

## I. Assignment

Implement a simple vector graphics editor in the Java programming language.

Your coursework must be accompanied by a short printout on paper or a MS Word / PDF document. It must include: a title page (including things like University of Ruse, Programming Languages, the name of the tutor, your name, the date, anything else you choose) and the source code (partial listing is also allowed).

### General requirements

- The editor must support drawing of the following graphic primitives: ....**A**....
- The editor must allow the user to choose a draw colour and a fill colour.
- Selection of primitives must be by means of a ....**B**....
- Graphical user interface must be built with the following package: ....**C**....
- While working with the editor, graphic primitives must be stored in memory in a ....**D**.... The user interface must include a command for dumping its contents into the console.
- How the primitives are defined internally is left to your own choice (for example, a rectangle can be defined by two points or by one point, width and height).
- Drawing should be by clicking and dragging with the mouse, similarly to, say, Microsoft Paint. If you find this difficult, you can do it in a different way.
- You may define as many classes as you find necessary, but you **must have a separate class** for each primitive, specified in ..**A**.. above. Moreover, all these classes **must implement** the following interface:

```
public interface GraphicsShape{
    public abstract void drawIt(Graphics g);
    // draws a primitive: rectangle, arc, etc.
}
```

### Other important information

- This assignment brings 50 points towards the final mark. Further 50 points come from a written test, which will take place at the end of the semester. The Bulgarian educational system uses a 6-based scale. You'll get your marks according to it, and International Office will take care of translating them to your home system. The points for Programming Languages are translated into marks as follows:
 

0 - 39%	Fail (2)
40% - 54%	Fair (3)
55% - 69%	Good (4)
70% - 84%	Very good (5)
85% - 100%	Excellent (6)
- At the end of the semester you'll have to present and defend your coursework. You should be ready to comment on every piece of code; moreover, you should be ready to make modifications at the directions of the tutor during the defence. Failure to demonstrate coding ability may lead to a mark of 0 points.
- Follow the assignment strictly! Any deviation from it will lead to deduction of points from the mark. It is fine if you think, for example, that `swing` is prettier, but if your individual assignment requires you to use `awt`, then that's what you must use!
- You may work on your own or in teams of two, if applicable.

## II. Individual assignments

Team	A	B	C	D
AH-HOT, Caroline	1,2,3	1	1	1
ANGO, Marion	2,4,5	2	2	2
FAGE, Benoit	1,3,5	3	1	3
GAHAT, Paul	2,3,4	4	2	4
KEDJEM, Inès	3,4,5	5	1	1
MURE, Gabriel	1,4,5	5	2	2
Blaga Daniel	1,3,4	4	1	3
Neacsu Bogdan Marian	2,3,5	3	2	4
Petrache David Andrei	2,3,4	2	1	1

NOTE: Working in teams of two is acceptable! In this case, select the variants for whichever team member you prefer!

## III. Variants

### A

1. line
2. outlined rectangle
3. filled rectangle
4. outlined oval
5. filled oval

### B

1. menu
2. buttons
3. list (`java.awt.List` / `javax.swing.JList`)
4. combo box (`java.awt.Choice` / `javax.swing.JComboBox`)
5. radiobuttons (`java.awt.Checkbox` / `javax.swing.JRadioButton`)

### C

1. `javax.swing`
2. `java.awt`

### D

1. `ArrayList` (`java.util.ArrayList`)
2. `HashMap` (`java.util.HashMap`)
3. `LinkedList` (`java.util.LinkedList`)
4. array