Main.java:
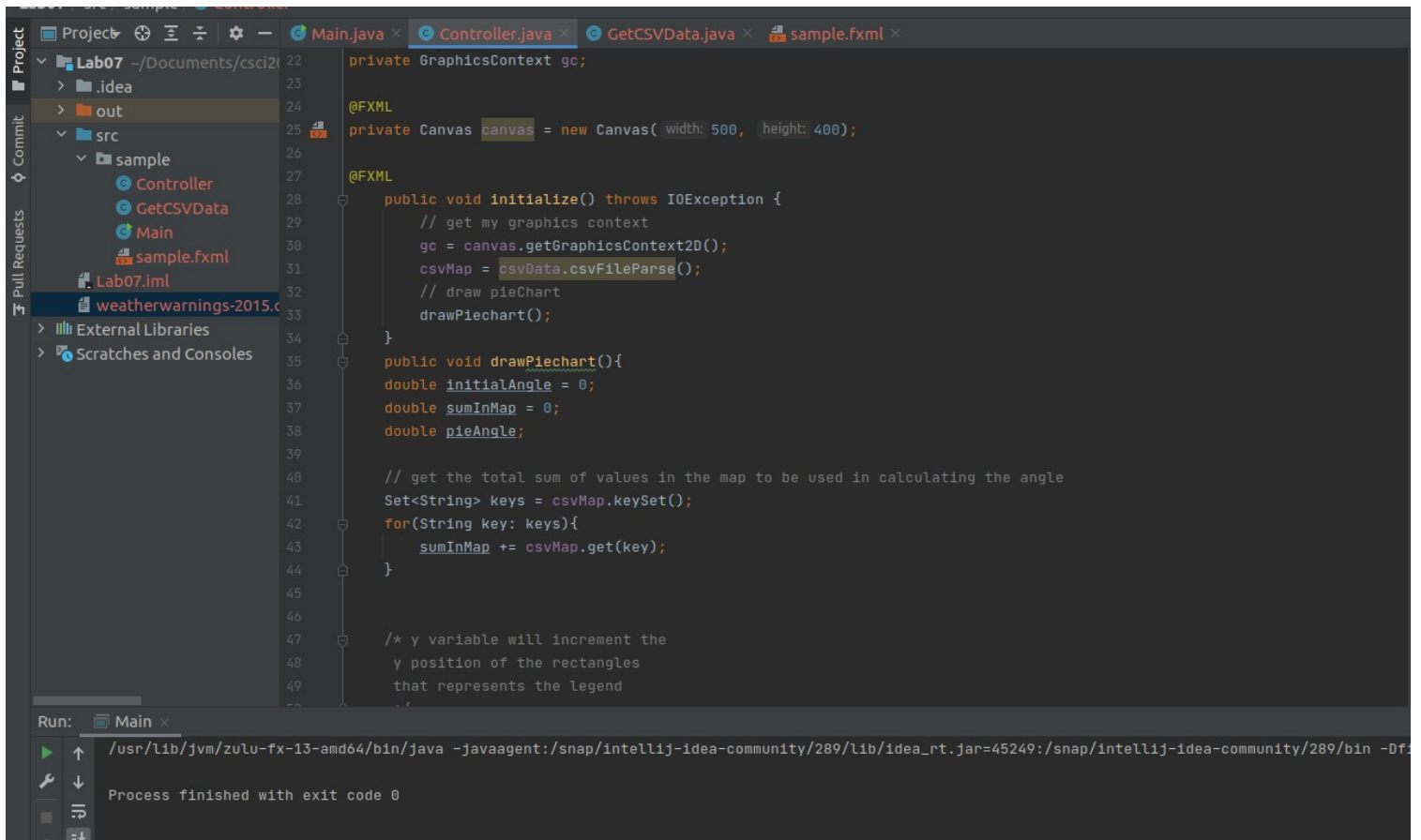
```java
package sample;

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

public class Main extends Application {

    @Override
    public void start(Stage primaryStage) throws Exception{
        Parent root = FXMLLoader.load(getClass().getResource( name: "sample.fxml"));
        primaryStage.setTitle("Lab07");
        primaryStage.setScene(new Scene(root,  width: 800,  height: 400));
        primaryStage.show();
    }


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

Controller.java:

```java
package sample;

import javafx.fxml.FXML;
import javafx.scene.canvas.Canvas;
import javafx.scene.canvas.GraphicsContext;
import javafx.scene.paint.Color;
import javafx.scene.shape.ArcType;
import java.io.IOException;
import java.util.Set;
import java.util.TreeMap;

public class Controller {
    private GetCSVData csvData = new GetCSVData( file: "weatherwarnings-2015.csv");

    private TreeMap<String, Integer> csvMap;


    private Color[] pieColours = {Color.AQUA, Color.GOLD, Color.DARKORANGE, Color.DARKSALMON, Color.LAWNGREEN, Color.PLUM};


    @FXML
    private GraphicsContext gc;

    @FXML
    private Canvas canvas = new Canvas( width: 500,  height: 400);

    @FXML
    public void initialize() throws IOException {
```

Run: Main
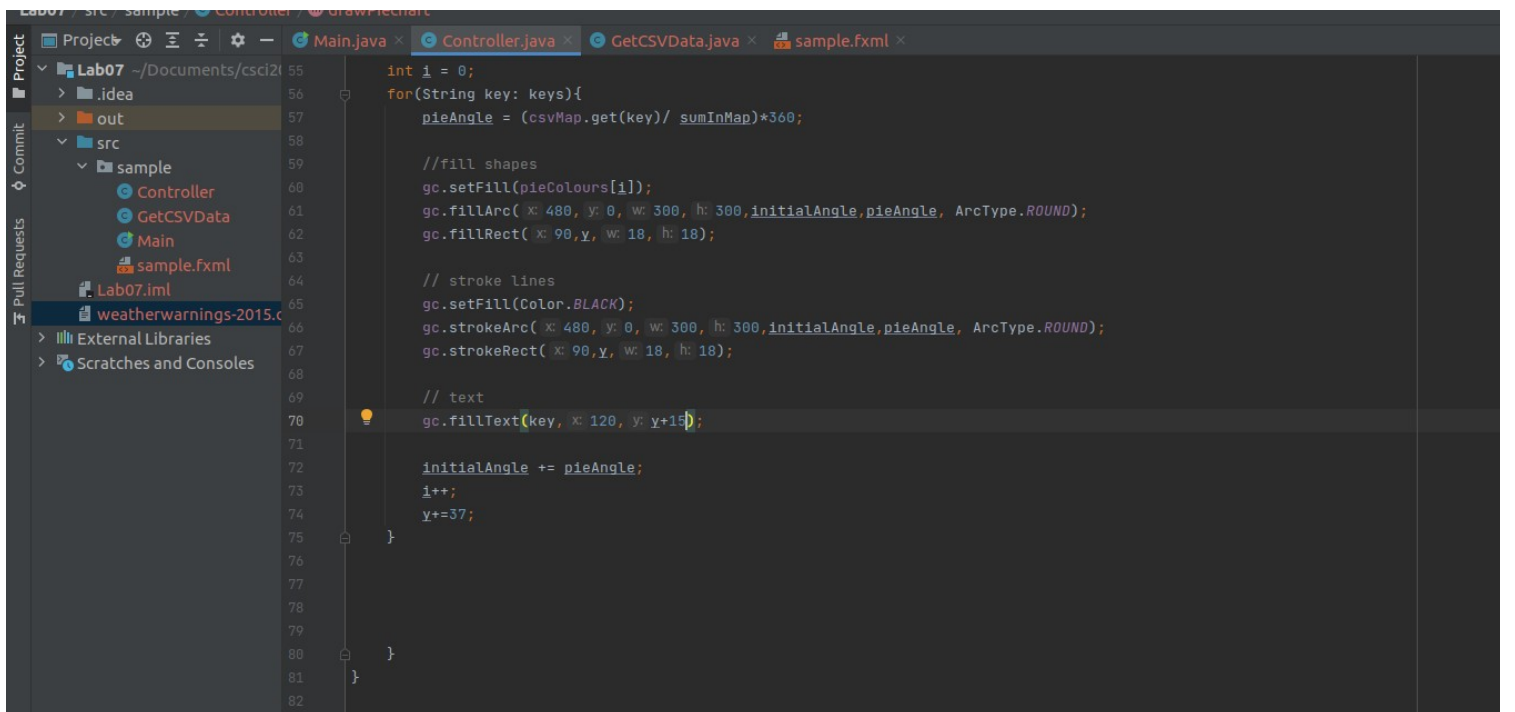
```java
private GraphicsContext gc;

@FXML
private Canvas canvas = new Canvas( width: 500,  height: 400);

@FXML
    public void initialize() throws IOException {
        // get my graphics context
        gc = canvas.getGraphicsContext2D();
        csvMap = csvData.csvFileParse();
        // draw pieChart
        drawPiechart();
    }
    public void drawPiechart(){
    double initialAngle = 0;
    double sumInMap = 0;
    double pieAngle;

    // get the total sum of values in the map to be used in calculating the angle
    Set<String> keys = csvMap.keySet();
    for(String key: keys){
        sumInMap += csvMap.get(key);
    }


    /* y variable will increment the
     y position of the rectangles
     that represents the legend
```

```
/usr/lib/jvm/zulu-fx-13-amd64/bin/java -javaagent:/snap/intellij-idea-community/289/lib/idea_rt.jar=45249:/snap/intellij-idea-community/289/bin -Df

Process finished with exit code 0
```

```java
    int i = 0;
    for(String key: keys){
        pieAngle = (csvMap.get(key)/ sumInMap)*360;

        //fill shapes
        gc.setFill(pieColours[i]);
        gc.fillArc( x: 480, y: 0, w: 300, h: 300,initialAngle,pieAngle, ArcType.ROUND);
        gc.fillRect( x: 90,y, w: 18, h: 18);

        // stroke lines
        gc.setFill(Color.BLACK);
        gc.strokeArc( x: 480, y: 0, w: 300, h: 300,initialAngle,pieAngle, ArcType.ROUND);
        gc.strokeRect( x: 90,y, w: 18, h: 18);

        // text
        gc.fillText(key, x: 120, y: y+15);

        initialAngle += pieAngle;
        i++;
        y+=37;
    }



    }
}
```

```java
package sample;

import java.io.*;
import java.util.Map;
import java.util.TreeMap;

public class GetCSVData {
    private String inputCSV;
    private TreeMap<String, Integer> csvMap;

    public GetCSVData(String file){
        inputCSV = file;
        csvMap = new TreeMap<>();
        // put all the strings to be counted in a map
        setcsvMap();
    }

    private void setcsvMap() {
        // set each string data and initial count
        csvMap.put("FLASH FLOOD", 0);
        csvMap.put("SEVERE THUNDERSTORM", 0);
        csvMap.put("SPECIAL MARINE", 0);
        csvMap.put("TORNADO", 0);
    }

    // load in the csv file
    public TreeMap csvFileParse() throws IOException {
        FileReader fileReader = new FileReader(inputCSV);

        BufferedReader input = new BufferedReader(fileReader);

        // read the headers of the file
        String line = input.readLine();
```

```java
        // set each string data and initial count
        csvMap.put("FLASH FLOOD", 0);
        csvMap.put("SEVERE THUNDERSTORM", 0);
        csvMap.put("SPECIAL MARINE", 0);
        csvMap.put("TORNADO", 0);
    }

    // load in the csv file
    public TreeMap csvFileParse() throws IOException {
        FileReader fileReader = new FileReader(inputCSV);

        BufferedReader input = new BufferedReader(fileReader);

        // read the headers of the file
        String line = input.readLine();

        while(line != null){
            String []arrayWords = line.split( regex: ",");
            //increment the map for each string in the column
            int count = csvMap.get(arrayWords[5]); // line at column 6
            count +=1;
            csvMap.put(arrayWords[5], count);
            line = input.readLine();
        }
        return csvMap;
    }
}
```

Project panel:

```
Lab07 ~/Documents/csci2(
  .idea
  out
  src
    sample
      Controller
      GetCSVData
      Main
      sample.fxml
  Lab07.iml
  weatherwarnings-2015.c
External Libraries
Scratches and Consoles
```

Tabs: Main.java | Controller.java | GetCSVData.java | sample.fxml

```
1  <?import javafx.scene.layout.GridPane?>
2  <?import javafx.scene.canvas.Canvas?>
3  <GridPane fx:controller="sample.Controller"
4          xmlns:fx="http://javafx.com/fxml" alignment="center" hgap="10" vgap="10">
5      <Canvas fx:id="canvas" GridPane.columnIndex="0" GridPane.rowIndex="0" height="300" width="800"/>
6  </GridPane>
```

Menu bar: Analyze Refactor Build Run Tools Git Window Help

Run 'Main' Shift+F10

```
1  <?import javafx.scene.layout.GridPane?>
2  <?import javafx.scene.canvas.Canvas?>
3  <GridPane fx:controller="sample.Controller"
4          xmlns:fx="http://javafx.com/fxml" alignment="center" hgap="10" vgap="10">
5      <Canvas fx:id="canvas" GridPane.columnIndex="0" GridPane.rowIndex="0" height="300" width="800"/>
6  </GridPane>
```

Lab07 (window)

- FLASH FLOOD
- SEVERE THUNDERSTORM
- SPECIAL MARINE
- TORNADO

Text   Scene Builder

`x-13-amd64/bin/java -javaagent:/snap/intellij-idea-community/289/lib/idea_rt.jar=45249:/snap/intellij-idea-community/289/bin -Dfile.encoding=UTF-8 -classpath /home/sem1lore/Documents/csc12(`