

Design Patterns

MSc in Communications Software

Produced
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Patterns in Pacemaker Android V2


Design Pattern

Singleton

- Application object is a Singleton

```
public class PacemakerApp extends Application
{
    public List<Activity> activities = new ArrayList<Activity>();

    @Override
    public void onCreate()
    {
        super.onCreate();
        Log.v("Pacemaker", "Pacemaker App Started");
    }
}
```



```
<application
    android:name="org.pacemaker.main.PacemakerApp"
    android:allowBackup="true"
    android:icon="@drawable/ic_launcher"
    android:label="@string/app_name"
    android:theme="@style/AppTheme" >
    <activity
        android:name="org.pacemaker.controllers.CreateActivity"
        android:label="@string/app_name" >
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />


            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <activity
        android:name="org.pacemaker.controllers.ActivitiesList"
        android:label="@string/title_activity_activities_list" >
    </activity>
</application>
```

Accessing the Singleton

```
public class CreateActivity extends android.app.Activity
{
    private PacemakerApp app;
    //...

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_create);

        app = (PacemakerApp) getApplication();
    }
}
```



Memento

```
public class Activity implements Parcelable
{
    public Long id;
    public String type;
    public String location;
    public double distance;

    //...

    public Activity(Parcel in)
    {
        this.type = in.readString();
        this.location = in.readString();
        this.distance = in.readDouble();
    }

    @Override
    public int describeContents()
    {
        return 0;
    }

    @Override
    public void writeToParcel(Parcel dest, int flags)
    {
        dest.writeString(type);
        dest.writeString(location);
        dest.writeDouble(distance);
    }

    public static final Parcelable.Creator<Activity> CREATOR = new Parcelable.Creator<Activity>()
    {
        public Activity createFromParcel(Parcel in)
        {
            return new Activity(in);
        }

        public Activity[] newArray(int size)
        {
            return new Activity[size];
        }
    }
}
```

Memento

```
public class ActivitiesList extends android.app.Activity
{
    private ListView activitiesListView;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        //...

        Bundle extras = getIntent().getExtras();
        List<Activity> activities = extras.getParcelableArrayList("activities");

        //...
    }

    //..
}
```

Adapter

```
public class ActivitiesList extends android.app.Activity
{
    private PacemakerApp app;
    private ListView activitiesListView;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        //...

        activitiesListView = (ListView) findViewById(R.id.activitiesListView);

        List<Activity> activities = ... from memento ...

        ActivityAdapter activitiesAdapter = new ActivityAdapter(this, activities);
        activitiesListView.setAdapter(activitiesAdapter);
        activitiesAdapter.notifyDataSetChanged();
    }

    //...
}
```

Adapter

```
class ActivityAdapter extends ArrayAdapter<Activity>
{
    private Context    context;
    public List<Activity> activities;

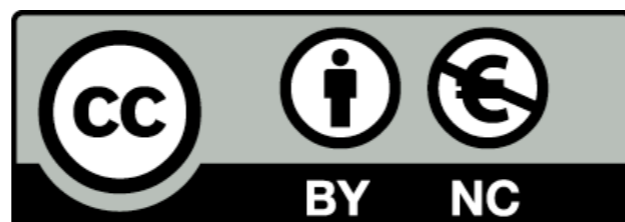
    public ActivityAdapter(Context context, List<Activity> activities)
    {
        super(context, R.layout.activity_row_layout, activities);
        this.context    = context;
        this.activities = activities;
    }

    @Override
    public View getView(int position, View convertView, ViewGroup parent)
    {
        LayoutInflater inflater = (LayoutInflater) context.getSystemService(Context.LAYOUT_INFLATER_SERVICE);

        View view      = inflater.inflate(R.layout.activity_row_layout, parent, false);
        Activity activity = activities.get(position);
        TextView type    = (TextView) view.findViewById(R.id.type);
        TextView location = (TextView) view.findViewById(R.id.location);
        TextView distance = (TextView) view.findViewById(R.id.distance);

        type.setText(activity.type);
        location.setText(activity.location);
        distance.setText("" + activity.distance);
        return view;
    }

    @Override
    public int getCount()
    {
        return activities.size();
    }
}
```

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