

AChartEngine

A charting library for Android

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What is AChartEngine

- As its name suggests, it is a charting library that can be used in Android applications.
- It supports all the Android SDK versions from 1.6 and up.
- The 1.6 version offers only pan and button based zoom, while the 2.1 and newer adds support for pinch zoom.
- A while ago, when support for older versions than 2.1 was dropped, many users asked it back.
- In order to add charting to an Android application, the first step to be done would be to add the `achartengine-x.y.z.jar` to the application classpath.
- The current version (1.0.0) jar file is only 110 KB big

History

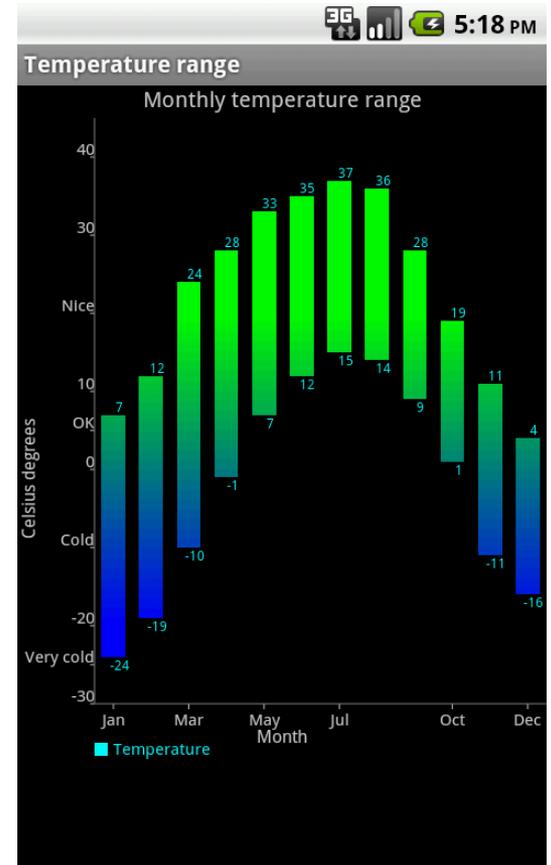
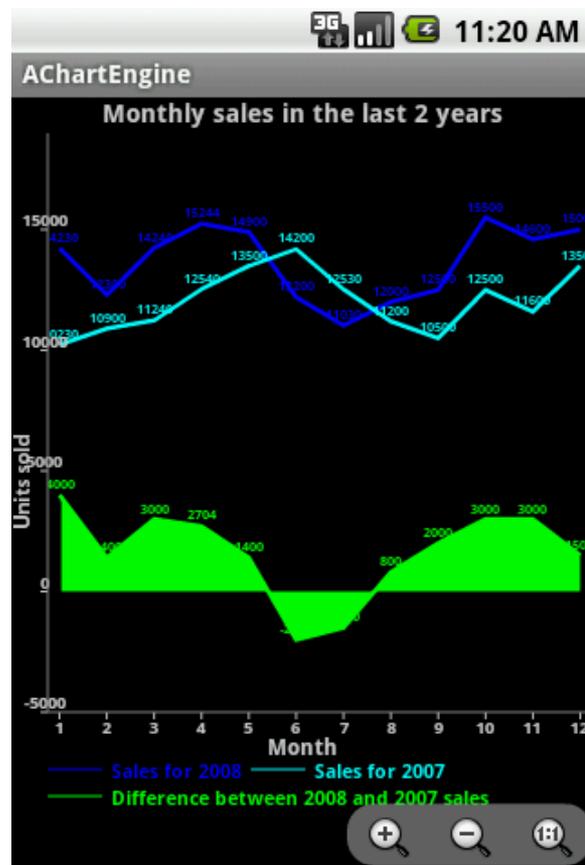
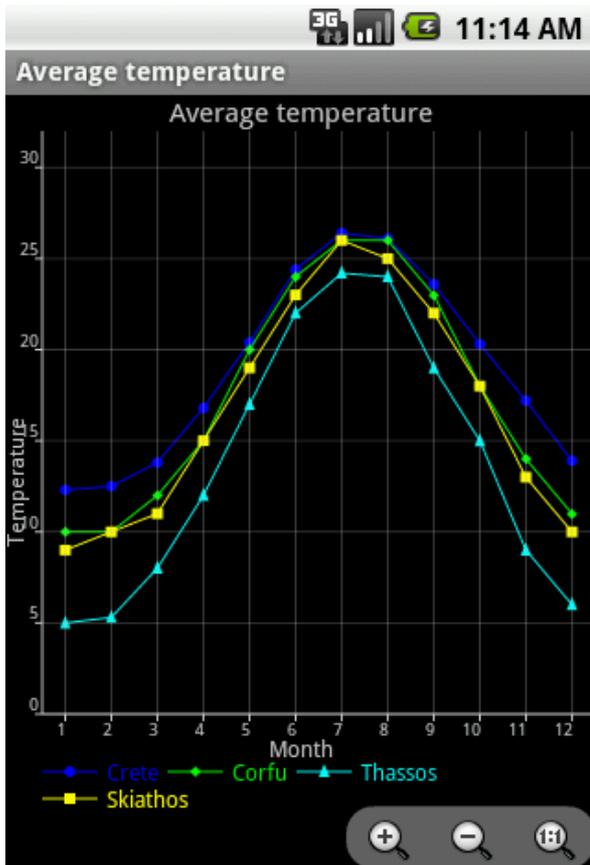
- In late 2008, Android developers were already looking for charting / graphing / plotting libraries. At that time there was no such free / open-source solution available.
- After developing a couple of Android applications that needed some charting display, I decided I could open-source the code.
- AChartEngine version 0.2.0 was launched in March 2009, being the first open-source charting library for Android. At that time, Android SDK was at version 1.1

Features

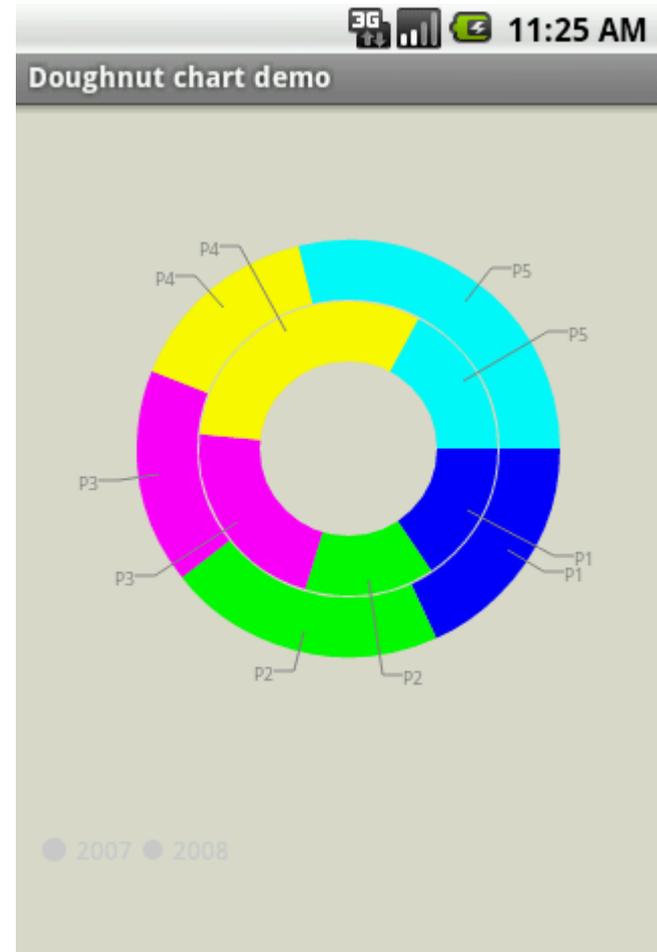
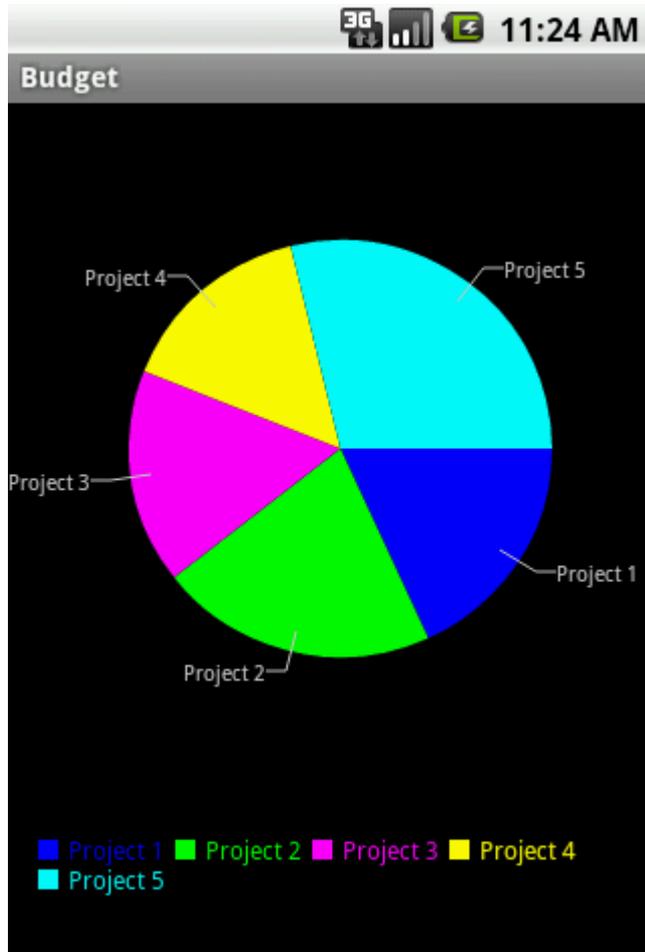
There are three main types of charts that are supported by AChartEngine:

- XY charts - display data on 2 axis (line, cubic line, area, bar, scatter, bubble, range (high-low))
- "Round" charts - pie, doughnut, dial
- Combined chart - can display a combination of the XY charts

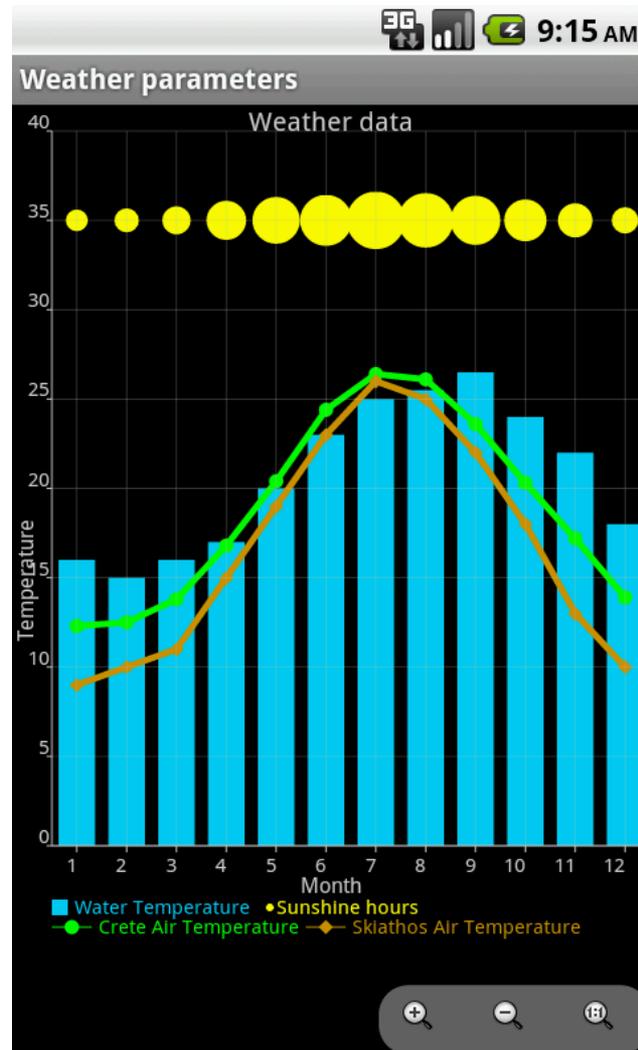
XY Charts



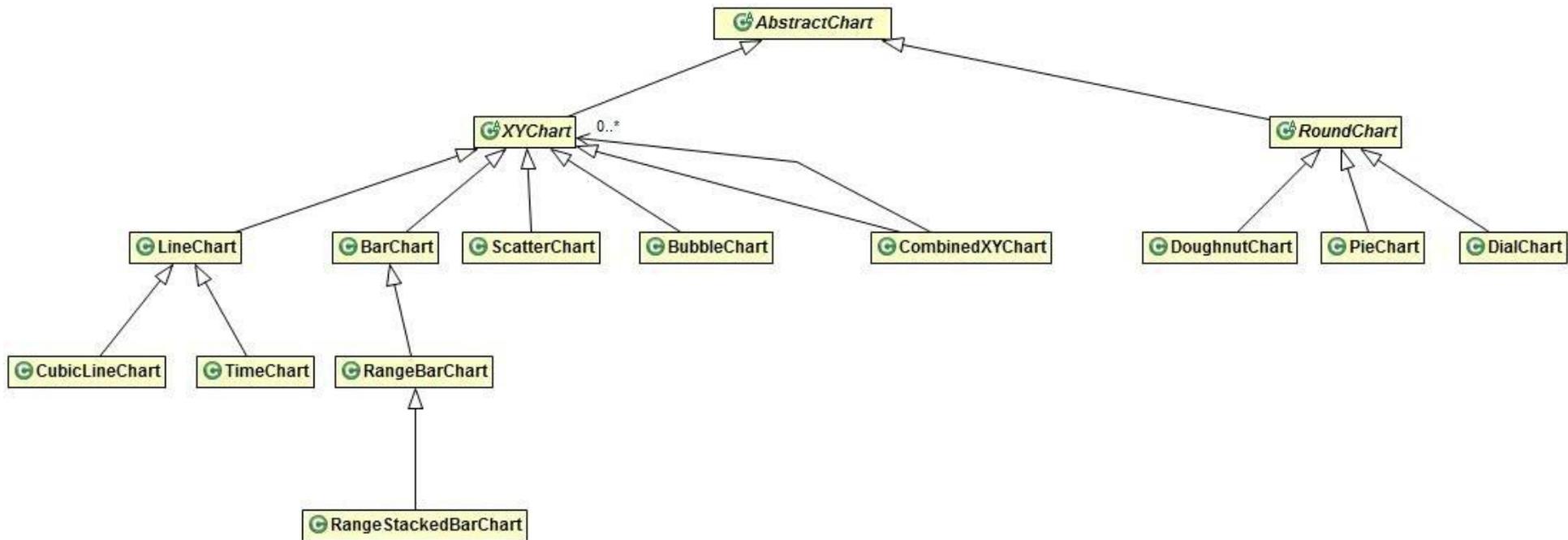
"Round" charts



Combined XY Chart



Overall Class Design



Design components

- The model - datasets / series of data
- The view - charts
- Renderers - help in customizing the charts appearance (colors, fonts, axis, labels, formatting,...)
- ChartFactory - gets an instance of a dataset and an instance of a renderer and returns the desired chart embedded into an Intent (for the case when the chart fills an Activity) or a View (when the chart is a part of an Activity, together with other widgets)
- Tools - interaction tools for pan and zoom

Applications

The appbrain.com Android market states that 0.52% of their total number of published applications (over 560K) are using AChartEngine, which means almost 3000.

A list of the most popular applications using AChartEngine:

- MotoACTV - fitness tool developed by Motorola and pre-installed on their devices
- EKG viewers, bioharness applications
- Path trackers, fitness, biking applications
- Finance, business applications
- Others,...

Example

```
package ...;

import ...;
...

public class SampleChart extends Activity {
    private GraphicalView mChart;

    private XYMultipleSeriesDataset mDataset = new
XYMultipleSeriesDataset();

    private XYMultipleSeriesRenderer mRenderer = new
XYMultipleSeriesRenderer();

    private XYSeries mCurrentSeries;

    private XYSeriesRenderer mCurrentRenderer;

    private void initChart() {
        mCurrentSeries = new XYSeries("Sample Data");
        mDataset.addSeries(mCurrentSeries);
        mCurrentRenderer = new XYSeriesRenderer();
        mRenderer.addSeriesRenderer(mCurrentRenderer);
    }

    private void addSampleData() {
        mCurrentSeries.add(1, 2);
        mCurrentSeries.add(2, 3);
        mCurrentSeries.add(3, 2);
        mCurrentSeries.add(4, 5);
        mCurrentSeries.add(5, 4);
    }
}
```

```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
}

protected void onResume() {
    super.onResume();
    LinearLayout layout = (LinearLayout) findViewById(R.
id.chart);
    if (mChart == null) {
        initChart();
        addSampleData();
        mChart = ChartFactory.getCubeLineChartView(this,
mDataset, mRenderer, 0.3f);
        layout.addView(mChart);
    } else {
        mChart.repaint();
    }
}
}
```

FAQ

- Support for dynamic charts - yes, just update the dataset and call a repaint on the chart view.
- Embed chart inside an activity - yes, the AChartEngine demo program includes an example for this.
- Act like a DB cursor, visual plugin for SQLite - no, the data must be retrieved using custom code and added to the datasets. AChartEngine is used for charting only.

Other charting solutions for Android

- AndroidPlot - probably the best open-source competitor, doesn't provide that much functionality
- AFreeChart - a JFreeChart port to Android, very little functionality, in a very early stage
- ChartDroid - an AChartEngine fork, not much activity recently
- Other commercial solutions

Resources

- Official website <http://achartengine.org>
- Google code website providing downloadable jar, javadocs and demo application, issue tracker and source code SVN <http://code.google.com/p/achartengine>
- Search for "AChartEngine" on youtube. There is a bunch of helpful video tutorials.
- Browse stackoverflow.com for finding solutions or posting questions.
- Register on the AChartEngine Google group and post ideas.
- Visit the AChartEngine Facebook page facebook.com/achartengine
- Contact us at contact@achartengine.org

Contributors welcome

Contributing to an open-source project may look good in your CV.

A suggested path to contribute to AChartEngine could be:

- Checkout the source code from SVN and try to understand it.
- Take a look at the opened issues and try fixing some of them. When done, provide patches.
- Ask for committer rights.
- Answer questions on StackOverflow or other websites.

Questions