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Android Dialog Boxes

AlertDialog - Toast

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Notes are based on:
Android Developers
http://developer.android.com/index.html

The DialogBox

Android provides two primitive forms of dialog boxes:

1. **AlertDialog** boxes, and
2. **Toast**s

An *AlertDialog* shows a floating screen and waits for the user to click on a button to be dismissed.

A *Toast* briefly displays a message (about 2-3 sec.) and quietly disappears.

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The AlertDialog

The *AlertDialog* is an almost modal screen that

(1) presents a brief message to the user typically shown as a small floating window that partially obscures the underlying view, and

(2) collects a simple answer (usually by clicking an option button) .

Note:
A *modal* view remains on the screen waiting for user's input.
It is has to be dismissed by an explicit user's action.

The AlertDialog

Warning !!!

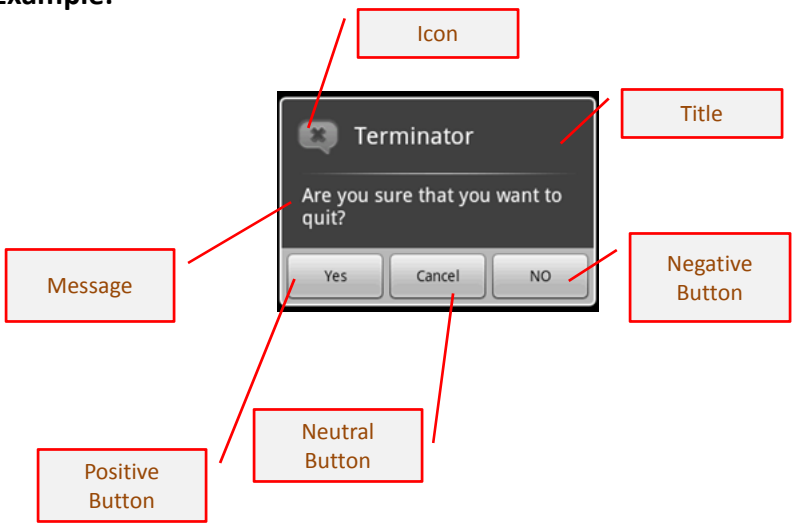
An *AlertDialog* is NOT a typical *inputBox* (as in .NET)

Why?

An *AlertDialog* box is modal as it needs user intervention to be terminated
HOWEVER
it *does not stop the main thread* (code following the call to show the *DialogAlert* box is executed without waiting for the user's input)

The AlertDialog

Example:

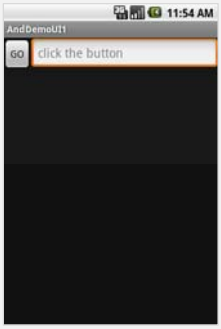


The AlertDialog

Example: A simple Dialog Box

```
<LinearLayout
    android:id="@+id/LinearLayout01"
android:layout_width="fill_parent"
android:layout_height="fill_parent"
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="horizontal">
<Button
   android:text="GO"
   android:id="@+id/btnGo"
   android:layout_width="wrap_content"
   android:layout_height="wrap_content">
 </Button>
 <EditText
   android:hint="click the button"
   android:id="@+id/txtMsg"
   android:layout_width="fill_parent"
   android:layout_height="wrap_content">
 </EditText>

</LinearLayout>
```



The AlertDialog

Example: A simple dialog box

```
package cis493.selectionwidgets;

import android.app.Activity;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;

public class AndDemoUI1 extends Activity {

  Button btnGo;
  EditText txtMsg;
  String msg;
```


The AlertDialog

Example: A simple dialog box

```
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
        txtMsg =  (EditText)findViewById(R.id.txtMsg);
        btnGo = (Button) findViewById(R.id.btnGo);
        btnGo.setOnClickListener(new OnClickListener() {
          @Override
          public void onClick(View arg0) {

              AlertDialog diaBox = createDialogBox();
              diaBox.show();

              // WARNING: (in general...)
              // after showing a dialog you should have NO more code. Let the buttons of
              // the dialog box handle the rest of the logic. For instance, in this
              // example a modal dialog box is displayed (once shown you can not do
              // anything to the parent until the child is closed) however the code in
              // the parent continues to execute after the show() method is
              // called.
              txtMsg.setText("I am here!");
          }
    });

    }//onCreate
```

The AlertDialog

Example: A simple dialog box


```
private AlertDialog createDialogBox(){

    AlertDialog myQuittingDialogBox =

       new AlertDialog.Builder(this)

       //set message, title, and icon
       .setTitle("Terminator")
       .setMessage("Are you sure that you want to quit?")
       .setIcon(R.drawable.ic_menu_end_conversation)

       //set three option buttons
       .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int whichButton) {
                 //whatever should be done when answering "YES" goes here
             msg = "YES " + Integer.toString(whichButton);
             txtMsg.setText(msg);
            }
       })//setPositiveButton
```


The AlertDialog

Example: A simple dialog box

```
       .setNeutralButton("Cancel",new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int whichButton) {
                    //whatever should be done when answering "CANCEL" goes here
             msg = "CANCEL " + Integer.toString(whichButton);
             txtMsg.setText(msg);
            }//OnClick
       })//setNeutralButton

       .setNegativeButton("NO", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int whichButton) {
                 //whatever should be done when answering "NO" goes here
             msg = "NO " + Integer.toString(whichButton);
             txtMsg.setText(msg);
             }
       })//setNegativeButton

       .create();
       .return myQuittingDialogBox;

   }// createDialogBox

}// class
```

The AlertDialog

Example: A simple AlertDialog box

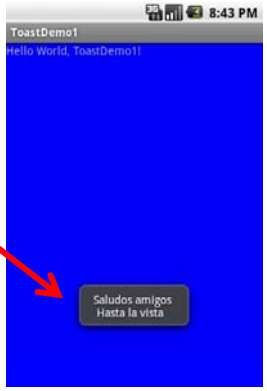
This text is set right after showing the dialog box

The Toast View

A **Toast** is a transient view containing a quick little message for the user.

They appear as a floating view over the application.

They never receive focus.



The Toast View

Example: A simple Toast

```
Toast.makeText ( context,  message,  duration ).show();
```

Context: A reference to the view's environment (what is around me…)

Message: The thing you want to say

Duration: SHORT or LONG exposure

The Toast View

Example: A simple Toast

```
package cis493.dialogboxes;

import android.app.Activity;
import android.os.Bundle;
import android.widget.Toast;

public class ToastDemo1 extends Activity {
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);

        Toast.makeText(
               getApplicationContext(),
               "Saludos amigos \n Hasta la vista",
               Toast.LENGTH_LONG).show();
    }
}
```

The Toast View

As an aside

Context:

On Android a Context is mostly used to load and access resources.

All widgets receive a Context parameter in their constructor.

In a regular Android application, you usually have two kinds of Context, *Activity* and *Application*. The first one is typically passed to classes and methods that need a Context.

Views have a reference to the entire activity and therefore to anything your activity is holding onto; usually the entire View hierarchy and all its resources.

The Toast View

Customizing a Toast View

By default Toast views are displayed at the center-bottom of the screen.

However the user may change the placement of a Toast view by using either of the following methods:

`void setGravity (int gravity, int xOffset, int yOffset)`
Set the location at which the notification should appear on the screen.

`void setMargin (float horizontalMargin, float verticalMargin)`
Set the margins of the view.

The Toast View

Customizing a Toast View

The following method uses offset values based on the pixel resolution of the actual device. For instance, the G1 phone screen contains 360x480 pixels.

```
void setGravity (int gravity, int xOffset, int yOffset)
```

Gravity: Overall placement. Typical values include: *Gravity.CENTER, Gravity.TOP, Gravity.BOTTOM, …*

xOffset: Assume Gravity.CENTER placement on a G1 phone. The *xOffset* range is -160,…,0,…160 (left, center, right)

yOffset: The range on a G1 is: -240,…,0,…240 (top, center, bottom)

The Toast View

Customizing the Toast View

A second method to place a Toast is ***setMargin***. The screen is considered to have a center point where horizontal and vertical center lines meet. There is 50% of the screen to each side of that center point (top, botton, left, right). Margins are expressed as a value between: -50,…, 0, …, 50.

```
void setMargin (float horizontalMargin, float verticalMargin)
```

Note:
The pair of margins (-50, -50) represent the upper-left corner of the screen, (0, 0) is the center, and (50, 50) the lower-right corner.

The Toast View

Example: Changing the placement of a Toast view.

Using the **`setGravity(…)`** method with Gravity.CENTER, and x and y offsets of (resp.):

0, 0	(center)
-160, -240	(top-left)
160, 240	(right-bottom)

The Toast View

Example: Changing the placement of a Toast view.

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout
android:id="@+id/myTableLayout"
android:layout_width="fill_parent"
android:layout_height="fill_parent"
android:background="#ff0000ff"
android:orientation="vertical"
android:stretchColumns="1,2"
xmlns:android="http://schemas.android.com/apk/res/android"
>
<TableRow
android:id="@+id/myRow1"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:orientation="horizontal"
>
<TextView
android:id="@+id/myCaption"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:background="#ff009999"
android:text="Testing Toast - Gravity.CENTER  320x480 pixels"
android:textSize="20sp"
android:gravity="center"
android:layout_span="2"
>
</TextView>
</TableRow>
<TableRow
android:id="@+id/myRow1"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:background="#ff0000ff"
android:padding="10px"
android:orientation="horizontal"
>
<TextView
android:id="@+id/xLabel"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text=" X offset: "
android:textSize="18sp"
>
</TextView>
<EditText
android:id="@+id/xBox"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="0"
android:textSize="18sp"
android:inputType="numberSigned"
>
</EditText>
</TableRow>
<TableRow
android:id="@+id/myRow2"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:background="#ff0000ff"
android:padding="10px"
android:orientation="horizontal"
>
<TextView
android:id="@+id/yLabel"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text=" Y offset: "
android:textSize="18sp"
>
</TextView>
<EditText
android:id="@+id/yBox"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="0"
android:textSize="18sp"
android:inputType="numberSigned"
>
</EditText>
</TableRow>
<TableRow
android:id="@+id/myRow3"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:background="#ff0000ff"
android:padding="10px"
android:orientation="horizontal"
>
<Button
android:id="@+id/btn1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text=" Show Toast "
android:layout_span="2"
>
</Button>
</TableRow>
</TableLayout>
```

The Toast View

Example: Changing the placement of a Toast view.

```
package cis493.dialogboxes;

import android.app.Activity;
import android.os.Bundle;
import android.view.Gravity;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class ToastDemo1 extends Activity {
    EditText xBox;
    EditText yBox;
    Button   btn1;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main2);

        xBox = (EditText)findViewById(R.id.xBox);
        yBox = (EditText)findViewById(R.id.yBox);
```


The Toast View

Example: Changing the placement of a Toast view.

```
btn1 = (Button)findViewById(R.id.btn1);
btn1.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View v) {
        try {
             Toast myToast =  Toast.makeText(
                 getApplicationContext(),
                 "Saludos amigos \n Hasta la vista",
                 Toast.LENGTH_LONG);
             myToast.setGravity(Gravity.CENTER,
                      Integer.valueOf(xBox.getText().toString()),
                      Integer.valueOf(yBox.getText().toString()) );
             myToast.show();

             } catch (NumberFormatException e) {
                 Toast.makeText(getApplicationContext(),
                 e.getMessage(),
                 Toast.LENGTH_LONG).show();
             }
      }// onClick
    }); // listener
 }// onCreate
}// class
```

The Toast View

Example: Showing Fancy Toast views.

Toasts could be modified to display a custom combination of color/shape/text/background.

You need to follow the next steps:

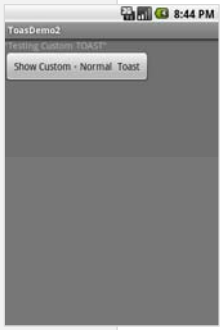
1. Define the XML layout of the new custom view
2. Make sure there is a *TextView* named: **`text`**
3. Additionally you could attach an android: background to the TextView.
4. The background could be a figure (such as a *.png* file) or an XML defined shape (see next example).

Example taken from:
http://hustleplay.wordpress.com/2009/07/23/replicating-default-android-toast/

The Toast View

Example: Showing Fancy Toast views.
Let's begin with the application's main layout.

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="#777"
    >
<TextView
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:text='"Testing Custom TOAST"'/>
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/btnShowToast"
    android:text=" Show Custom - Normal  Toast ">
</Button>
</LinearLayout>
```



The Toast View

Example: Showing Fancy Toast views.

Now we create our custom Toast layout (called: *my_toast_layout.xml*. It must contain a TextView called '*text*')

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/my_toast_layout_root"
    android:orientation="horizontal"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:padding="10dp"
    >
 <TextView
    android:id="@+id/text"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="20dp"
    android:background="@drawable/my_border"
    >
  </TextView>

</LinearLayout>
```

Required TextView

Optional background

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The Toast View

Example: Showing Fancy Toast views.

Finally we take care of the optional background element (*my_border.xml*). In this example we define a <shape> (but it could be any .png image). This XML (or image) is saved in the folder: /res/drawable

```
<?xml version="1.0" encoding="UTF-8" ?>
<shape
        xmlns:android="http://schemas.android.com/apk/res/android"
        android:shape="rectangle">
  <stroke  android:width="2dp" android:color="#ffffff00" />
  <solid   android:color="#ff990000" />
  <padding android:left="10dp"  android:top="4dp"
           android:right="10dp" android:bottom="4dp" />
  <corners android:radius="15dp" />
</shape>
```

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The Toast View

Example: Showing Fancy Toast views.

Testing the application

A Toast displayed with our custom layout

A Toast displayed using standard formatting

The Toast View

Example: Showing Fancy Toast views.

```
package cis493.dialogboxes;

import android.app.Activity;
import android.os.Bundle;
import android.view.Gravity;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class ToastDemo2 extends Activity {

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

The Toast View

Example: Showing Fancy Toast views.

```
Button btnShowToast = (Button) findViewById(R.id.btnShowToast);
btnShowToast.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View v) {
        //custom made TOAST
        LayoutInflater inflater = getLayoutInflater();
        View layout = inflater.inflate(
                R.layout.my_toast_layout,
                (ViewGroup) findViewById(R.id.my_toast_layout_root));
        TextView text = (TextView) layout.findViewById(R.id.text);
        Toast toast = new Toast(getApplicationContext());
            text.setText("Hola mundo \nI'm a fancy Toast");
            toast.setGravity(Gravity.CENTER, 0, 0);
            toast.setDuration(Toast.LENGTH_SHORT);
            toast.setView(layout);
            toast.show();
         // normal TOAST
         Toast.makeText(getApplicationContext(),
                "Hola mundo \nnow I am quite normal",
                Toast.LENGTH_SHORT).show();
        }
       });
    }
}
```


The Toast View

Example: Showing Fancy Toast views.

As an aside:

Inflating a View

You may want occasionally to modify the way Android renders a particular view (perhaps a different color, style, or shape).

Once the Hierarchy View has been displayed, you can take any terminal node and **extend it** by inflating a custom '*view sub-tree*'. Also, by using layout inflation we may draw a new Hierarchy on top of the existing screen.

In our example, our customized rendition of a Toast box (including a colorful background) is defined in an XML file. Depicting the image of the custom Toast is accomplished by inflating the XML layout spec.

The Toast View

Example: **Showing Fancy Toast views.**

As an aside:

Inflating a View

Syntaxt

`public View inflate (int resource, ViewGroup root)`

Inflate a new view hierarchy from the specified xml resource.

Parameters

resource ID for an XML layout resource to load, root: optional view to be the parent of the generated hierarchy.

Returns

The root View of the inflated hierarchy. If root was supplied, this is the root View; otherwise it is the root of the inflated XML file.

```
LayoutInflater inflater = getLayoutInflater();
View layout = inflater.inflate(
                R.layout.my_toast_layout,
                (ViewGroup) findViewById(R.id.my_toast_layout_root));
TextView text = (TextView) layout.findViewById(R.id.text);
```


Dialog Boxes

Questions ?