

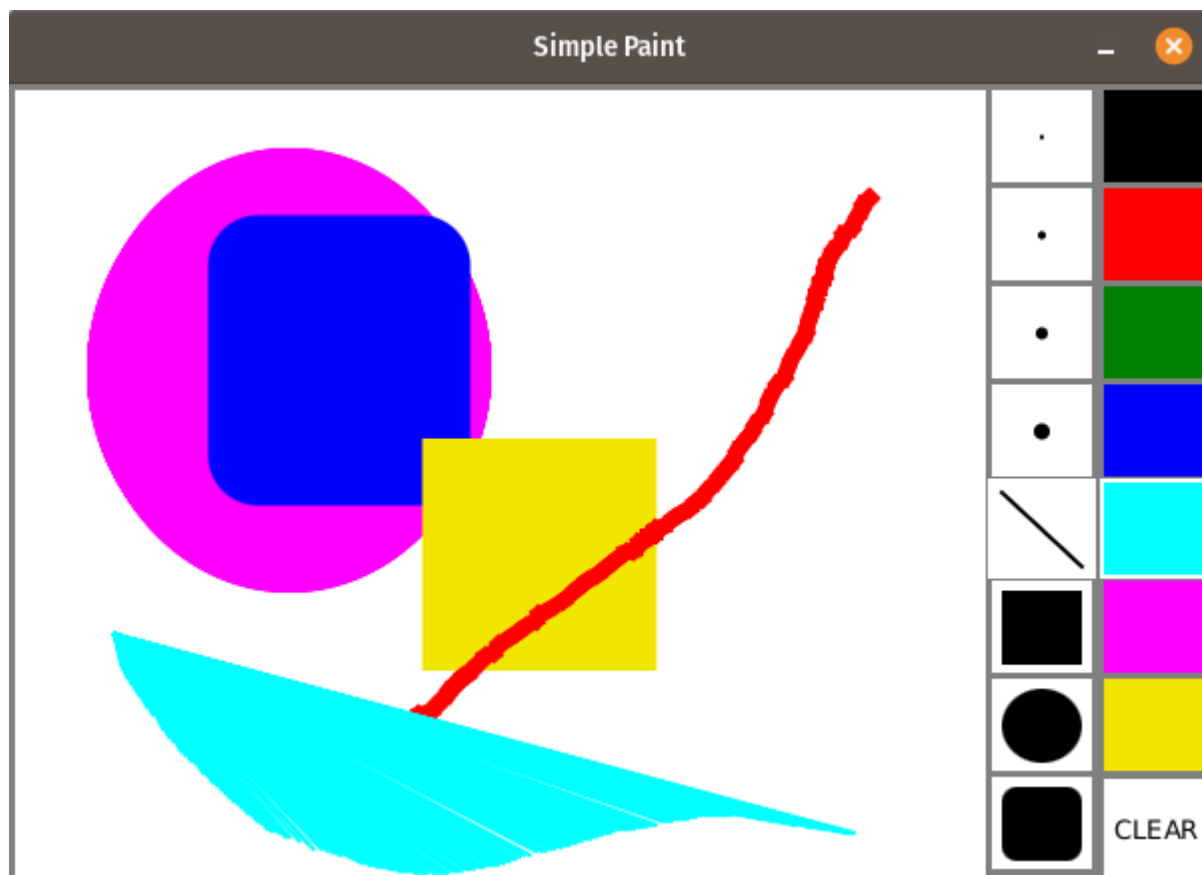
Homework 1

[Start Assignment](#)

Due Sep 12 by 5pm **Points** 100 **Submitting** a file upload **File Types** java mp4
Available until Sep 12 at 10pm

For this first assignment you will be compiling and modifying the SimplePaint program that is supplied as an example program in Chapter 6 of your JN9 textbook.

The existing program allows you to draw lines in one of seven colors. You will modify the program to allow you to select one of eight tools that can be used to draw a slightly wider variety of shapes and lines. Let's start with what your final program will look like. You will need to modify the program to add the column of tools to the left of the column of paint colors. The current tool will be surrounded by a white rectangle just as the current color is surrounded by a white rectangle. Colors and tools can be independently selected. Hence, in the image below, it is simply coincidence that the line tool and the cyan color are both selected at the same time. **Note: You cannot add any objects to the scene graph for this assignment. You must draw directly on the Canvas and derive the selected tool by computing the mouse location. Use the current color selection as your guide.**



Note now that the program can draw freeform lines as before except with pens of various widths. Your widths should be 2,4,6,8 pixels wide. The line tool draws a line from where the mouse button is first pressed to where the button is released. The other three shape tools need to be considered carefully. Each shape tool draws a shape centered on the initial x,y point. You will need to compute the starting point and the height and width of each shape. The rounded rectangle uses an arc-radius of 50. Note, that there is no way to escape or reduce the size of a shape once drawn. Don't overthink this aspect, we will discuss these limitations in class as a part of our explanation. I will post a short video this weekend that demonstrates the use of the tools in more detail so that you can see that the requirements are minimal with respect to the ability to edit shapes.

There are no significant coding requirements for this first project. I just want you to get things working. In a future assignment we will address many of the limitations of this simple program. That said, I suggest that you use the existing framework to, at minimum, create some new methods. For example, there is a method called **clearAndDrawPalette()** that could be separated into **clearCanvas()** and **drawPallete()**. You could then add a method **drawTools()** to draw the tools. Now define a method **clearAndDrawPalleteAndTools()** to tackle all three tasks and change the code such that this method is called in lieu of **clearAndDrawPallete()**.

We will talk quite a bit about refactoring and I want you to observe that this code, as given, is not object oriented in any meaningful way. In fact, I would not call this a high quality implementation at all. There are many ways that this code could be improved.

Submission and Requirements

Code Requirements

1. You must limit your code to 80 characters (width) so that it is readable in Speed Grader. We will talk more about this as we go forward and it is good practice to improve the readability of your code. I will discuss this briefly in class.
2. Your code must be neat and properly aligned. Sloppy code will keep you out of the top spot.
3. For this assignment, you should describe what you are doing in comments for each method or function. We will talk about comments going forward.
4. You must include your entire program in a single Java file. There is no need for additional classes in this assignment. If you choose to use them, they must be non-public and included in your single Java file
5. Your java file submission must be entitled **SimpleToolPaint.java**

Submission

You will submit two files:

1. Your SimpleToolPaint.java
2. A file called SimpleToolPaintDemo.mp4 that is a video of you briefly demonstrating you compiling, running, and using your paint program. Demo as much as you can in a program that is strictly less than two minutes in length. Please narrate your video and tell us what you're doing.

I recommend the use of OBS to capture your screen. It has a built in method to output mp4 files. I do not accept other file types nor linked videos. I will discuss how to do this briefly in class.