

Assignment 2

Paint App

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Description:

This program is like as paint app which in our computers so it will help us in drawing many shapes:

1. Rectangle
2. Circle
3. Square
4. Ellipse
5. Line segment
6. Triangle

and a lot of other features such as :

1. Selecting a certain outline color and fill color.
2. Resizing any of the shapes.
3. Moving shapes within the drawing board.
4. Deleting any drawn shape.
5. Copy and paste drawn shapes.
6. Undo and redo actions .
7. Saving and loading any of the drawings where two file saving formats are supported, XML&Json.
8. Extend a plugin

Features:

In our implementation our program :

1. You can take a snapshot to the board .
2. You can Changing the stroke thickness.
3. You can change the transparent of shapes.
4. You can easily move and resize shapes.
5. You can create a new grid using the new option.

OOP concepts:

We apply oop concepts such:

1. Inheritance
2. Polymorphism
- 3.Encapsulation.
- 4.Aggregation.
- 5.compositon.
- 6.factory Design pattern.

Design

In our design you can find :

1. Shape2D Class

Inherit from Shape interface and include all the common methods supported by the shapes where each shape inherit from it.

2. some shapes extends from other shapes for example square is extended from rectangle and circle is extended from ellipse.

3. PaintEngine class

Inherit from DrawingEngine interface and include all actions in the program for example:

- Add Shape : to add a new shape
- Remove shape : to remove the select shape
- Update shape : to add a new properties to the select shape.
- Undo : to remove an action from undo stack then add it to redo stack
- Redo: to remove an action from redo stack than add it to undo stack.
- installPluginShape: to extend shape jar and add it to the program.
- Save : to save the shapes in xml or json file.
- Load : to load an xml or json file.

4. Shape Factory class

Inherit from abstract Factory and return a new shape depended on the select current shape.

5. Board class

Panel where we draw so we add to add mouse listeners

6. PaintApp class

frame which contains all components and we use it as controller for our program.

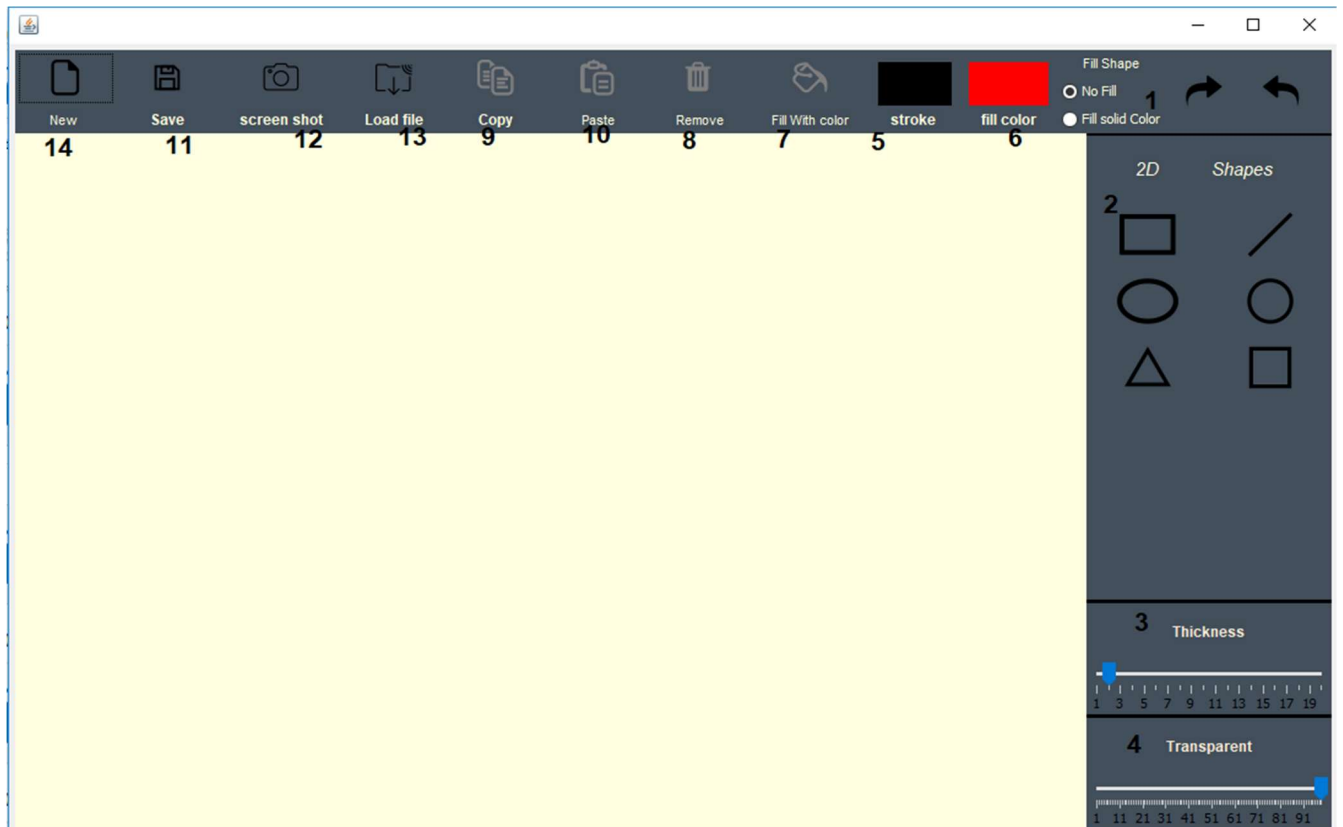
7. Json class

To save shapes in json file and load it later.

8.Xml class

To save shapes in xml file and load it later.

User Manual



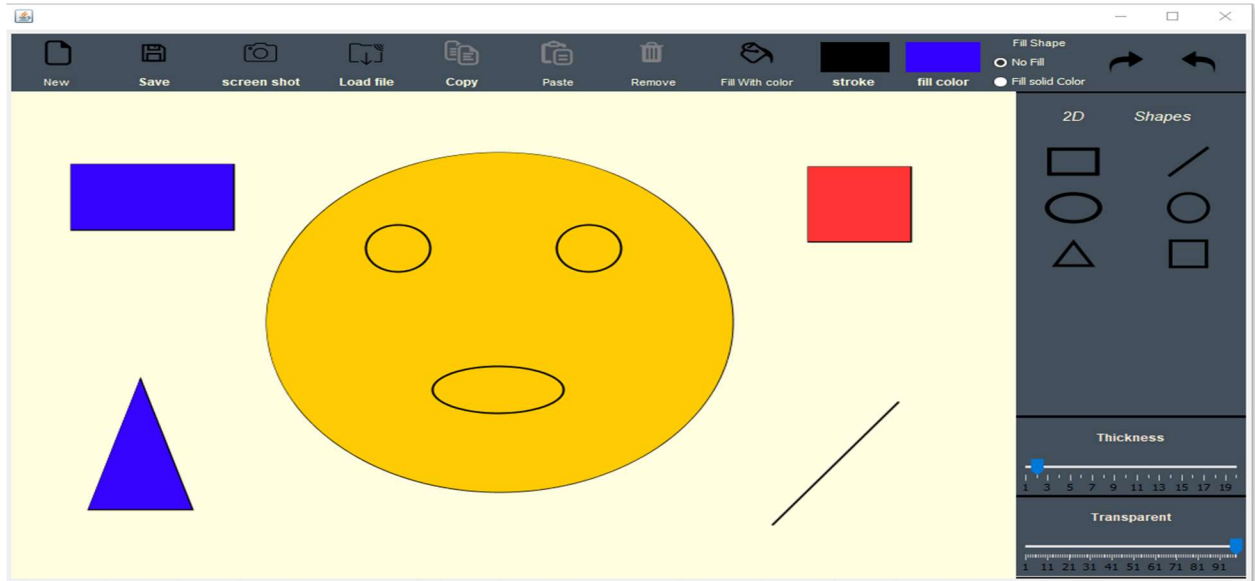
1. Radio button to select NoFill mode to draw a shape without fill color or FillSolidColor mode to draw a complete shape.
2. Six buttons to select the shape which you want to draw by click on it.
3. slider to change the thickness of the shape.
4. slider to change the transparent of the shape.
5. colorChooser to select stroke color.
6. colorChooser to select fill color.

7. Button to change the fill color of the selected shape by clicking on the button then clicking on the shape.
8. To remove the shape after selecting it.
9. Button to copy the selected shape.
10. Button to paste the copied shape then you can move it a new position.
11. fileChooser to select a position to save the program and load it later
12. fileChooser to select a position to save a screen shot of program .
13. fileChooser to select a file with extension xml or json to load it to the program.
14. Button to clear the grid and make a new one
15. Undo and redo actions .

Sample runs

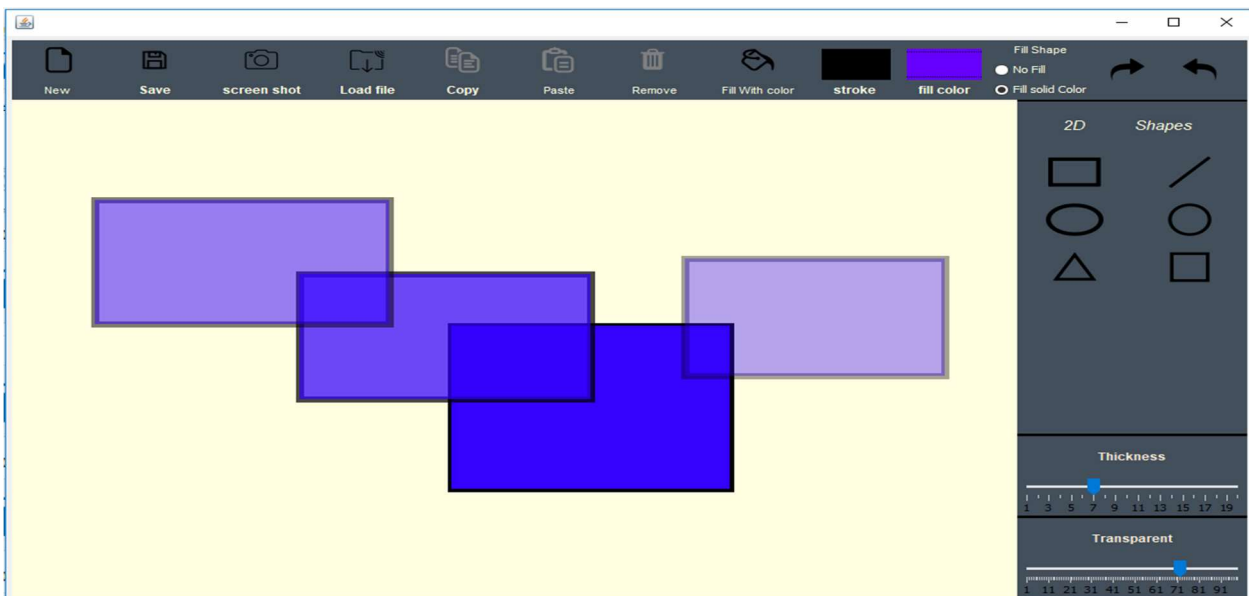
1. Draw different shapes

You can draw any shape by select it then click on the board to select the position then drag and release to Select the end point.



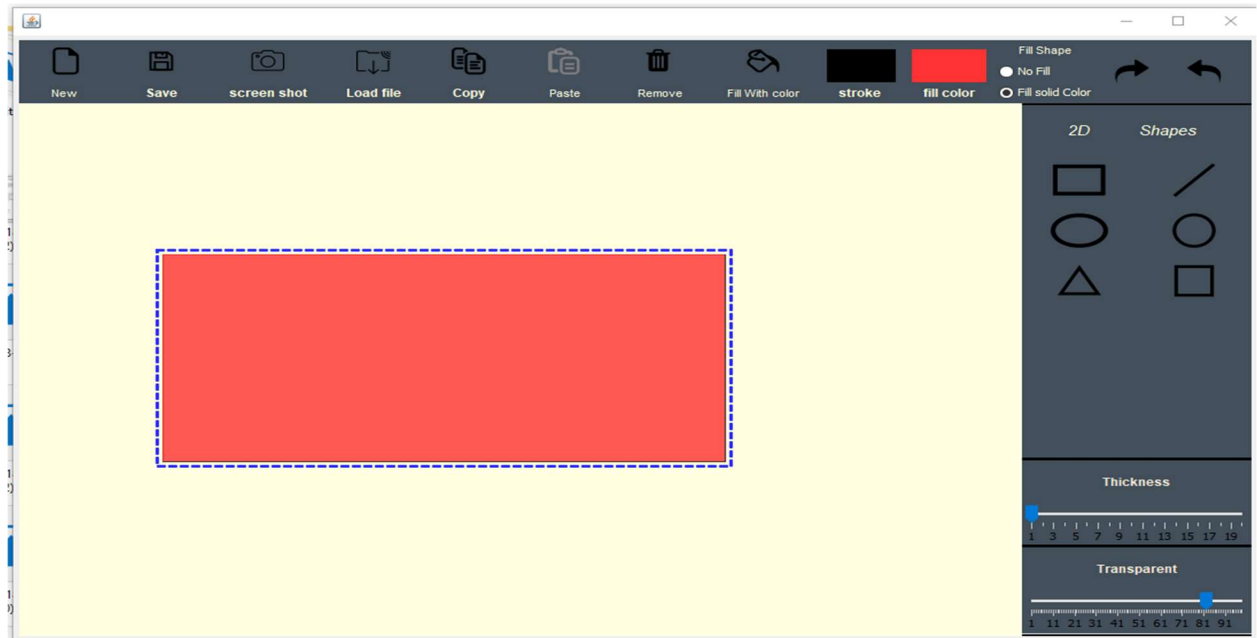
2. Shapes with different transparent

you can choose the thickness of the shapes from transparent slider bar .



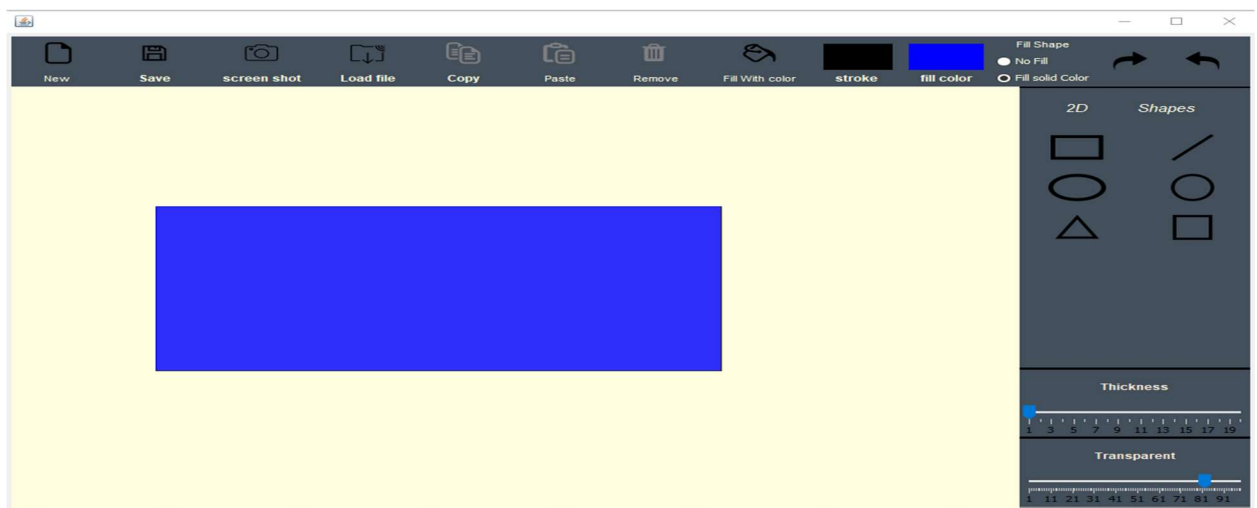
3. Resize mode

To resize any shape first you should select the shape then you can drag the shape from left, right, up or down from the dashed rectangle around the shape.

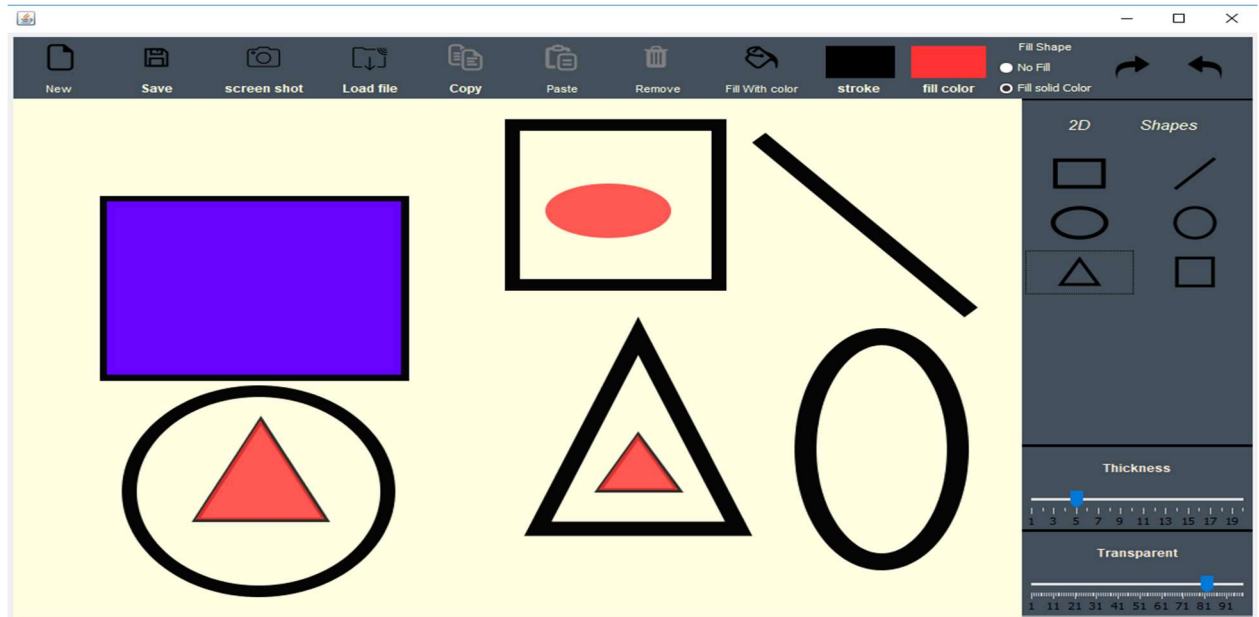


4. change the fill color of the previous shape

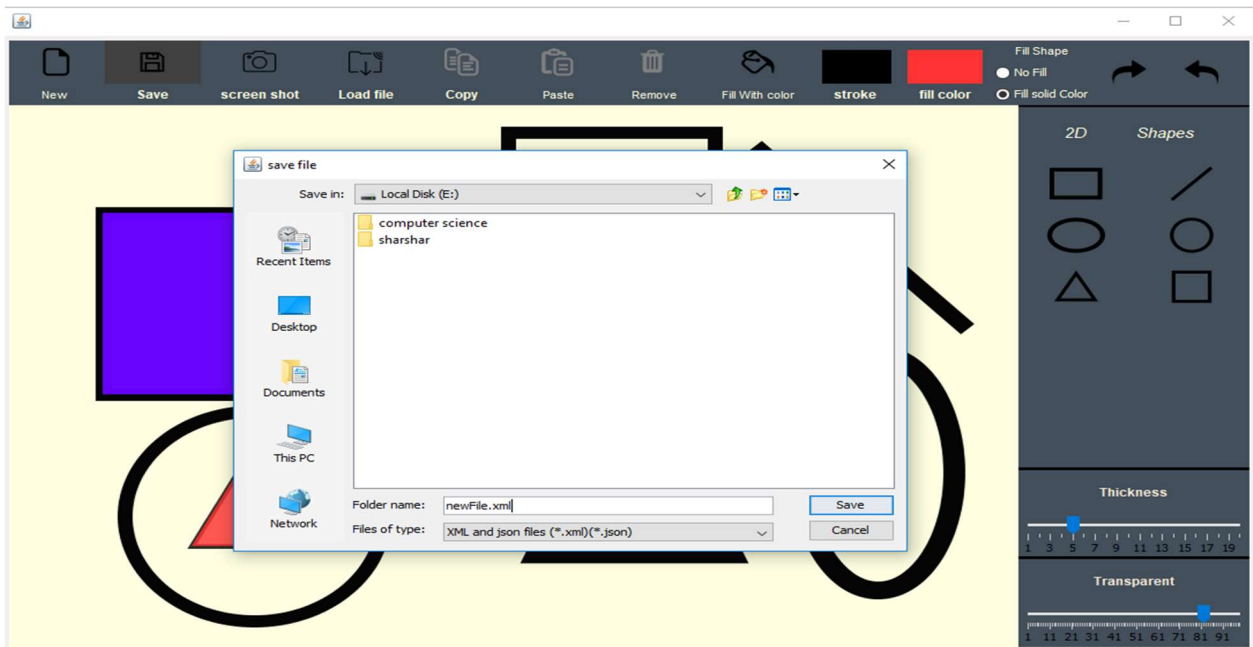
first you must click on fill with color button then click on the shape.



5. Shapes with different thickness
you can choose the thickness of the shapes from transparent scroll bar.



6. Save mode
you must click on save button to select the position and the name of the file.



7. Take screenshot to the grid

Easily you can click on screenshot button and select the position to save it.

