

Gurkirat Bamrah
215082704
Lab 3 Report 3311
Section B Lab 02

TA: Naeiji Alireza

PART 1

What is the software project about and what are the goals?

-This software project is about to create an application that will load different types of shapes such as square, circle, rectangle. Let's say the number of shapes will be six, and their properties will be different. for example their length and width. Secondly, after displaying shapes by using the load shape button, the software will have another button called sort shapes, it will sort all the different shapes by their properties. To sort, you can use one of the sorting techniques, quick sort, bubble sort, insertion sort. I have chosen quicksort.

Challenges associated with the software project?

-Since I am new to software design, I realized I have made mistakes just as the professor discussed in the class, which was the Code-and-fix model. I stopped, and made a blueprint of what are software requirements and how we can objectively solve them, which is the waterfall model.

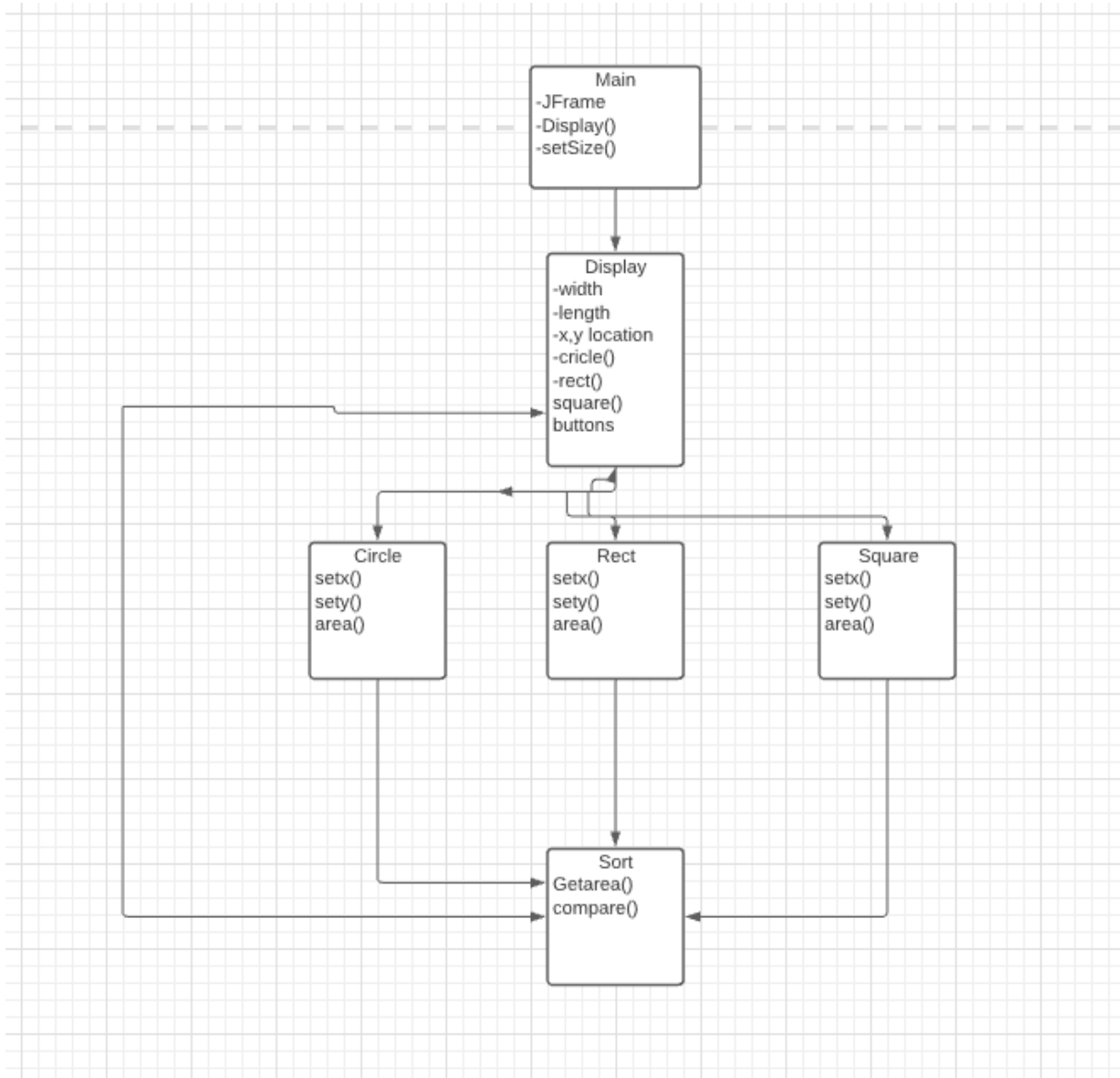
Explain the concepts of OOD principles, design patterns used?

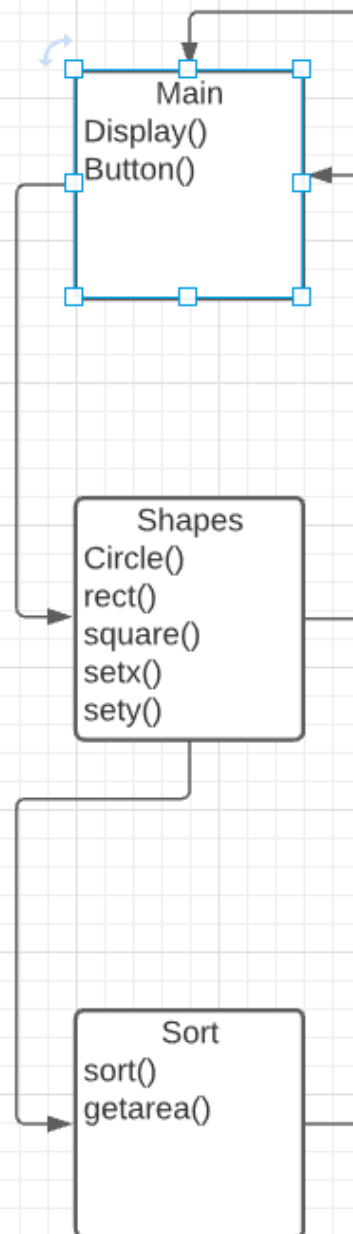
- Looking at the project I understood that the “shapes” that have to be displayed in the program will have their own states(shape), behaviors(size), and interaction(sorting). And these OOD will have to be used as classes and object in java terms. Other design principles that are used in this project are Polymorphism, Inheritance. Main thing is that buttons will use principles of abstraction, ie only exposing methods that are relevant to interact with other classes.

Explain how are you going to structure your report?

- This report will be structured with UML and Class diagrams where the reader of the report will have a full understanding of what and how this software application was made.

Part 2





I would like to add that to sort the shapes we need to get them together, so an array list is preferred. Such that when quicksorting the shapes are compared by their surface area.

Part 3

What sorting technique is used?

-I have used quick sort, because I am familiar with it. quick sort is faster in practice, because its inner loop can be efficiently implemented on most algorithms, and most real world data. Its mainly because it uses the tactics like divide and conquer, which is very easy to understand.

Describe how you have implemented and compiled all the classes of your class diagram in Java (specify if you have implemented the first or the second class diagram):

Specify the tools you have used during the implementation:

I have used eclipse IDE 2021-09. Which is the most latest version of of eclipse and used java 17 also known as jdk 17.

Conclusion

What went well in the software project?

-Even though this was my first time using JPanel and JFrame it was easy to get the ideas grasp on. And Implementing UML diagram to a real code.

What went wrong in the software project?

-There were many issues such as printing the shape to the canvas.

Buttons are not working, when you click on sort the all the shapes disappear. It was a big learning experience for me.

What have you learned from this project?

I have gotten a deeper understanding of how the java blueprint works. Ie, you can write a method and give it some instance variables and call it from another class. And much more like polymorphism, and instances of new class objects.

Three recommendations to ease the completion of the project?

1. Start early.
2. Whatever topic you are given, read it from a book, and watch youtube videos explaining that. This helped me a lot because through videos you can get a practical understanding how the “things” work. More importantly because I am a visual learner.
3. Ask for help, and question. If you are having trouble in your life go talk to someone who is close to you, and if you are having problems with school’s assignments go talk to professor, and TA because they are there to help.