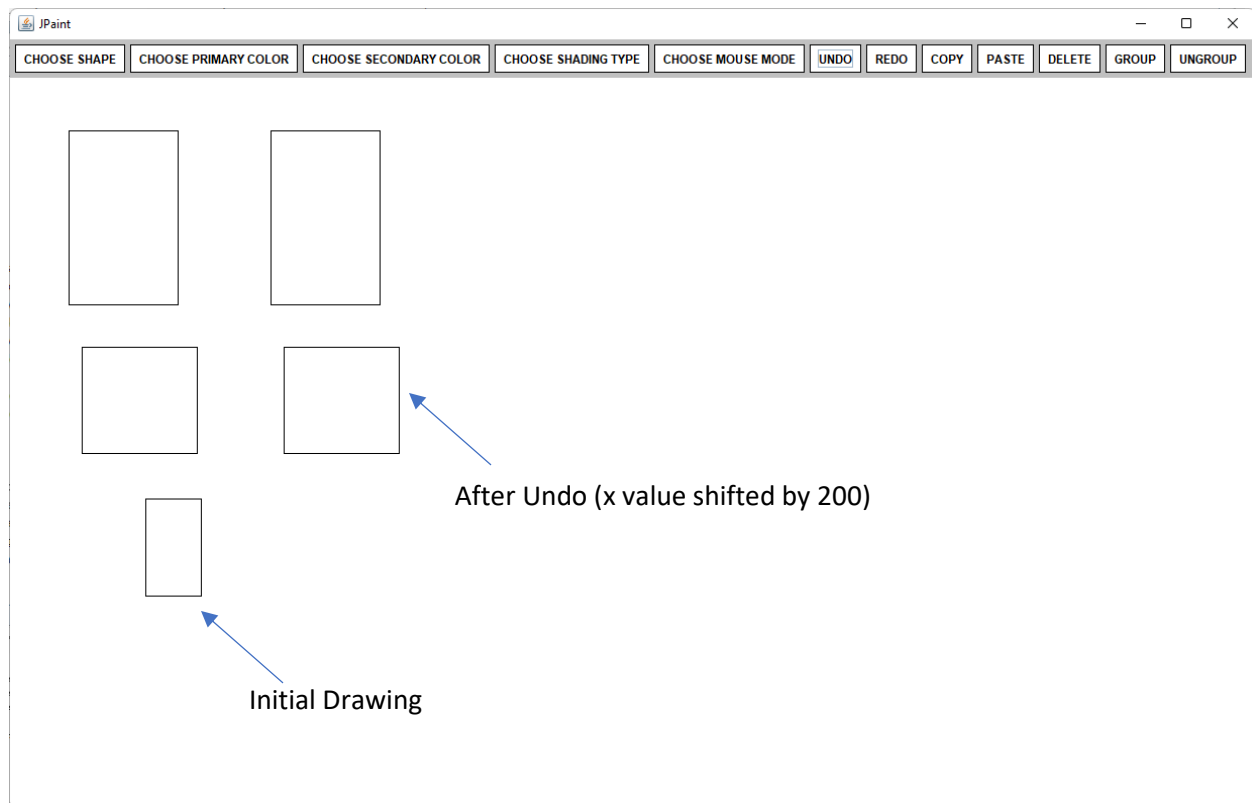


## README

### Project 1<sup>st</sup> Check-in

#### 1. features, bugs, extra credit, and miscellaneous notes.

I couldn't implement the Undo/Redo correctly due to an issue with `repaint()` method. It clears out the graphics and when I redraw by retrieving the saved objects inside the stack it doesn't show the new draw. So, I commented out where I called the repaint method. Therefore, old rectangles are still remain on the canvas. To show that undo works I shifted starting "x" point by 200 pixels when I hit undo.



#### 2. Link to GitHub repo - <https://github.com/sanjayadpf/OOPFinalProject.git>

Note: I have given the access. Please accept the invitation.

#### 3. List of Design Patterns

Tried to implement Command pattern for Undo/Redo using the `CommandHistory.java`. Couldn't succeed because of the issue that I faced with `repaint()` method. Trying to figure out How to use the `CommandHistory.java` file with the `actionlistener` of the Buttons. Created a `GenerateShape` Class which implements `ICommand` and `IUndoable`. In there I'm adding the `GenerateShape` objects to the `CommandHistory`.

## Project 2<sup>nd</sup> Check-in

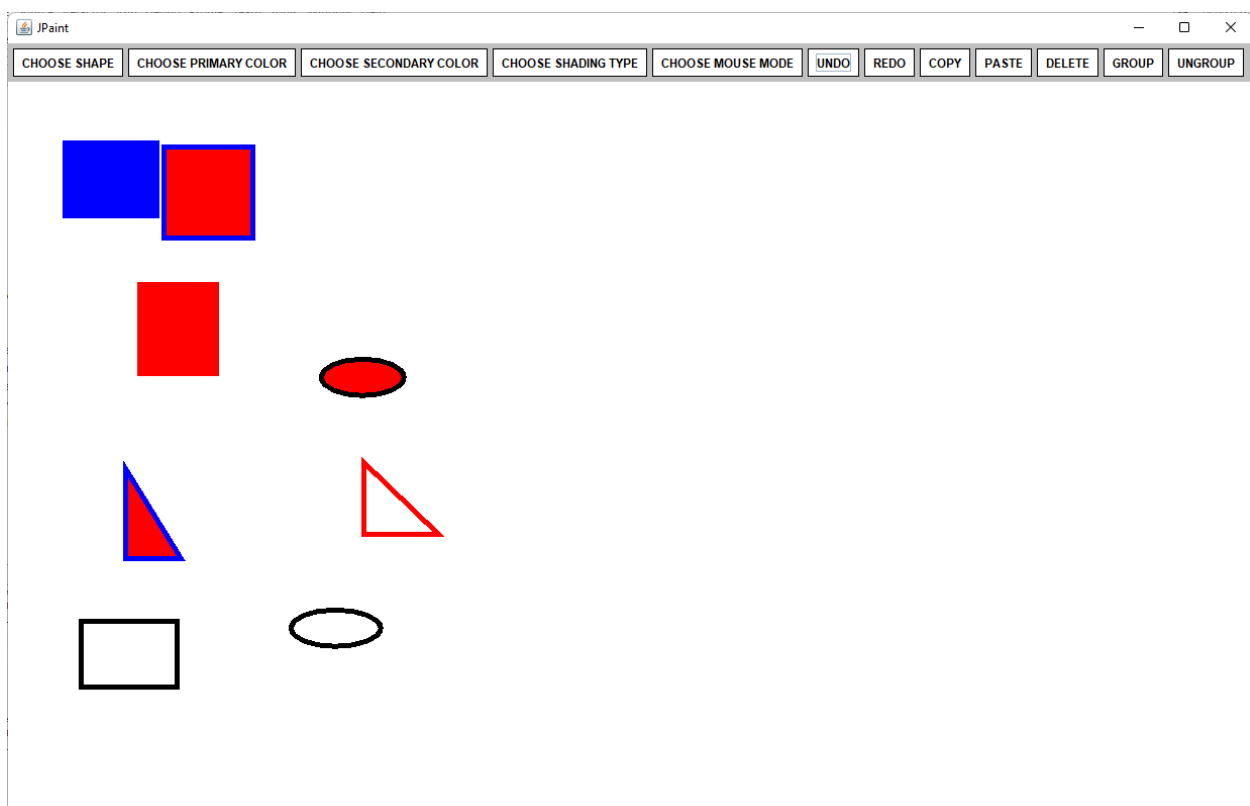
### 1. features, bugs, extra credit, and miscellaneous notes.

I have implemented the button functions CHOOSE SHAPE, CHOOSE PRIMARY COLOR, CHOOSE SECONDARY COLOR, CHOOSE SHADING TYPE. Couldn't implement the functions of mouse mode. So, the entire app is always on Draw mode. I struggled with selecting the shape. So, I uploaded the version which has no selection or move features. Major improvement is I managed to implement the Undo/Redo which I couldn't implement due to the issue I had with repaint() method. Anyway I tried fixing the issue with repaint() method as you suggested in the feedback last time. But I had no luck going forward with it. Instead, I used the setColor() method of Paint Canvas which I can set the Background color whatever the color I want. So I set it to "white" whenever I want to clear(easiest thing I should've done last check-in). I override the toString method of ColorInfo class. This was helpful for me when I was adding the ColorInfo objects to the JOptionPane with input dialogbox. In order to display the Color, toString() method has to override with the String we want to display. For this I referred following links.

<https://stackoverflow.com/questions/27518555/pop-up-swing-window-with-both-option-and-textfield>

<https://www.codejava.net/java-se/swing/jcombobox-basic-tutorial-and-examples>

### Sample View of the App



### 2. Link to GitHub repo - <https://github.com/sanjayadpf/OOPFinalProject.git>

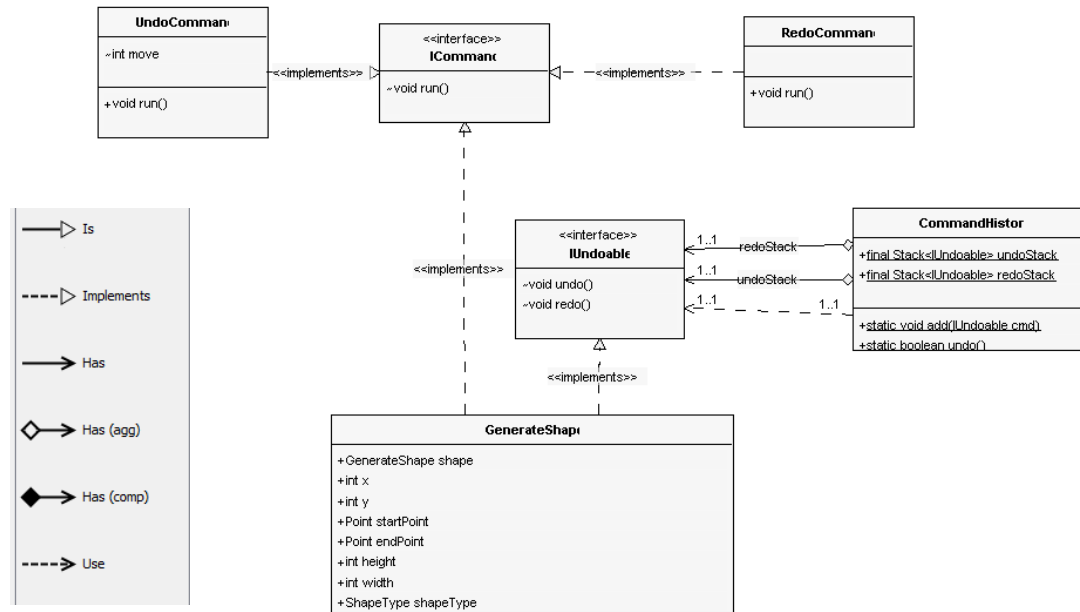
Note: Please contact me if you have any issues with accessing the repo. SMALLIKA@depaul.edu

### 3. List of Design Patterns

I implemented 3 design patterns discussed in the class up to now.

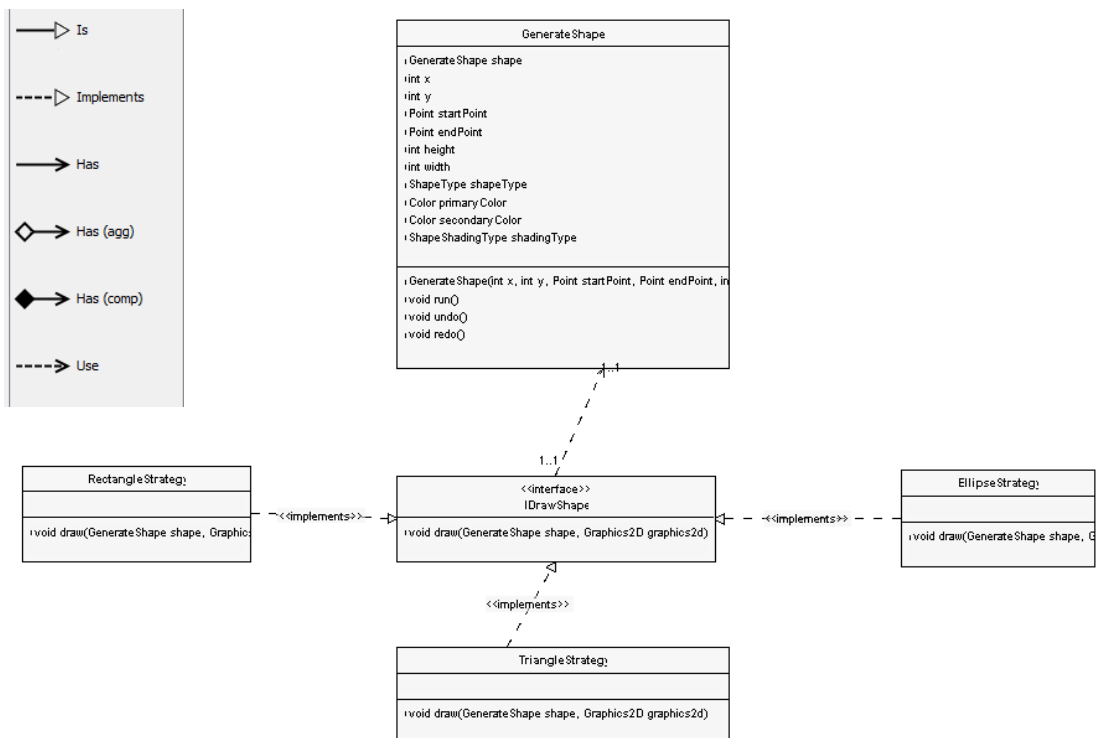
- Command Pattern

This is implemented along with the CommandHistory.java for the UNDO/REDO



- Strategy Pattern

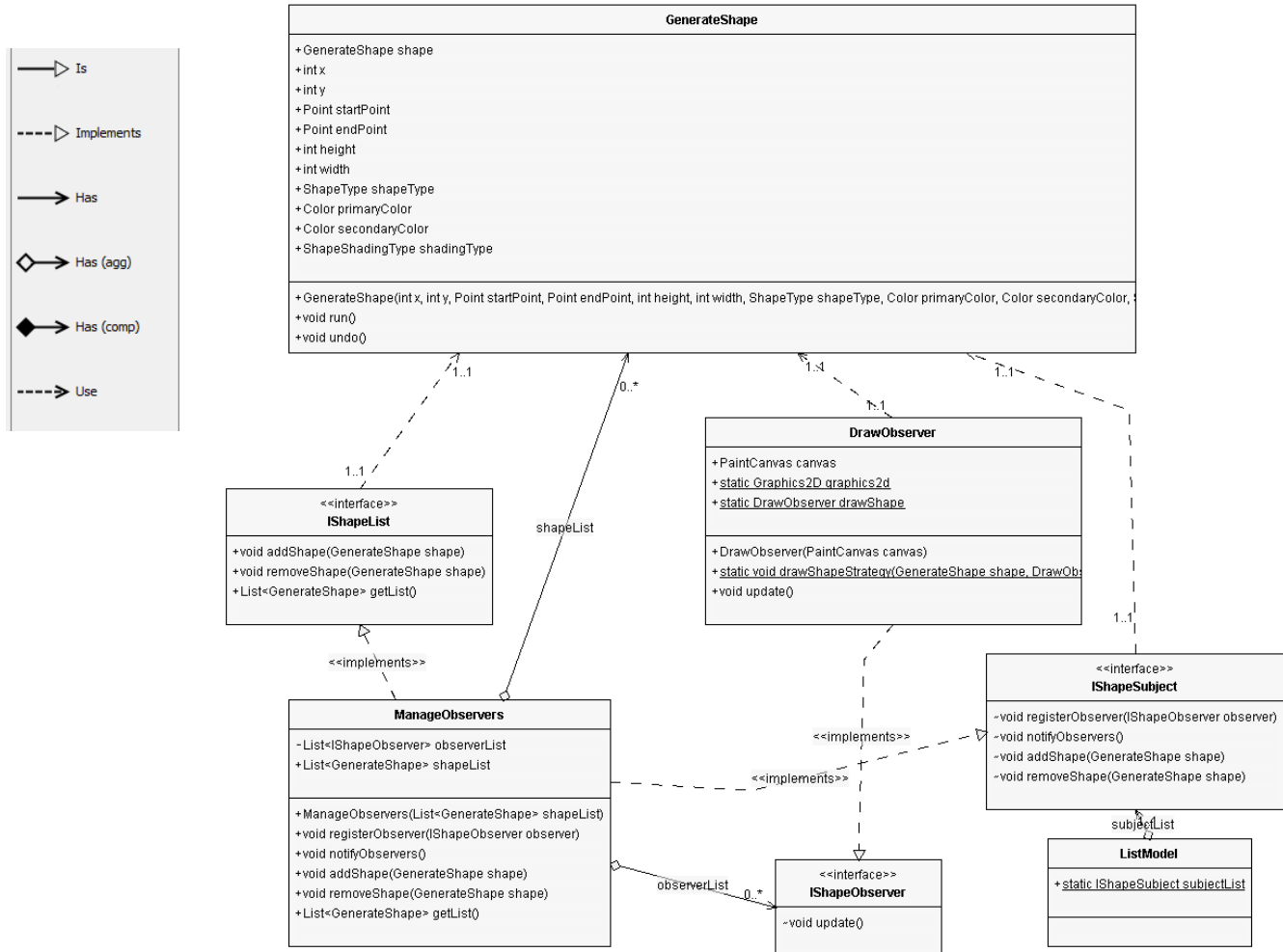
To draw the shape with same draw() method while the object assigned is changing in run time.



Note: Not all relationships are shown. Only the required ones.

- Observer Pattern

To notify the which shape currently is drawn.



Note: Observer is registered in the main method.

### Future Development.

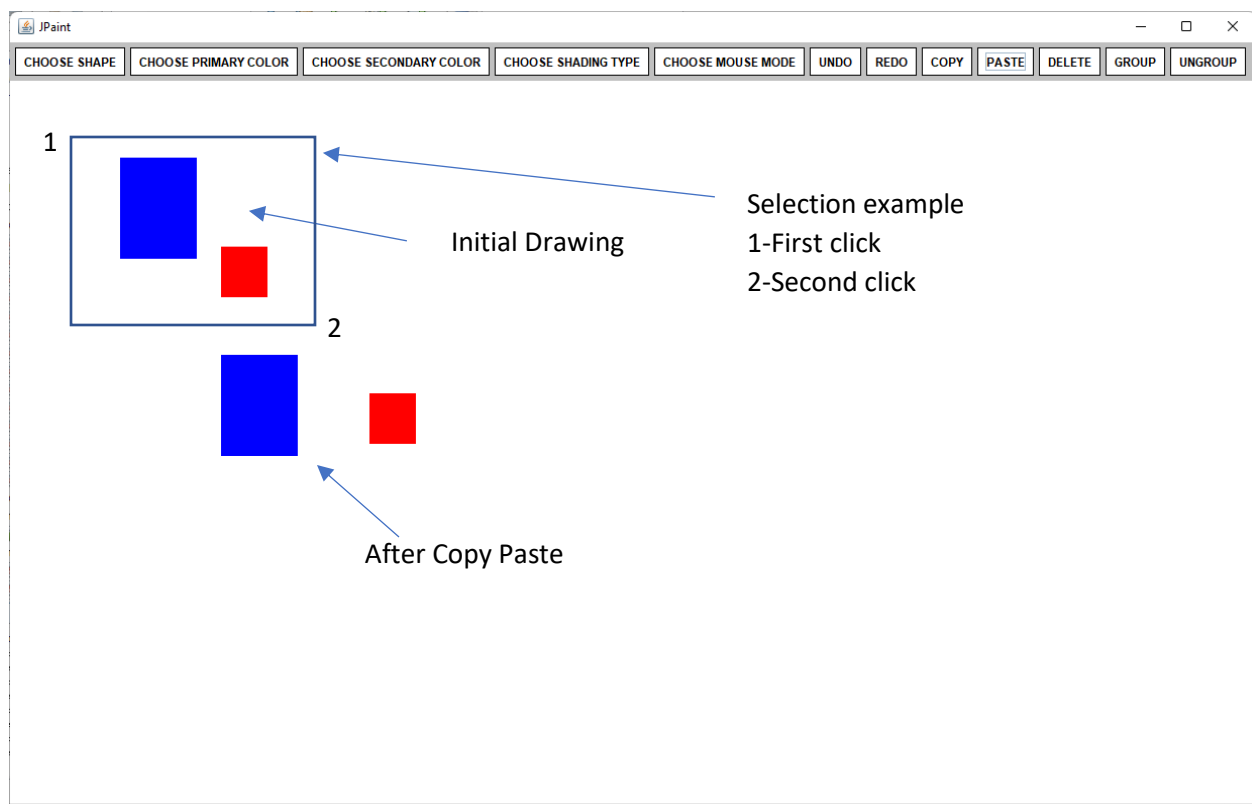
- Another Subject/Observer to implement the Mode selection or Static Factory Design.

## Project 3<sup>rd</sup> Check-in

### 1. features, bugs, extra credit, and miscellaneous notes.

Implemented Select, Move (which wasn't working last time) new features Copy, Paste and Delete functioning as expected. Improved the single responsibility of DrawObserver Class based on the last feedback. Removed the Strategy selection from DrawObserver. App has the default mode Draw. When selecting first select the "Select" option from the Mouse Mode options and then select the shape. First click an upper Left Point. Then Click the Right Lower Point to make a proper selection. Following the same way select the shape first and then Click Copy and Paste to execute Copy and Paste Command. Paste will locate new shapes shifting 100,100 pixels from the original shape location. For Delete follow the same selection first and then Click the Delete Button. No Undo, Redo implemented for Select and Copy

### Sample View of the App (Copy Paste)



### 2. Link to GitHub repo - <https://github.com/sanjayadpf/OOPFinalProject.git>

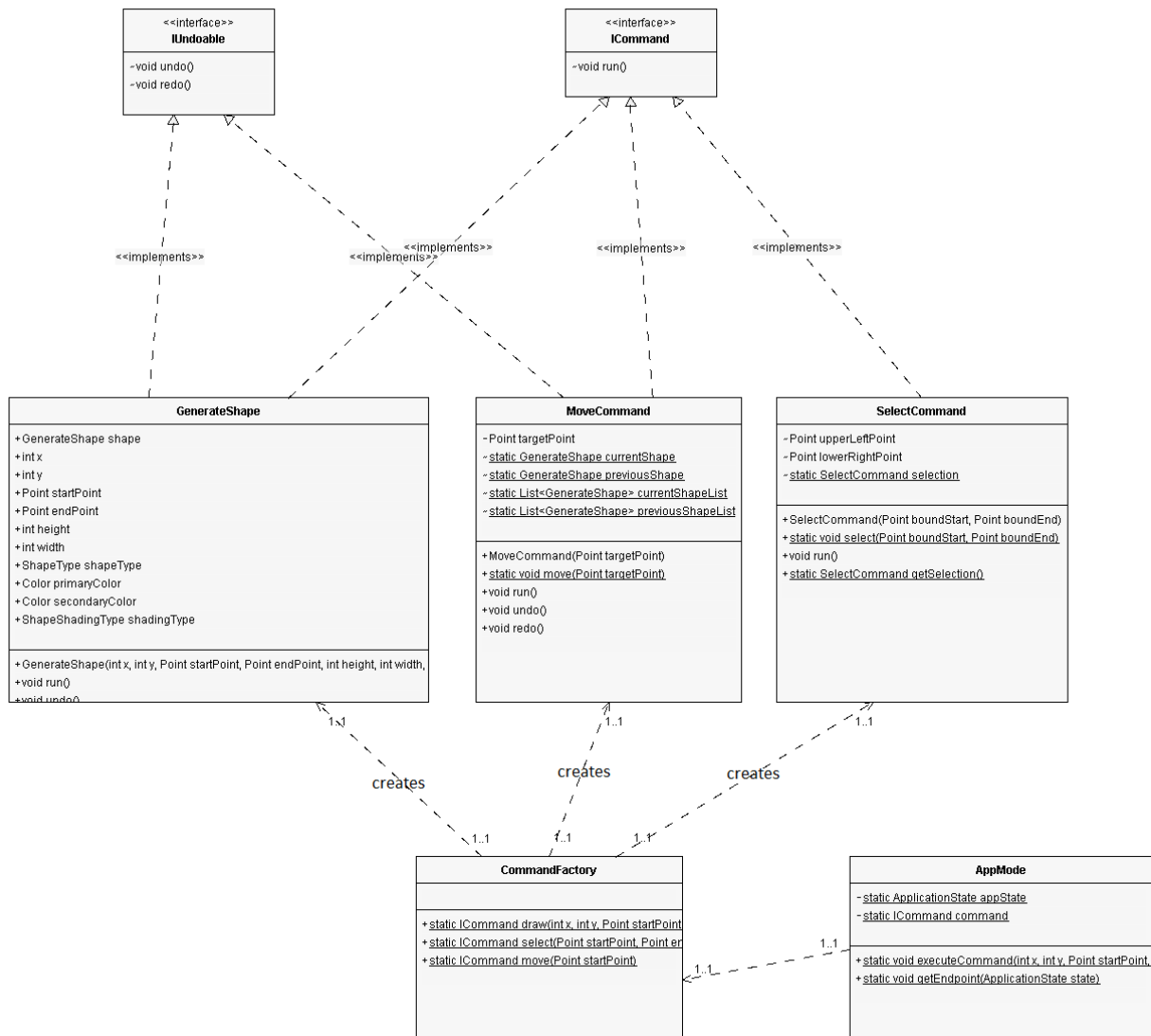
Note: Please contact me if you have any issues with accessing the repo. [SMALLIKA@depaul.edu](mailto:SMALLIKA@depaul.edu)

### 3. List of Design Patterns

- Included two new Design Patterns with these two project now has 5 design patterns. New design patterns are indicated in red color.

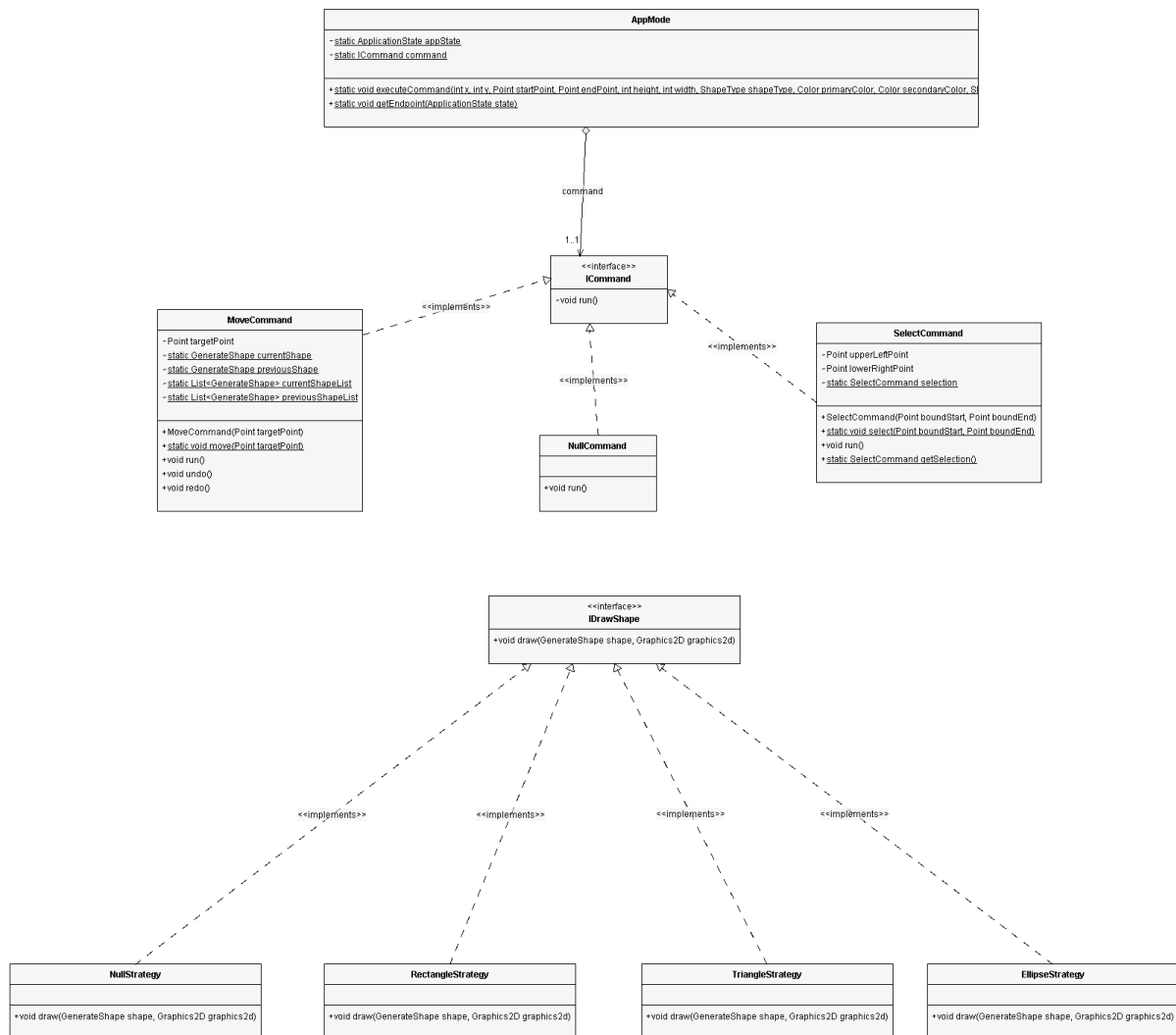
- (1) Command Pattern (Redo/Undo/**Copy/Paste**)
- (2) Strategy Pattern (For Selecting shape strategy)
- (3) Observer Pattern (To notify which shape is currently drawing)
- (4) Static Factory (For mode selection Select Move Draw)**
- (5) Null Object (Inside CommandFactory in case the Command Object for Draw Select Move is not received and incase right strategy is not received)**

#### **(4) Static Factory (For mode selection Select Move Draw)**



(5) Null Object (Inside CommandFactory in case the Command Object for Draw Select Move is not received and incase right strategy is not received)

- Used in AppMode Class (draw select move selection) – if command Object is null. NullCommand object will be created.
- Used in Strategy selection inside the Strategy selection class – if strategy Object is not received Null Strategy object will be created.



## Future Development

Planning to implement Temporary selection box (pop-up) so that user can clearly see the selected region. Also Undo Redo for Select and Copy.