

## Mina Khan: Software Design Homework # 3

1. (15 points) Draw a UML diagram showing the relationship between your classes. It is only necessary for you to include in the diagram the public methods of each class and the instance variables of each class. It is not necessary to show non-public methods or static variables or constants.

Please see the last page for UML class diagram.

2. (15 points) In text, explain how your classes fill in the parts of the MVC architecture.

I have the following classes:

View classes:

1. Cell\_GUI.java
2. Row\_GUI.java
3. Spreadsheet\_View.java
4. SS\_textField.java

Model class:

5. Spreadsheet\_Model.java (has 2 inner classes: Row and Cell)

Controller class:

Spreadsheet\_Controller.java

Listener class:

Spreadsheet\_ActionListener.java

Main class

Spreadsheet\_main.java

When a cell value is modified, the actionListener calls the update method in controller class. The Controller class changes the Model and the model subsequently changes the View

3. (10 points) How would you change your design if you wanted to allow the user to change what the third column does? For example, the user might choose between total, average, minimum or maximum as the function to display in the third column.

In my Row class in Spreadsheet\_Model class, there is a method called getTotal() that calculates the value for the third column. I would just change that method and the View would be updated automatically as the model changes.

4. (10 points) How would you change your design if you wanted to allow the user to draw a bar graph of the values in the Total column, that is, drawing one bar for each value in the Total column? Focus on MVC issues, not details about how to draw the graph.

In my Row\_GUI class, I have a rowTotalPanel containing rowTotalLabel. My rowTotalPanel is in sync with the total column in the model using the setTotalPanel method in my Row\_GUI class. Since I already have the value for rowTotalPanel, I just have to change the way I represent the information in rowTotalPanel.