Custom views, canvas

Android offers a great list of pre-built widgets like Button, TextView, EditText, ListView, CheckBox, RadioButton, Gallery, Spinner, AutoCompleteTextView etc. which you can use directly in your Android application development, but there may be a situation when you are not satisfied with existing functionality of any of the available widgets. Android provides you with means of creating your own custom components which you can customized to suit your needs.

Creating a Simple Custom Component

Step	Description
1	You will use Android studio IDE to create an Android application and name it as *myapplication* under a package *com.example.tutorialspoint7.myapplication* as explained in the *Hello World Example* chapter.
2	Create an XML *res/values/attrs.xml* file to define new attributes along with their data type.
3	Create *src/mainactivity.java* file and add the code to define your custom component
4	Modify *res/layout/activity_main.xml* file and add the code to create Colour compound view instance along with few default attributes and new attributes.
5	Run the application to launch Android emulator and verify the result of the changes done in the application.

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
  <declare-styleable name="TimeView">
    <declare-styleable name="TimeView">
     <attr name="title" format="string" />
     <attr name="setColor" format="boolean"/>
    </declare-styleable>
  </declare-styleable>
</resources>
```

Change the layout file used by the activity to the following.

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:tools="http://schemas.android.com/tools"
  xmlns:custom="http://schemas.android.com/apk/res-auto"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity" >

  <com.example.tutorialspoint7.myapplication.TimeView
    android:id="@+id/timeView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textColor="#fff"
    android:textSize="40sp"
    custom:title="my time view"
    custom:setColor="true" />

  <TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/simple"
    android:layout_below="@id/timeView"
    android:layout_marginTop="10dp"
```