```java
1  package manageData;
2
3
4
5  import org.jfree.chart.*;
12
13 public class Laws {
14     History history;
15     Report report;
16     public Laws(History history,Report report){
17         this.history=history;
18         this.report=report;
19     }
20     public void evaluateLaw1(){
21         DefaultCategoryDataset objDataset = new DefaultCategoryDataset();
22         for(int i=0;i<this.history.idCounter;i++){
23             objDataset.setValue(this.history.returnOperationChanges(i),"Q1",Integer.toStrin
   g(i+1));
24         }
25         JFreeChart objChart = ChartFactory.createBarChart(
26                 "MTurk:Operation Changes",
27             "version ID",
28             "number of changes",
29             objDataset,
30             PlotOrientation.VERTICAL,
31             true,
32             true,
33             false
34         );
35         ChartFrame frame = new ChartFrame("MTurk:Operation Changes", objChart);
36         frame.pack();
37         frame.setVisible(true);
38         objDataset = new DefaultCategoryDataset();
39         for(int i=0;i<this.history.idCounter;i++){
40             objDataset.setValue(this.history.returnDataStructuresChanges(i),"Q1",Integer.to
   String(i+1));
41         }
42         objChart = ChartFactory.createBarChart(
43             "MTurk:Data Structures Changes",
44             "version ID",
45             "number of changes",
46             objDataset,
47             PlotOrientation.VERTICAL,
48             true,
49             true,
50             false
51         );
52         frame = new ChartFrame("MTurk:Data Structures Changes", objChart);
53         frame.pack();
54         frame.setVisible(true);
55         objDataset = new DefaultCategoryDataset();
56         int times[][]=this.history.retrunNumberOfOpPerYear();
57         for(int i=0;i<times.length;i++){
58             objDataset.setValue(times[i][1],"Q1",Integer.toString(times[i][0]));
59         }
60         objChart = ChartFactory.createBarChart(
61             "MTurk:versions per year",
62             "version ID",
63             "number of versions",
64             objDataset,
65             PlotOrientation.VERTICAL,
```

```java
66              true,
67              true,
68              false
69          );
70          frame = new ChartFrame("MTurk:versions per year", objChart);
71          frame.pack();
72          frame.setVisible(true);
73      }
74
75      public void evaluateLaw2(){
76          DefaultCategoryDataset dataset = new DefaultCategoryDataset( );
77          for(int i=0;i<this.history.idCounter;i++){
78              dataset.addValue(this.history.returnComplexityO(i),"complexity",Integer.toStrin
    g(i+1));
79          }
80          JFreeChart lineChart = ChartFactory.createLineChart(
81                  "MTurk:Operation complexity",
82                  "version ID","complexity",
83                  dataset,
84                  PlotOrientation.VERTICAL,
85                  true,true,false
86          );
87          ChartFrame frame = new ChartFrame("MTurk:Operation complexity", lineChart);
88          frame.pack();
89          frame.setVisible(true);
90          dataset = new DefaultCategoryDataset( );
91          for(int i=0;i<this.history.idCounter;i++){
92
    dataset.addValue(this.history.returnComplexityDS(i),"complexity",Integer.toString(i+1));
93          }
94          lineChart = ChartFactory.createLineChart(
95                  "MTurk:DataStructure complexity",
96                  "version ID","complexity",
97                  dataset,
98                  PlotOrientation.VERTICAL,
99                  true,true,false);
100         frame = new ChartFrame("MTurk:DataStructure complexity", lineChart);
101         frame.pack();
102         frame.setVisible(true);
103         DefaultCategoryDataset objDataset = new DefaultCategoryDataset();
104         for(int i=0;i<this.history.idCounter;i++){
105
    objDataset.setValue(this.history.returnMaintenance(i),"Q1",Integer.toString(i+1));
106         }
107         JFreeChart objChart = ChartFactory.createBarChart(
108                 "MTurk:Maintenance Actions",
109                  "version ID",
110                  "number of changes",
111                  objDataset,
112                  PlotOrientation.VERTICAL,
113                  true,
114                  true,
115                  false
116         );
117         frame = new ChartFrame("MTurk:Maintenance Actions", objChart);
118         frame.pack();
119         frame.setVisible(true);
120     }
121
122     public void evaluateLaw3(){
123         DefaultCategoryDataset dataset1 = new DefaultCategoryDataset( );
```

```java
124        DefaultCategoryDataset dataset2 = new DefaultCategoryDataset( );
125        for(int i=0;i<this.history.idCounter;i++){
126            dataset1.addValue(this.history.returnGrowthOperations(i),"growth",Integer.toString(i+1));
127            dataset2.addValue(this.history.returnGrowthDataStructures(i),"growth",Integer.toString(i+1));
128        }
129        JFreeChart lineChart1 = ChartFactory.createLineChart(
130                "MTurk:Operation growth",
131                "version ID","growth",
132                dataset1,
133                PlotOrientation.VERTICAL,
134                true,true,false);
135        ChartFrame frame = new ChartFrame("MTurk:Operation growth", lineChart1);
136        frame.pack();
137        frame.setVisible(true);
138        JFreeChart lineChart2 = ChartFactory.createLineChart(
139                "MTurk:Data Structures growth",
140                "version ID","growth",
141                dataset2,
142                PlotOrientation.VERTICAL,
143                true,true,false);
144        frame = new ChartFrame("MTurk:Data Structures growth", lineChart2);
145        frame.pack();
146        frame.setVisible(true);
147    }
148
149    public void evaluateLaw4(){
150        DefaultCategoryDataset dataset1 = new DefaultCategoryDataset( );
151        DefaultCategoryDataset dataset2 = new DefaultCategoryDataset( );
152        for(int i=0;i<this.history.idCounter;i++){
153            dataset1.addValue(this.history.returnEmploymentRateO(i),"Work Rate",Integer.toString(i+1));
154            dataset2.addValue(this.history.returnEmploymentRateDS(i),"Work Rate",Integer.toString(i+1));
155        }
156        JFreeChart lineChart1 = ChartFactory.createLineChart(
157                "MTurk:Operations Work Rate",
158                "version ID","Work Rate(days)",
159                dataset1,
160                PlotOrientation.VERTICAL,
161                true,true,false);
162        ChartFrame frame = new ChartFrame("MTurk:Operations Work Rate", lineChart1);
163        frame.pack();
164        frame.setVisible(true);
165        JFreeChart lineChart2 = ChartFactory.createLineChart(
166                "MTurk:Data Structures Work Rate",
167                "version ID","Work Rate(days)",
168                dataset2,
169                PlotOrientation.VERTICAL,
170                true,true,false);
171        frame = new ChartFrame("MTurk:Data Structures Work Rate", lineChart2);
172        frame.pack();
173        frame.setVisible(true);
174    }
175
176    public void evaluateLaw5(){
177        evaluateLaw3();
178    }
179
180    public void evaluateLaw6(){
```

```java
181        DefaultCategoryDataset dataset1 = new DefaultCategoryDataset( );
182        DefaultCategoryDataset dataset2 = new DefaultCategoryDataset( );
183        for(int i=0;i<this.history.idCounter;i++){
184            dataset1.addValue(this.history.returnNumberOfOperations(i),"growth",Integer.toS
tring(i+1));
185            dataset2.addValue(this.history.returnNumberOfDataStructures(i),"growth",Integer.
toString(i+1));
186        }
187        JFreeChart lineChart1 = ChartFactory.createLineChart(
188                "MTurk:Operation Number",
189                "version ID","Number of Operations",
190                dataset1,
191                PlotOrientation.VERTICAL,
192                true,true,false);
193        ChartFrame frame = new ChartFrame("MTurk:Operations Number", lineChart1);
194        frame.pack();
195        frame.setVisible(true);
196        JFreeChart lineChart2 = ChartFactory.createLineChart(
197                "MTurk:Data Structures Number",
198                "version ID","Data Structures Number",
199                dataset2,
200                PlotOrientation.VERTICAL,
201                true,true,false);
202        frame = new ChartFrame("MTurk:Data Structures Number", lineChart2);
203        frame.pack();
204        frame.setVisible(true);
205    }
206
207    public void evaluateLaw7(){
208        if(this.report.getValuation(2)==true && this.report.getValuation(6)==true){
209            this.report.InsertValuation(true,7);
210        }
211    }
212
213    public void evaluateLaw8(){
214        double E[]=new double[this.history.idCounter];
215        double S[]=new double[this.history.idCounter];
216        double s=0,Epsilon;
217        int e;
218        for(int i=0;i<E.length;i++){
219            e=
(this.history.returnNumberOfOperations(i)-this.history.returnNumberOfOperations(0));
220            for(int j=0;j<E.length-1;j++){
221                s=s+(1/(this.history.returnNumberOfOperations(i))^2);
222            }
223            E[i]=e/s;
224        }
225        s=0;
226        for(int i=0;i<E.length;i++){
227            s=s+E[i];
228        }
229        Epsilon=s/E.length;
230        for(int i=0;i<S.length;i++){
231            if(i==0){
232                S[i]=this.history.InitialNumberOfOperations;
233            }
234            else{
235                S[i]=this.history.returnNumberOfOperations(i-1)+(Epsilon/
((this.history.returnNumberOfOperations(i))*(this.history.returnNumberOfOperations(i))));
236            }
237        }
```

```java
238        final XYSeries line1 = new XYSeries( "Number of Operations actual" );
239        for(int i=0;i<S.length;i++){
240            line1.add( i+1 , this.history.returnNumberOfOperations(i) );
241        }
242        final XYSeries line2 = new XYSeries( "Number of Operations Estimation" );
243        for(int i=0;i<S.length;i++){
244            line2.add( i+1 ,S[i] );
245        }
246        final XYSeriesCollection dataset = new XYSeriesCollection( );
247        dataset.addSeries( line1 );
248        dataset.addSeries( line2 );
249        JFreeChart xylineChart = ChartFactory.createXYLineChart(
250                        "MTurk:Number of Operations Estimations " ,
251                        "Category" ,
252                        "Score" ,
253                        dataset ,
254                        PlotOrientation.VERTICAL ,
255                        true , true , false);
256        ChartFrame frame = new ChartFrame("MTurk:Number of Operations Estimations",
    xylineChart);
257        frame.pack();
258        frame.setVisible(true);
259    }
260 }
```