http://www.vogella.com/articles/JFreeChart/article.html

Dataset:

- **It contains the Data which we want to display in the Chart**
- **We have Dif. Types of Datasets for Diff.types of Charts**
- **The default Dataset is "DefaultPieDataset"**

Ex:

```
DefaultPieDataset dataset = new DefaultPieDataset();
        dataset.setValue("Linux", 29);
        dataset.setValue("Mac", 20);
        dataset.setValue("Windows", 51);
```

JFreeChart:

- **This is a class use to create a Chart**
- **We will pass the Dataset & Chart title to create Chart**

Ex:

```
JFreeChart chart = createChart(dataset, chartTitle);
```

ChartPanel:

- **After creation of chart we have to place that in a place.**
- **For that we use ChartPanel**
- **After creating the chart,we place that chart in chartPanel by passing chart**

Ex:

```
ChartPanel chartPanel = new ChartPanel(chart);
```

JPanel:

- **If we want to place chart in JFrame, we can't directly add the chart to Jframe**
- **We take support of JPanel**
- **We add our chartPanel to JPanel**
- **Then JPanel is add to JFrame**

Ex:

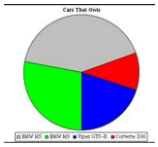
```
jPanel4.setLayout(new BorderLayout());
jPanel4.add(chartpanel, BorderLayout.NORTH);
this.add(jPanel4);
this.pack();
this.setVisible(true);
```

ChartFactory:

This class contains all static methods for creating charts.it returns JfreeChart object after creating the chart

Sample Example

```
public class PieChart extends JFrame {

  private static final long serialVersionUID = 1L;

  public PieChart(String applicationTitle, String chartTitle) {
      super(applicationTitle);
      // This will create the dataset
      PieDataset dataset = createDataset();
      // based on the dataset we create the chart
      JFreeChart chart = createChart(dataset, chartTitle);
      // we put the chart into a panel
      ChartPanel chartPanel = new ChartPanel(chart);
      // default size
      chartPanel.setPreferredSize(new java.awt.Dimension(500, 270));
      // add it to our application
      setContentPane(chartPanel);
   }
    //Creates a sample dataset
   private  PieDataset createDataset() {
      DefaultPieDataset result = new DefaultPieDataset();
      result.setValue("Linux", 29);
      result.setValue("Mac", 20);
      result.setValue("Windows", 51);
      return result;
   }
/**    * Creates a chart
    */

   private JFreeChart createChart(PieDataset dataset, String title) {

      JFreeChart chart = ChartFactory.createPieChart3D(title,         // chart title
         dataset,              // data
         true,                 // include legend
         true,
         false);

      PiePlot3D plot = (PiePlot3D) chart.getPlot();
      plot.setStartAngle(290);
      plot.setDirection(Rotation.CLOCKWISE);
      plot.setForegroundAlpha(0.5f);
      return chart;

   }
}
```

1.Pie Chart: 

IMP:

- **DefalultPieDataSet**
- **setValue()**
- **ChartFactory.createPieChart(-,-,-,-,-)**

1.Create Dataset.

```
DefaultPieDataset pieDataset = new DefaultPieDataset();
```

2. add the data in the data set by invoking the method setValue()

```
DefaultPieDataset pieDataset = new DefaultPieDataset();
  pieDataset.setValue("One", new Integer(10));
  pieDataset.setValue("Two", new Integer(20));
  pieDataset.setValue("Three", new Integer(30));
```

3. After added the data in dataset we create the Pie Chart by invoking the createPieChart() method of ChartFactory

```
JFreeChart chart = ChartFactory.createPieChart ("Pie Chart using JFreeChart", pieDataset, true,true,true);
```

4.Add that Chart to ChartPanel

5.Add ChartPanel to JPanel

6.Add JPanel to JFrame

2.3D Pie Chart Example 

Changes:

- **ChartFactory.createPieChart3D**
- **PiePlot3D p=(PiePlot3D)chart.getPlot();**
- **p.setForegroundAlpha(0.5f);**

1.Create Dataset.

```
DefaultPieDataset pieDataset = new DefaultPieDataset();
```

2. add the data in the data set by invoking the method setValue()

```
DefaultPieDataset pieDataset = new DefaultPieDataset();
  pieDataset.setValue("One", new Integer(10));
  pieDataset.setValue("Two", new Integer(20));
  pieDataset.setValue("Three", new Integer(30));
```

3. After added the data in dataset we create the Pie Chart by invoking the createPieChart3D() method of ChartFactory

```
JFreeChart chart = ChartFactory.createPieChart3D("3D Pie Chart", pieDataset, true, true, true);
```

PiePlot3D p=(PiePlot3D)chart.getPlot();
Above method is used to get the object of the plot for 3D Pie Chart. For this we have to invoke JfreeChart class method getPlot(). It returns the reference of Plot but we have to typecast it as a PiePlot3D.

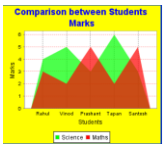
p.setForegroundAlpha(0.5f);
Above method is used to set the alpha-transparency for the plot. It takes the float type argument.

4.Add that Chart to ChartPanel

5.Add ChartPanel to JPanel

6.Add JPanel to JFrame

3.Area Chart Example



Changes:

1.Create Dataset.

```
DefaultCategoryDataset dataset = new DefaultCategoryDataset();
```

2. add the data in the data set by invoking the method setValue()

```
dataset.addValue(4.0, "Science", "Rahul");
dataset.addValue(3.0, "Maths", "Rahul");
dataset.addValue(5.0, "Science", "Vinod");
```

3. After added the data in dataset we create the Pie Chart by invoking the `createAreaChart()` method of ChartFactory

```
JFreeChart chart = ChartFactory.createAreaChart("Comp","Students", "Marks ",
    dataset, PlotOrientation.VERTICAL, true,true, false);
```

4. chart.setBackgroundPaint(Color.yellow);
Above method is used to set the background color of chart.

5. chart.getTitle().setPaint(Color.blue);
Above method is used to set the color of chart title.

6. CategoryPlot p = chart.getCategoryPlot();
Above method is used to get the object of the Plot for Bar Chart.

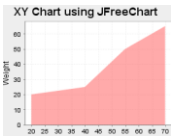
7. p.setForegroundAlpha(0.4f);
Above method is used to set the alpha-transparency for the plot. It takes the float type argument.

8. p.setRangeGridlinePaint(Color.red);
Above method is used to set the color of plot Gridlines.

9. CategoryItemRenderer renderer = p.getRenderer();
Above method is used to get the reference to the renderer for the plot.,

10. renderer.setSeriesPaint(0,Color.red);
Above method is used set the color of the area chart.

11. ChartFrame frame1=new ChartFrame("Bar Chart",chart);
After this we create the object of ChartFrame. It used to display a chart.

4.XYArea Chart Example 

1.XYSeries series = new XYSeries("Average Weight");
For defining a set of x,y coordinates we use an object of XYSeries class.

2.Then we add the data in the XYSeries object by invoking add().
series.add(20.0, 50.0);

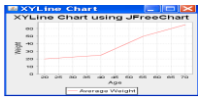
3. XYDataset xyDataset = new XYSeriesCollection(series);
Now we have to create the object of XYDataset type of XYSeriesCollection and add the XYSeries object in the dataset.

4. JFreeChart chart = ChartFactory.createXYAreaChart("XY Chart using JFreeChart", "Age", "Weight", xyDataset, PlotOrientation.VERTICAL, true, true, false);

5.After creating the dataset we create the XYArea Chart by invoking the createXYAreaChart() method. This is a static method of ChartFactory class and its returns the object of JFreeChart type.This method syntax is:

6. Public static JFreeChart createXYAreaChart(java.lang.String title, java.lang.String xAxisLabel, java.lang.String yAxisLabel, XYDataset dataset, PlotOrientation orientation, boolean legend, boolean tooltips, boolean urls)

7. ChartFrame frame1=new ChartFrame("XYArea Chart",chart);

5.XYLine Chart Example 

1.XYSeries series = new XYSeries("Average Weight");
For defining a set of x,y coordinates we use an object of XYSeries class.

2.Then we add the data in the XYSeries object by invoking add() method.
series.add(20.0, 50.0);

3.XYDataset xyDataset = new XYSeriesCollection(series);
Now we have to create the object of XYDataset type of XYSeriesCollection and add the XYSeries object in the dataset.

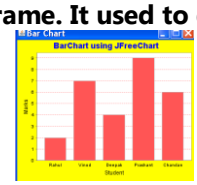
4.JFreeChart chart = ChartFactory.createXYLineChart("XYLine Chart using JFreeChart", "Age", "Weight", xyDataset, PlotOrientation.VERTICAL, true, true, false);

5.After creating the dataset we create the XYLine Chart by invoking the createXYLineChart() method. This method is a static method of ChartFactory class and its returns the object of JFreeChart type.This method syntax is:

6.Public static JFreeChart createXYLineChart(java.lang.String title, java.lang.String xAxisLabel, java.lang.String yAxisLabel, XYDataset dataset, PlotOrientation orientation, boolean legend, boolean tooltips, boolean urls)

7. ChartFrame frame1=new ChartFrame("XYLine Chart",chart);
After this we create the object of ChartFrame. It used to display a chart.

6.Bar Chart Example



1. **For defining a dataset for a Bar**
   DefaultCategoryDataset dataset = new DefaultCategoryDataset();

2. **After creating the instance of dataset then we have to add the data in the data set by invoking the method setValue().**

3. **setValue(6, "Marks", "Rahul");**

4. **FreeChart chart = ChartFactory.createBarChart("BarChart using JFreeChart", "Student", "Marks", dataset, PlotOrientation.VERTICAL, true, true, false);**

5. **After added the data in dataset we create the Bar chart by invoking the createBarChart() method.**

6. **Public static JFreeChart createBarChart(java.lang.String title, java.lang.String categoryAxisLabel, java.lang.String valueAxisLabel, CategoryDataset dataset, PlotOrientation orientation, boolean legend, boolean tooltips, boolean urls);**

7. **chart.setBackgroundPaint(Color.yellow);**
   Above method is used to set the color of chart background

8. **chart.getTitle().setPaint(Color.blue);**
Above method is used to set the color of chart title

9. **CategoryPlot p = chart.getCategoryPlot();**
   Above method is used to get the object of the Plot for Bar Chart

10. **p.setRangeGridlinePaint(Color.red);**
Above method is used to set the color of plot Gridlines

11. **ChartFrame frame1=new ChartFrame("Bar Chart",chart)**

7.3D Bar Chart Example

1. **For defining a dataset for a Bar chart we have to create an object of DefaultCategoryDataset type :**
   DefaultCategoryDataset dataset = new DefaultCategoryDataset();

2. **After creating the instance of dataset then we have to add the data in the data set by invoking the method setValue(). In this example we show more than one set of bars for the same chart. This can done by the following modification :**
   dataset.setValue(6, "Science", "Rahul");
   dataset.setValue(8, "Maths", "Rahul");
   dataset.setValue(5, "Science", "Deepak");
   dataset.setValue(3, "Maths", "Deepak");

3. **First argument specifies the total marks obtained by the student and the second argument specify what will appear in the legend to the meaning of the bar.**

4. **JFreeChart chart = ChartFactory.createBarChart3D("Comparison between Students", "Student", "Marks", dataset, PlotOrientation.VERTICAL, true, true, false);**

5. **After added the data in dataset we create the 3D Bar chart by invoking the createBarChart3D() method.**

6. **This method is a static method of ChartFactory class and its returns the object of JFreeChart type.This method syntax is:**

7. **Public static JFreeChart createBarChart3D(java.lang.String title, java.lang.String categoryAxisLabel, java.lang.String valueAxisLabel, CategoryDataset dataset, PlotOrientation orientation, boolean legend, boolean tooltips, boolean urls);**

8. **chart.setBackgroundPaint(Color.yellow);**
   Above method is used to set the color of chart background

9. **chart.getTitle().setPaint(Color.blue);**
   Above method is used to set the color of chart title

10. **CategoryPlot p = chart.getCategoryPlot();**
    Above method is used to get the object of the Plot for Bar Chart

11. **p.setRangeGridlinePaint(Color.red)**
    Above method is used to set the color of plot Gridlines

8.WaterFall Chart Example 

1. For defining a dataset for WaterFall chart we have to create an object of DefaultCategoryDataset type :
   DefaultCategoryDataset dataset = new DefaultCategoryDataset();

2. After creating the instance of dataset then we have to add the data in the data set by invoking the method addValue().
   addValue(3.0, ?Salary?, ?Rahul?);

3. First argument specifies the salary of a employee and the second argument specify what will appear in the legend to the meaning of the Waterfall chart.

4. JFreeChart chart = ChartFactory.createWaterfallChart("Comparison between Employee", "Employee", "Salary", dataset, PlotOrientation.VERTICAL, true, true, false);

5. After added the data in dataset we create the WaterFall chart by invoking the createWaterfallChart() method.

6. This method is a static method of ChartFactory class and its returns the object of JFreeChart type.This method syntax is:
   Public static JFreeChart createWaterfallChart(java.lang.String title, java.lang.String categoryAxisLabel, java.lang.String valueAxisLabel, CategoryDataset dataset, PlotOrientation orientation, boolean legend, boolean tooltips, boolean urls);

7. chart.getTitle().setPaint(Color.blue);
   Above method is used to set the color of chart title

8. CategoryPlot p = chart.getCategoryPlot();

Above method is used to get the object of the Plot for Waterfall Chart. GetCategoryPlot() is method of the JFreeChart class and it returns the object of CategoryPlot type.

9. p.setRangeGridlinePaint(Color.red);

Above method is used to set the color of plot Gridlines.

10. p.setDomainGridlinesVisible(true);

Above method is used to set the flag that controls the Gridlines are drawn or not against the domain axis.

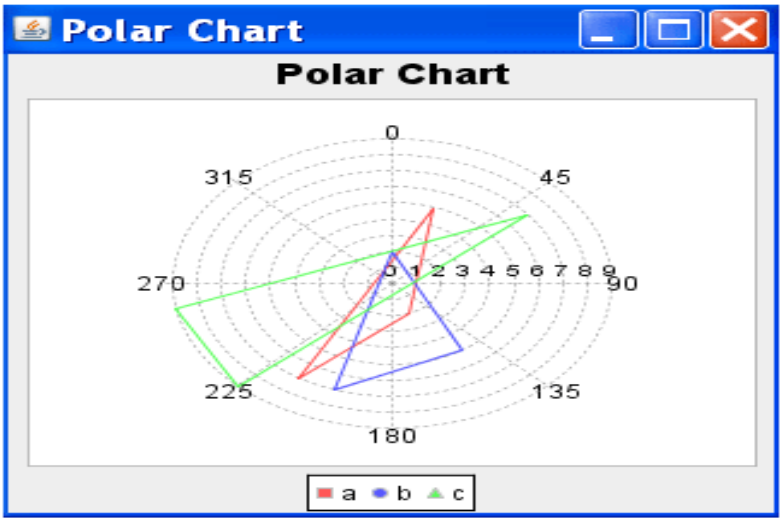
11. p.setDomainGridlinePaint(Color.black);

Above method is used to set the color of Gridlines against the domain axis.

12. ChartFrame frame1=new ChartFrame("WaterFall Chart",chart);

After this we create the object of ChartFrame. It used to display a chart.

9.Polar Chart Example



For More : http://www.roseindia.net/chartgraphs/

All Example codes:

```
//1.pie chart

import java.awt.*;
import org.jfree.chart.*;
import org.jfree.chart.title.*;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.ui.*;

public class pie{
public static void main(String arg[]){
  DefaultPieDataset pieDataset = new DefaultPieDataset();
  pieDataset.setValue("One", new Integer(10));
  pieDataset.setValue("Two", new Integer(20));
  pieDataset.setValue("Three", new Integer(30));
  pieDataset.setValue("Four", new Integer(10));
  pieDataset.setValue("Five", new Integer(20));
  pieDataset.setValue("Six", new Integer(10));
  JFreeChart chart = ChartFactory.createPieChart
 ("Pie Chart using JFreeChart", pieDataset, true,true,true);

  ChartFrame frame1=new ChartFrame("Pie Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(300,300);
  }
```

```
}


//2.3dpie chart

import java.awt.*;
import org.jfree.chart.*;
import org.jfree.chart.title.*;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.ui.*;
import org.jfree.chart.plot.*;
import org.jfree.util.*;

public class Pie3D{
public static void main(String arg[]){
  DefaultPieDataset pieDataset = new DefaultPieDataset();
  pieDataset.setValue("One", new Integer(10));
  pieDataset.setValue("Two", new Integer(20));
  pieDataset.setValue("Three", new Integer(30));
  pieDataset.setValue("Four", new Integer(10));
  pieDataset.setValue("Five", new Integer(20));
  pieDataset.setValue("Six", new Integer(10));
  JFreeChart chart = ChartFactory.createPieChart3D
  ("3D Pie Chart", pieDataset, true,true,true);
  PiePlot3D p=(PiePlot3D)chart.getPlot();
  p.setForegroundAlpha(0.5f);
  ChartFrame frame1=new ChartFrame("3D Pie Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(300,300);
  }
}




//3.Area Chart Example
import java.awt.*;
import java.io.*;
import org.jfree.chart.*;
import org.jfree.data.category.*;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.data.*;
import org.jfree.chart.renderer.category.*;
import org.jfree.chart.plot.*;

public class Area{
public static void main(String arg[]){
  DefaultCategoryDataset dataset = new DefaultCategoryDataset();
```

```
  dataset.addValue(4.0, "Science", "Rahul");
  dataset.addValue(3.0, "Maths", "Rahul");
  dataset.addValue(5.0, "Science", "Vinod");
  dataset.addValue(2.0,"Maths", "Vinod");
  dataset.addValue(3.0, "Science", "Prashant");
  dataset.addValue(5.0, "Maths", "Prashant");
  dataset.addValue(6.0, "Science", "Tapan");
  dataset.addValue(2.0, "Maths", "Tapan");
  dataset.addValue(3.0,"Science", "Santosh");
  dataset.addValue(5.0, "Maths", "Santosh");

  JFreeChart chart = ChartFactory.createAreaChart
   ("Comparison between Students Marks","Students", "Marks ",
    dataset, PlotOrientation.VERTICAL, true,true, false);
  chart.setBackgroundPaint(Color.yellow);
  chart.getTitle().setPaint(Color.blue);
  CategoryPlot p = chart.getCategoryPlot();
  p.setForegroundAlpha(0.7f);
  p.setRangeGridlinePaint(Color.red);
  p.setDomainGridlinesVisible(true);
  p.setDomainGridlinePaint(Color.black);
  CategoryItemRenderer renderer = p.getRenderer();
  renderer.setSeriesPaint(1, Color.red);
  renderer.setSeriesPaint(0, Color.green);
  ChartFrame frame1=new ChartFrame("Area Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(300,300);
  }
}


//XYArea Chart Example
import org.jfree.chart.*;
import org.jfree.chart.plot.PlotOrientation;
import org.jfree.data.category.DefaultCategoryDataset;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.data.xy.*;
import org.jfree.data.*;

public class xyArea{
public static void main(String arg[]){
  XYSeries series = new XYSeries("Average Weight");
  series.add(20.0, 20.0);
  series.add(40.0, 25.0);
  series.add(55.0, 50.0);
  series.add(70.0, 65.0);
  XYDataset xyDataset = new XYSeriesCollection(series);
  JFreeChart chart = ChartFactory.createXYAreaChart
```

```
  ("XY Chart using JFreeChart", "Age", "Weight",
   xyDataset, PlotOrientation.VERTICAL, true,
  true, false);
  ChartFrame frame1=new ChartFrame("XYArea Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(300,300);
  }
}

5//XYLine Chart Example
 import org.jfree.chart.*;
import org.jfree.chart.plot.PlotOrientation;
import org.jfree.data.category.DefaultCategoryDataset;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.data.xy.*;
import org.jfree.data.*;

public class xyLine{
public static void main(String arg[]){
  XYSeries series = new XYSeries("Average Weight");
  series.add(20.0, 20.0);
  series.add(40.0, 25.0);
  series.add(55.0, 50.0);
  series.add(70.0, 65.0);
  XYDataset xyDataset = new XYSeriesCollection(series);
  JFreeChart chart = ChartFactory.createXYLineChart
  ("XYLine Chart using JFreeChart", "Age", "Weight",
 xyDataset, PlotOrientation.VERTICAL, true, true, false);
  ChartFrame frame1=new ChartFrame("XYLine Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(300,300);
  }
}

6//Bar Chart Example
 import org.jfree.chart.*;
import org.jfree.data.category.*;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.data.xy.*;
import org.jfree.data.*;
import org.jfree.chart.renderer.category.*;
import org.jfree.chart.plot.*;
import java.awt.*;

public class BarExample1{
public static void main(String arg[]){
  DefaultCategoryDataset dataset = new DefaultCategoryDataset();
  dataset.setValue(2, "Marks", "Rahul");
```

```
  dataset.setValue(7, "Marks", "Vinod");
  dataset.setValue(4, "Marks", "Deepak");
  dataset.setValue(9, "Marks", "Prashant");
  dataset.setValue(6, "Marks", "Chandan");
  JFreeChart chart = ChartFactory.createBarChart
  ("BarChart using JFreeChart","Student", "Marks", dataset,
   PlotOrientation.VERTICAL, false,true, false);
  chart.setBackgroundPaint(Color.yellow);
  chart.getTitle().setPaint(Color.blue);
  CategoryPlot p = chart.getCategoryPlot();
  p.setRangeGridlinePaint(Color.red);
  ChartFrame frame1=new ChartFrame("Bar Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(400,350);
  }
}

7//3D Bar Chart Example
 import org.jfree.chart.*;
import org.jfree.data.category.*;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.data.xy.*;
import org.jfree.data.*;
import org.jfree.chart.renderer.category.*;
import org.jfree.chart.plot.*;
import java.awt.*;

public class BarExample2{
public static void main(String arg[]){
  DefaultCategoryDataset dataset = new DefaultCategoryDataset();
  dataset.setValue(6, "Science", "Rahul");
  dataset.setValue(8, "Maths", "Rahul");
  dataset.setValue(5, "Science", "Deepak");
  dataset.setValue(3, "Maths", "Deepak");
  dataset.setValue(6, "Science", "Vinod");
  dataset.setValue(9, "Maths", "Vinod");
  dataset.setValue(2, "Science", "Chandan");
  dataset.setValue(4, "Maths", "Chandan");
  JFreeChart chart = ChartFactory.createBarChart3D
  ("Comparison between Students","Students", "Marks",
  dataset, PlotOrientation.VERTICAL, true,true, false);
  chart.setBackgroundPaint(Color.yellow);
  chart.getTitle().setPaint(Color.blue);
  CategoryPlot p = chart.getCategoryPlot();
  p.setRangeGridlinePaint(Color.red);
  ChartFrame frame1=new ChartFrame("3D Bar Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(300,300);
```

```
  }
}
```

8//WaterFall Chart Example

```
 import java.awt.*;
import org.jfree.chart.*;
import org.jfree.data.category.*;
import org.jfree.data.general.DefaultPieDataset;
import org.jfree.data.xy.*;
import org.jfree.data.*;
import org.jfree.chart.renderer.category.*;
import org.jfree.chart.plot.*;

public class Waterfall{
public static void main(String arg[]){
  DefaultCategoryDataset dataset = new DefaultCategoryDataset();
  dataset.addValue(3.0, "Salary", "Rahul");
  dataset.addValue(3.0, "Salary", "Prashant");
  dataset.addValue(2.0, "Salary", "Chandan");
  dataset.addValue(2.0, "Salary", "Vinod");
  dataset.addValue(10.0, "Salary", "Total");
  JFreeChart chart = ChartFactory.createWaterfallChart
  ("Comparison between Employees","Employee", "Salary",
  dataset, PlotOrientation.VERTICAL, true,true, false);
  chart.getTitle().setPaint(Color.blue);
  CategoryPlot p = chart.getCategoryPlot();
  p.setRangeGridlinePaint(Color.red);
  p.setDomainGridlinesVisible(true);
  p.setDomainGridlinePaint(Color.black);
  ChartFrame frame1=new ChartFrame("WaterFall Chart",chart);
  frame1.setVisible(true);
  frame1.setSize(400,350);
  }
}
```

9//Polar Chart Example

10//Bar Chart Example using JFreeChart

11//Horizontal Bar Chart Example using JFreeChart

12//Stacked 3d Bar Chart Example using JFreeChart

13//Stacked Bar Chart using JFreeChart

14//Stacked Bar Chart Example using JFreeChart