Period 6
Calvin Ye
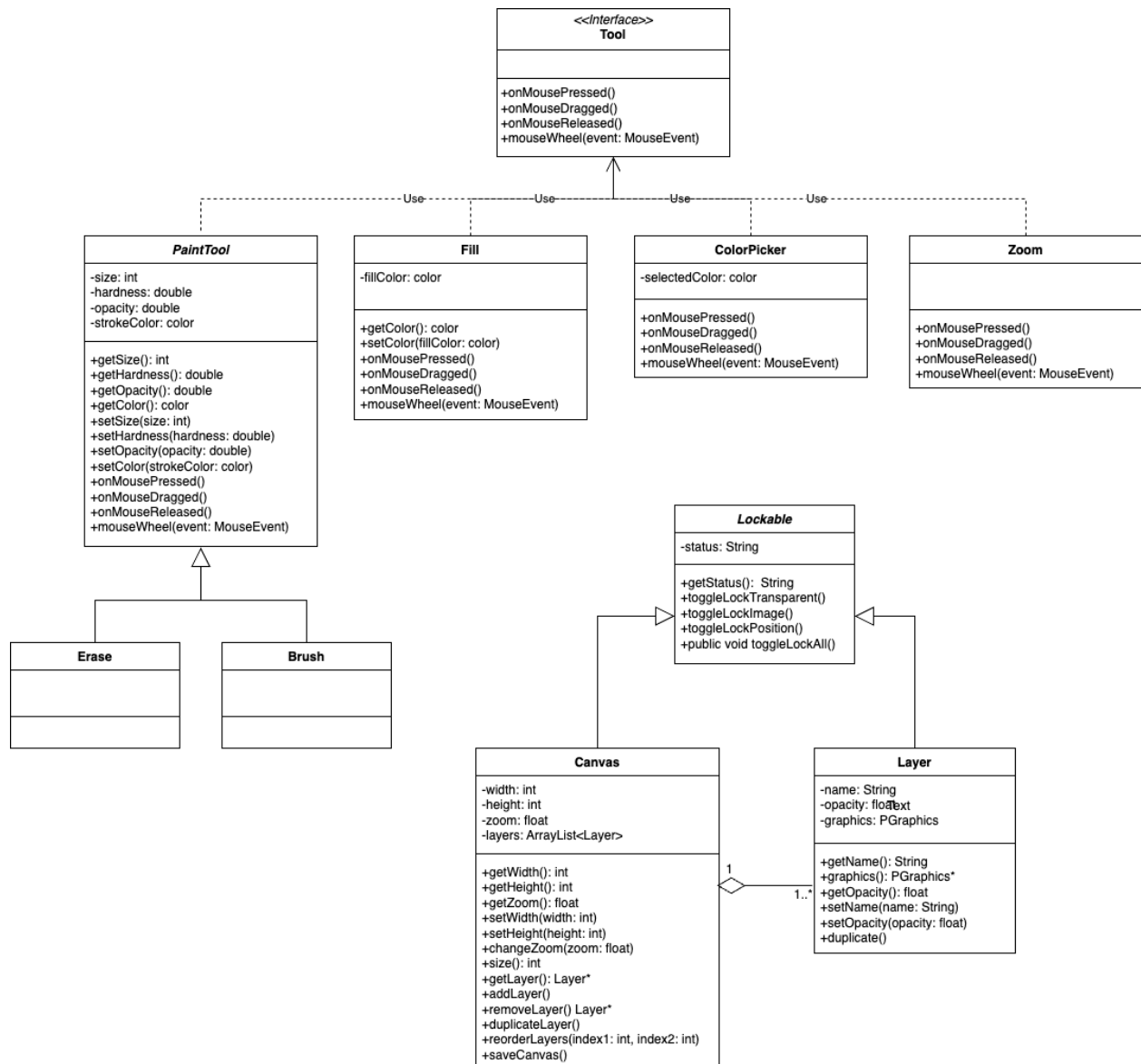Calvin.java
Photoshop Lite

Description
My project is a recreation of a few of the features of the well known graphics editor Adobe
Photoshop, a software application used for creating and manipulating images. The application
allows you to edit an image you upload on a canvas. The application includes tools such as the
brush, paint bucket, and eraser. Finally, the application allows you to load previous work, save
your work, and/or export it. This project necessitates downloading the Control G4P library for a
functional GUI.

UML Diagram

UML Diagram

<<Interface>> Tool

```
+onMousePressed()
+onMouseDragged()
+onMouseReleased()
+mouseWheel(event: MouseEvent)
```

Use ------ Use ------ Use ------ Use

PaintTool

```
-size: int
-hardness: double
-opacity: double
-strokeColor: color

+getSize(): int
+getHardness(): double
+getOpacity(): double
+getColor(): color
+setSize(size: int)
+setHardness(hardness: double)
+setOpacity(opacity: double)
+setColor(strokeColor: color)
+onMousePressed()
+onMouseDragged()
+onMouseReleased()
+mouseWheel(event: MouseEvent)
```

Fill

```
-fillColor: color

+getColor(): color
+setColor(fillColor: color)
+onMousePressed()
+onMouseDragged()
+onMouseReleased()
+mouseWheel(event: MouseEvent)
```

ColorPicker

```
-selectedColor: color

+onMousePressed()
+onMouseDragged()
+onMouseReleased()
+mouseWheel(event: MouseEvent)
```

Zoom

```
+onMousePressed()
+onMouseDragged()
+onMouseReleased()
+mouseWheel(event: MouseEvent)
```

Erase

Brush

Lockable

```
-status: String

+getStatus(): String
+toggleLockTransparent()
+toggleLockImage()
+toggleLockPosition()
+public void toggleLockAll()
```

Canvas

```
-width: int
-height: int
-zoom: float
-layers: ArrayList<Layer>

+getWidth(): int
+getHeight(): int
+getZoom(): float
+setWidth(width: int)
+setHeight(height: int)
+changeZoom(zoom: float)
+size(): int
+getLayer(): Layer*
+addLayer()
+removeLayer() Layer*
+duplicateLayer()
+reorderLayers(index1: int, index2: int)
+saveCanvas()
```

1   1..*

Layer

```
-name: String
-opacity: floaText
-graphics: PGraphics

+getName(): String
+graphics(): PGraphics*
+getOpacity(): float
+setName(name: String)
+setOpacity(opacity: float)
+duplicate()
```

Notes: The empty Erase and Brush classes are not mistakes; these classes consist only of constructors and have no additional fields or methods.

How it Works

The application starts you on a blank canvas. On the canvas, you can click upload to put an image layer onto the current canvas. You can edit the canvas by selecting from one of the many tools using your mouse. Depending on the tool, you can edit your canvas by pressing, dragging, and/or releasing your mouse to change a layer. On the right, you can also add and remove layers, select a different layer using the dropdown, and change the opacity of the current layer. Finally, when you are done, you can save your work on your computer by pressing the save button, or you can export it as a regular image using the export button.

Functionalities
- Current Functionalities
  - A GUI that allows the user to select a tool, edit layers, and save the canvas
  - Loading canvases
  - The Brush, Erase, Fill, and Eyedropper tools
  - Addition and removal of layers
  - Switching between the previous and next layer
  - Changing the opacity of the current layer
  - Saving the canvas and all its properties
  - Add an image as a layer onto the canvas
  - Exporting the image on the canvas as a PNG file

Libraries

Log
All code was written by Calvin Ye