[demomvc.zip](http://cs.utsa.edu/~cs3443/laboratories/demomvc/demomvc.zip)

## Lab 5

### Preliminaries

In the [demomvc](http://cs.utsa.edu/~cs3443/demomvc/demomvc.zip) application, there is no connection between selecting a color in the JList and drawing on the PaintPanel. In this lab, this will be changed so that the color selected by the user will become the color of the paint brush. This lab will also improve some parts of this application.

The name of your Eclipse project should be abc123-lab5, where you replace abc123 with your abc123 id. The name of the file that contains the main method should remain DemoMVC.java. The remaining Java files should also keep their original names. To submit the project, export the project and upload the zip file to Blackboard.

### Task

Before starting to paint Points in DemoModel.java with different Colors, the Point array in DemoModel.java should be changed to an ArrayList<Point>. This will avoid out of bounds errors. You should do this first and ensure that your changes work before going on to other tasks.

DemoModel.java already stores the Color that the user has selected. Change PaintPanel.java to draw the Points using this Color. [Hint: There is a method in Graphics to change the drawing Color.] This change should result in all the Points between drawn using the currently selected Color, which is not what is desired.

So that Points can be drawn in different Colors, DemoModel.java needs to store a Color for each point. This could be done using an ArrayList<Color> and adding a Color to this ArrayList every time a Point is added.

Finally, PaintPanel.java needs to be able to access the Colors stored in DemoModel.java. Create a getColor method in DemoModel.java that will return the Color at a given index. This will be similar to the GetPoint method. Now PaintPanel.java can be changed to use this method to obtain a Color for each Point.

### Comments

Add javadoc comments for any additions or changes.

### UML Class Diagram

Create a UML class diagram similar to that shown in the [MVC notes](http://cs.utsa.edu/~cs3443/mvc-example.html) for this lab. [Maybe should have a link to a Violet file that can be easily changed.]

### Rubric

* An incorrect submission will possibly get zero points. A project that does not compile will receive at most 50 points total.
* (30 pts.) ArrayLists are used to store the Points and Colors in DemoModel.java instead of arrays.
* (20 pts.) When a new point is drawn on the PaintPanel, it is drawn using the currently selected color.
* (30 pts.) Each Point drawn with the correct Color, the Color that was selected when the user drew that points.
* (10 pts.) There are javadoc comments: at least one for each class and comments for each method, constructor and constant.
* (10 pts.) A UML class diagram is included that has all the classes (including the DemoMVC class) and all the constructors, methods, variables and constants of each class.