

# 객체지향프로그래밍

## JavaFX



학 과 : 소프트웨어학부

학 번 : 2017203053

이 름 : 김 형 석

## 1. 소스코드

### Main.java

```
package sample;

import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.fxml.FXMLLoader;
import javafx.scene.layout.VBox;

public class Main extends Application {

    @Override
    public void start(Stage primaryStage) {
        try {
            FXMLLoader loader = new FXMLLoader(getClass().getResource("sample.fxml"));
            VBox root = loader.load();
            Controller controller = loader.getController();
            controller.setPrimaryStage(primaryStage);

            Scene scene = new Scene(root);

            primaryStage.setTitle("Assignment");
            primaryStage.setScene(scene);
            primaryStage.show();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    public static void main(String[] args) { launch(args); }
```

## Controller.java

```
1  package sample;
2
3  import javafx.event.*;
4  import java.lang.*;
5
6  import java.net.URL;
7  import java.util.*;
8  import javafx.collections.FXCollections;
9  import javafx.fxml.*;
10 import javafx.stage.Modality;
11 import javafx.stage.StageStyle;
12 import javafx.stage.Stage;
13 import javafx.scene.Scene;
14 import javafx.collections.*;
15 import javafx.scene.control.TableView;
16 import javafx.scene.control.Button;
17 import javafx.scene.Parent;
18 import javafx.scene.control.TableColumn;
19 import javafx.scene.chart.BarChart;
20 import javafx.scene.control.cell.PropertyValueFactory;
21 import javafx.scene.chart.XYChart;
22 import javafx.scene.control.TextField;
23
24 public class Controller implements Initializable{
25     @FXML private TableView<Score> tableview;
26     @FXML private Button button1;
27     @FXML private Button button2;
28     private Stage primaryStage;
29     ObservableList<Score> scoreList= FXCollections.observableArrayList();
30
31     @Override
32     public void initialize(URL location, ResourceBundle resources){
33         button1.setOnAction(event->{
34             try{
35                 handleBtn1Action(event);
36             }catch(Exception e){
37                 e.printStackTrace();
38             }
39         });
40         button2.setOnAction(event->{
41             try{
42                 handleBtn2Action(event);
43             }catch(Exception e){
44                 e.printStackTrace();
45             }
46         });
47     }
```

```

47
48 public void setPrimaryStage(Stage primaryStage) { this.primaryStage=primaryStage; }
51 public void handleBtn1Action(ActionEvent event) throws Exception{
52     Stage dialog=new Stage(StageStyle.UTILITY);
53     dialog.initModality(Modality.WINDOW_MODAL);
54     dialog.initOwner(primaryStage);
55     dialog.setTitle("추가");
56
57     Parent parent = FXMLLoader.load(getClass().getResource("chart.fxml"));
58     Button btn1=(Button)parent.lookup("#btn1");
59     btn1.setOnAction(e->{
60         TextField textfield1 = (TextField)parent.lookup("#textfield1");
61         TextField textfield2 = (TextField)parent.lookup("#textfield2");
62         TextField textfield3 = (TextField)parent.lookup("#textfield3");
63         TextField textfield4 = (TextField)parent.lookup("#textfield4");
64
65         scoreList.add(new Score(textfield1.getText(),
66                                 Integer.parseInt(textfield2.getText()),
67                                 Integer.parseInt(textfield3.getText()),
68                                 Integer.parseInt(textfield4.getText())));
69
70         TableColumn<Score, ?> tcName=tableview.getColumns().get(0);
71         tcName.setCellValueFactory(new PropertyValueFactory<>("name"));
72         tcName.setStyle("-fx-alignment: CENTER;");
73
74         TableColumn<Score, ?> tcKorean=tableview.getColumns().get(1);
75         tcKorean.setCellValueFactory(new PropertyValueFactory<>("korean"));
76         tcKorean.setStyle("-fx-alignment: CENTER;");
77
78         TableColumn<Score, ?> tcMath=tableview.getColumns().get(2);
79         tcMath.setCellValueFactory(new PropertyValueFactory<>("math"));
80         tcMath.setStyle("-fx-alignment: CENTER;");
81
82         TableColumn<Score, ?> tcEnglish=tableview.getColumns().get(3);
83         tcEnglish.setCellValueFactory(new PropertyValueFactory<>("english"));
84         tcEnglish.setStyle("-fx-alignment: CENTER;");
85
86         tableview.setItems(scoreList);
87         dialog.close();
88     });
89
90     Button btn2=(Button)parent.lookup("#btn2");
91     btn2.setOnAction(e->dialog.close());
92     Scene scene=new Scene(parent);
93
94     dialog.setScene(scene);
95     dialog.setResizable(false);
96     dialog.show();
97 }

```

```

98     public void handleBtn2Action(ActionEvent event) throws Exception{
99         Stage dialog = new Stage(StageStyle.UTILITY);
100         dialog.initModality(Modality.WINDOW_MODAL);
101         dialog.initOwner(primaryStage);
102         dialog.setTitle("막대 그래프");
103
104         Parent parent = FXMLLoader.load(getClass().getResource("graph.fxml"));
105         BarChart<String,Number> barChart = (BarChart<String,Number>)parent.lookup(selector "#barchart");
106
107         XYChart.Series<String,Number> dataSeries1=new XYChart.Series<>();
108         dataSeries1.setName("국어");
109
110         XYChart.Series<String,Number> dataSeries2=new XYChart.Series<>();
111         dataSeries2.setName("수학");
112
113         XYChart.Series<String,Number> dataSeries3=new XYChart.Series<>();
114         dataSeries3.setName("영어");
115
116         for(int i=0;i<scoreList.size();i++){
117             dataSeries1.getData().add(new XYChart.Data<>(scoreList.get(i).getName(), scoreList.get(i).getKorean()));
118             dataSeries2.getData().add(new XYChart.Data<>(scoreList.get(i).getName(), scoreList.get(i).getMath()));
119             dataSeries3.getData().add(new XYChart.Data<>(scoreList.get(i).getName(), scoreList.get(i).getEnglish()));
120         }
121         barChart.getData().add(dataSeries1);
122         barChart.getData().add(dataSeries2);
123         barChart.getData().add(dataSeries3);
124
125         Button btn3=(Button)parent.lookup(selector "#btn3");
126         btn3.setOnAction(e->dialog.close());
127         Scene scene=new Scene(parent);
128
129         dialog.setScene(scene);
130         dialog.setResizable(false);
131         dialog.show();
132     }
133 }
134

```



## Score.java

```
1 package sample;
2
3 import javafx.beans.property.*;
4
5 public class Score {
6     private SimpleStringProperty name;
7     private SimpleIntegerProperty korean;
8     private SimpleIntegerProperty math;
9     private SimpleIntegerProperty english;
10
11     public Score(){
12         this.name=new SimpleStringProperty();
13         this.korean=new SimpleIntegerProperty();
14         this.math=new SimpleIntegerProperty();
15         this.english=new SimpleIntegerProperty();
16     }
17     public Score(String name, int korean, int math, int english){
18         this.name=new SimpleStringProperty(name);
19         this.korean=new SimpleIntegerProperty(korean);
20         this.math=new SimpleIntegerProperty(math);
21         this.english=new SimpleIntegerProperty(english);
22     }
23     public String getName() { return name.get(); }
26     public void setName(String name) { this.name.set(name); }
29     public int getKorean() { return korean.get(); }
32     public void setKorean(int korean) { this.korean.set(korean); }
35     public int getMath() { return math.get(); }
38     public void setMath(int korean) { this.math.set(korean); }
41     public int getEnglish() { return english.get(); }
44     public void setEnglish(int korean) { this.english.set(korean); }
47 }
48
```

## sample.fxml

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <?import javafx.geometry.Insets?>
3 <?import javafx.scene.layout.GridPane?>
4 <?import javafx.scene.control.TableColumn?>
5 <?import javafx.scene.control.TableView?>
6 <?import javafx.scene.layout.HBox?>
7 <?import javafx.scene.layout.VBox?>
8 <?import javafx.scene.control.Button?>
9 <?import javafx.scene.control.Label?>
10
11 <VBox alignment="TOP_CENTER" maxHeight="-Infinity" maxWidth="-Infinity" minHeight="-Infinity" minWidth="-Infinity"
12     prefHeight="255.0" prefWidth="320.0" xmlns="http://javafx.com/javafx/1.8.0"
13     xmlns:fx="http://javafx.com/fxml/1" fx:controller="sample.Controller">
14     <children>
15         <TableView fx:id="tableview" prefHeight="245.0">
16             <columns>
17                 <TableColumn prefWidth="75.0" text="이름" />
18                 <TableColumn prefWidth="75.0" text="국어" />
19                 <TableColumn prefWidth="75.0" text="수학" />
20                 <TableColumn prefWidth="75.0" text="영어" />
21             </columns>
22         </TableView>
23         <HBox alignment="CENTER" prefHeight="100.0" prefWidth="200.0" spacing="25.0">
24             <children>
25                 <Button fx:id="button1" mnemonicParsing="false" text="추가" />
26                 <Button fx:id="button2" mnemonicParsing="false" text="학생별 미대그래프" />
27             </children>
28         </HBox>
29     </children>
30 </VBox>
```

## chart.fxml

```
1  <?xml version="1.0" encoding="UTF-8"?>
2
3  <?import javafx.scene.control.*?>
4  <?import javafx.scene.layout.*?>
5  <?import javafx.geometry.Insets?>
6
7
8  <VBox maxHeight="-Infinity" maxWidth="-Infinity" minHeight="-Infinity" minWidth="-Infinity"
9        prefHeight="220.0" prefWidth="220.0" xmlns:fx="http://javafx.com/fxml">
10     <children>
11         <HBox alignment="CENTER" prefHeight="100.0" prefWidth="200.0" spacing="40.0">
12             <children>
13                 <Label text="이름" />
14                 <TextField fx:id="textfield1" prefHeight="23.0" prefWidth="110.0" />
15             </children>
16         </HBox>
17         <HBox alignment="CENTER" prefHeight="100.0" prefWidth="200.0" spacing="40.0">
18             <children>
19                 <Label text="국어" />
20                 <TextField fx:id="textfield2" prefHeight="23.0" prefWidth="110.0" />
21             </children>
22         </HBox>
23         <HBox alignment="CENTER" prefHeight="100.0" prefWidth="200.0" spacing="40.0">
24             <children>
25                 <Label text="수학" />
26                 <TextField fx:id="textfield3" prefHeight="23.0" prefWidth="110.0" />
27             </children>
28         </HBox>
29         <HBox alignment="CENTER" prefHeight="100.0" prefWidth="200.0" spacing="40.0">
30             <children>
31                 <Label text="영어" />
32                 <TextField fx:id="textfield4" prefHeight="23.0" prefWidth="110.0" />
33             </children>
34         </HBox>
35         <HBox alignment="CENTER" prefHeight="100.0" prefWidth="200.0" spacing="40.0">
36             <children>
37                 <Button fx:id="btn1" mnemonicParsing="false" text="저장" />
38                 <Button fx:id="btn2" mnemonicParsing="false" text="취소" />
39             </children>
40             <VBox.margin>
41                 <Insets top="10.0" />
42             </VBox.margin>
43         </HBox>
44     </children>
45     <padding>
46         <Insets bottom="20.0" top="20.0" />
47     </padding>
48 </VBox>
49
```

## graph.fxml

```
1  <?xml version="1.0" encoding="UTF-8"?>
2
3  <?import javafx.scene.control.*?>
4  <?import javafx.scene.layout.*?>
5  <?import javafx.geometry.Insets?>
6  <?import javafx.scene.chart.*?>
7
8
9  <VBox alignment="TOP_CENTER" maxHeight="-Infinity" maxWidth="-Infinity" minHeight="-Infinity" minWidth="-Infinity"
10        prefHeight="255.0" prefWidth="320.0" xmlns:fx="http://javafx.com/fxml">
11     <padding>
12         <Insets bottom="20.0" top="20.0" />
13     </padding>
14     <children>
15         <BarChart fx:id="barchart">
16             <xAxis>
17                 <CategoryAxis side="BOTTOM" />
18             </xAxis>
19             <yAxis>
20                 <NumberAxis side="LEFT" />
21             </yAxis>
22         </BarChart>
23         <Button fx:id="btn3" mnemonicParsing="false" text="닫기" />
24     </children>
25 </VBox>
26
```

## 2. 실행 결과

Assignment

이름	국어	수학	영어
한학기	80	90	70
수고	100	78	89
많으셨	76	68	93
습니다.	34	58	26

추가
학생별 막대그래프

추가

이름

국어

수학

영어

저장
취소

Assignment

이름	국어	수학	영어
한학기	80	90	70
수고	100	78	89
많으셨	76	68	93
습니다.	34	58	26
^^	100	100	100

추가

학생별 막대그래프



