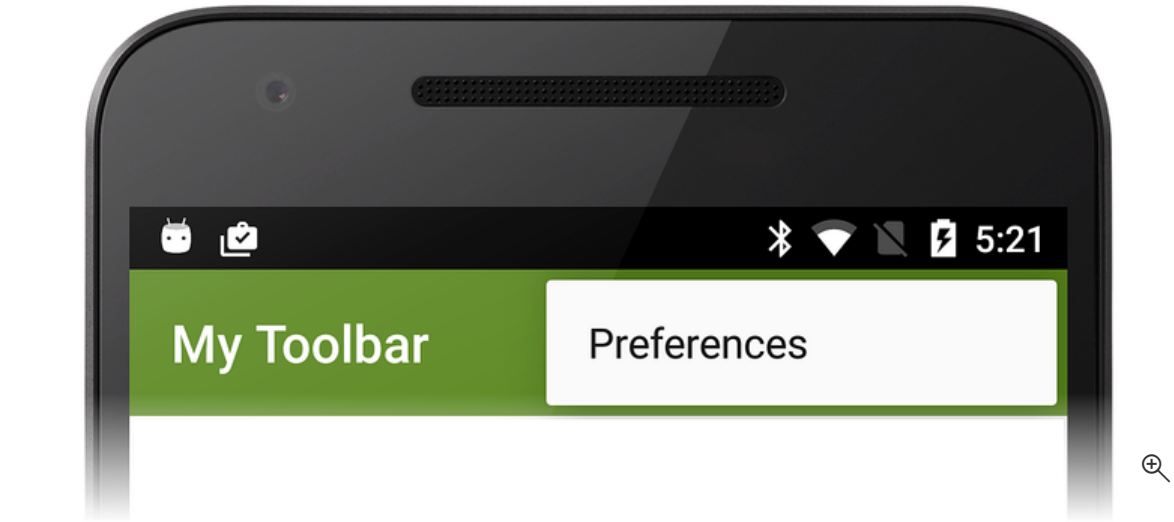
Build and run `ToolbarFun` to see the new menu items in the toolbar. The `Toolbar` now displays three menu icons as seen in this screenshot:



When a user taps the **Edit** menu item, a toast is displayed to indicate that the `OnOptionsItemSelected` method was called:



When a user taps the overflow menu, the **Preferences** menu item is displayed. Typically, less-common actions should be placed in the overflow menu – this example uses the overflow menu for **Preferences** because it is not used as often as **Edit** and **Save**:



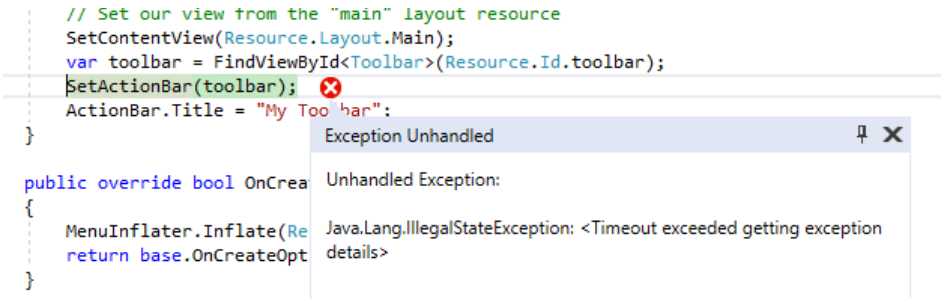
For more information about Android menus, see the Android Developer Menus topic.

Troubleshooting

The following tips can help to debug problems that may occur while replacing the action bar with a toolbar.

Activity Already Has an Action Bar

If the app is not properly configured to use a custom theme as explained in Apply the Custom Theme, the following exception may occur while running the app:



In addition, an error message such as the following may be produced: *Java.Lang.IllegalStateException: This Activity already has an action bar supplied by the window decor.*

To correct this error, verify that the `android:theme` attribute for the custom theme is added to `<application>` (in **Properties/AndroidManifest.xml**) as described earlier in Apply the Custom Theme. In addition, this error may be caused if the `Toolbar` layout or custom theme is not configured properly.

Related Links

- Lollipop Toolbar (sample)
- AppCompat Toolbar (sample)