Splash

Just Another Awesome Paint Program

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1 Introduction

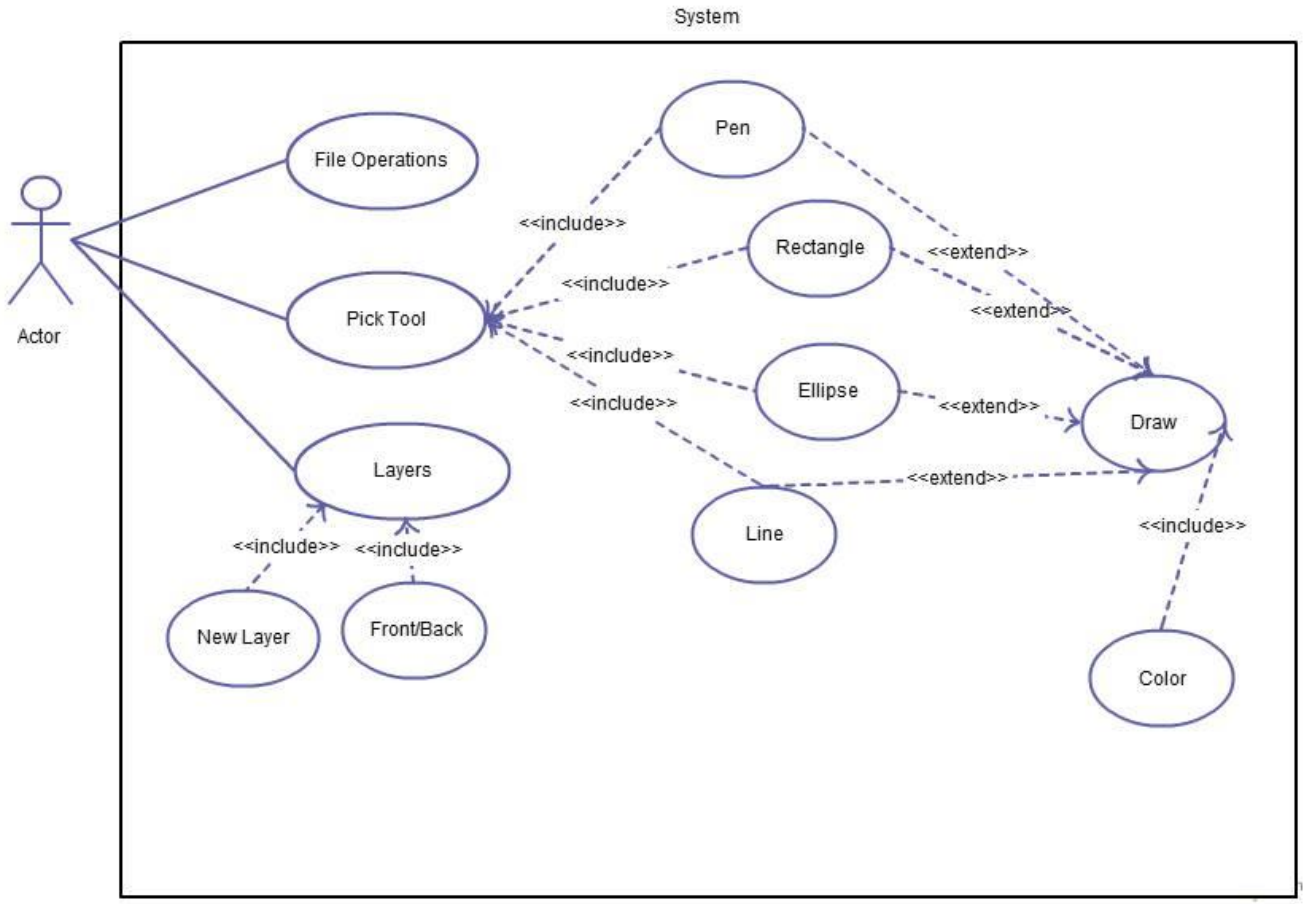
This paper contains the technical details and user manual for paint project assigned during Programming II Course.

2 Getting Started

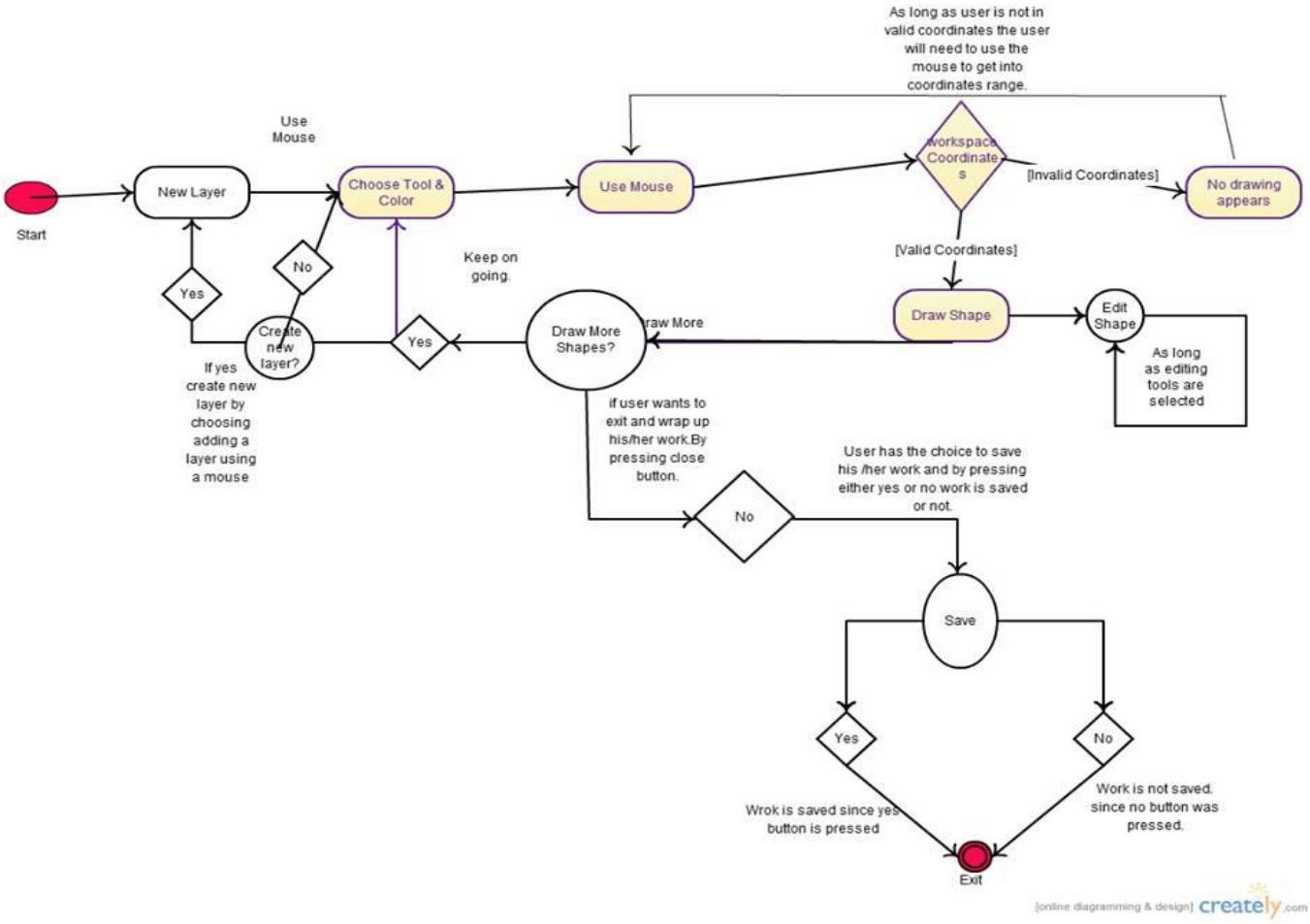
Splash is an image and photo editing software for PCs that run Java. It features an intuitive and innovative user interface with support for layers, unlimited undo, special effects, and a wide variety of useful and powerful tools.

3 Sections

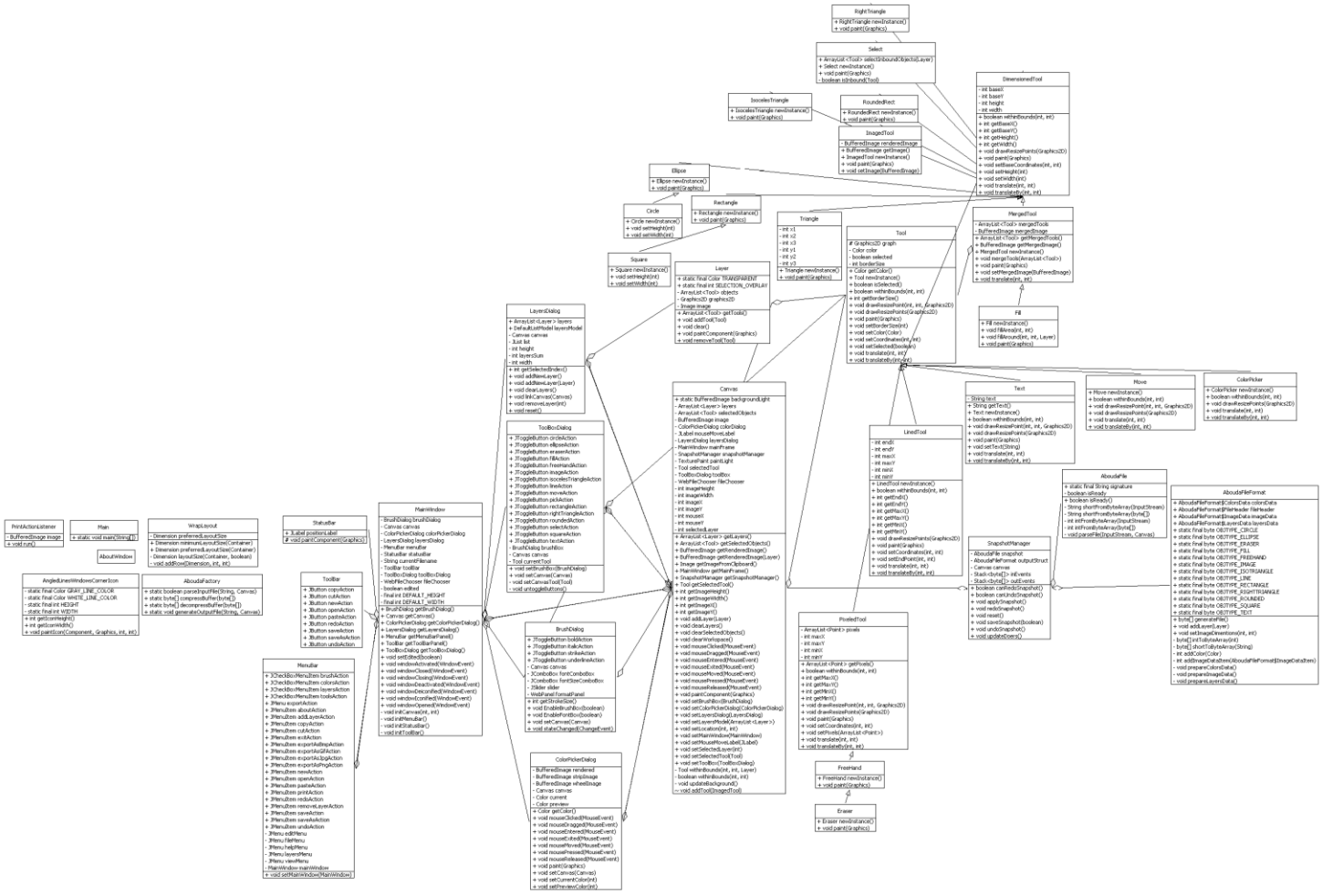
- UML Diagrams
  - Use-Case Diagram



- State Diagram



- Class Diagram

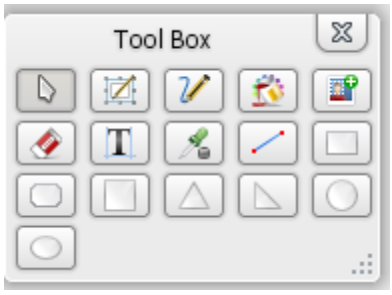


- Components
    - Canvas

This is the place where all drawing operations are performed, what distinguishes this canvas is that it is transparent and multi-layered.

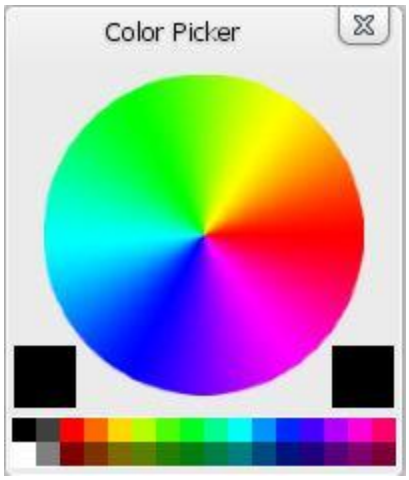
- Tool Box

Our toolbox consist of various tools like:
Drawing a rectangle, drawing an ellipse, drawing a triangle, drawing a line, inserting external image, freehand drawing, and Selecting shapes, Filling shapes, Inserting text, Eraser and Picking current color where the cursor stands.



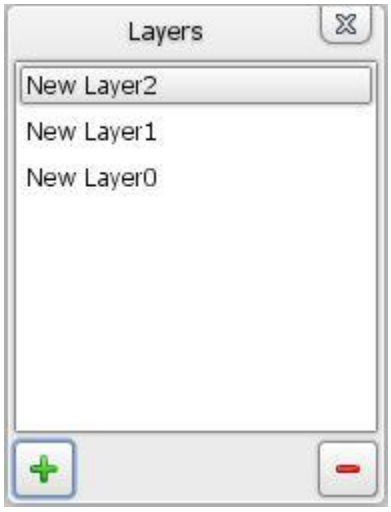
- Color Picker

Our color picker is split in to a color wheel and a color box. Also there is a box to preview current color cursor is above and the other to show current selected color.



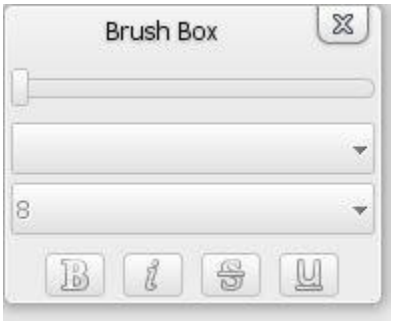
- Layers

It allows the user to draw on more than one layer; if you need to draw multiple levels you can add or remove layers according to your convenience.

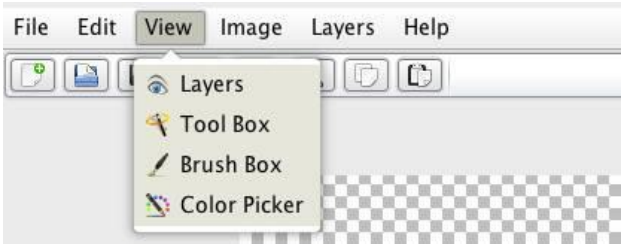


- Brush box

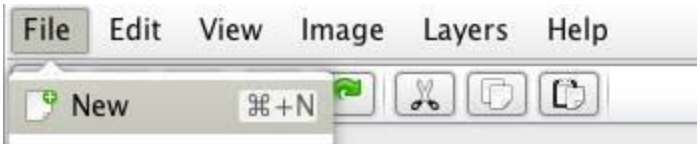
In this box we can control the thickness of each tool, type of font, size of font and font format.



Note: You can control the visibility of all the previous components - except Canvas - by selecting them from "View" menu in the menu bar.



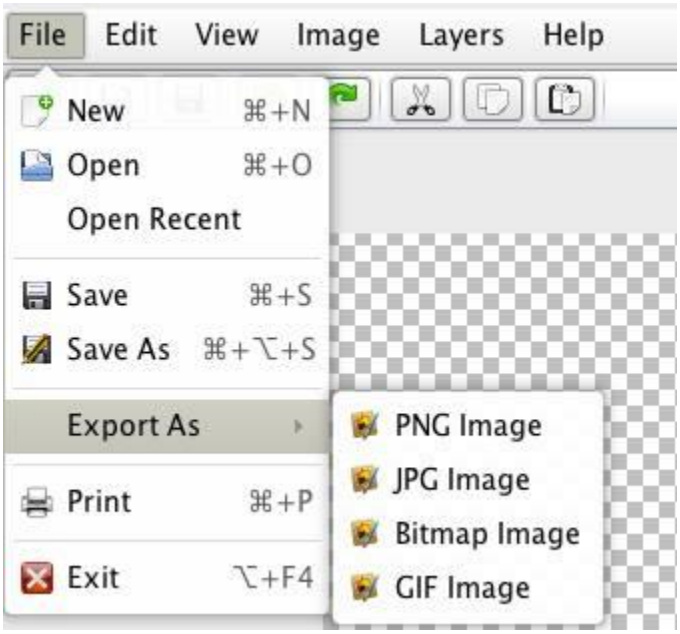
- File Operations
  - Creating a new file.



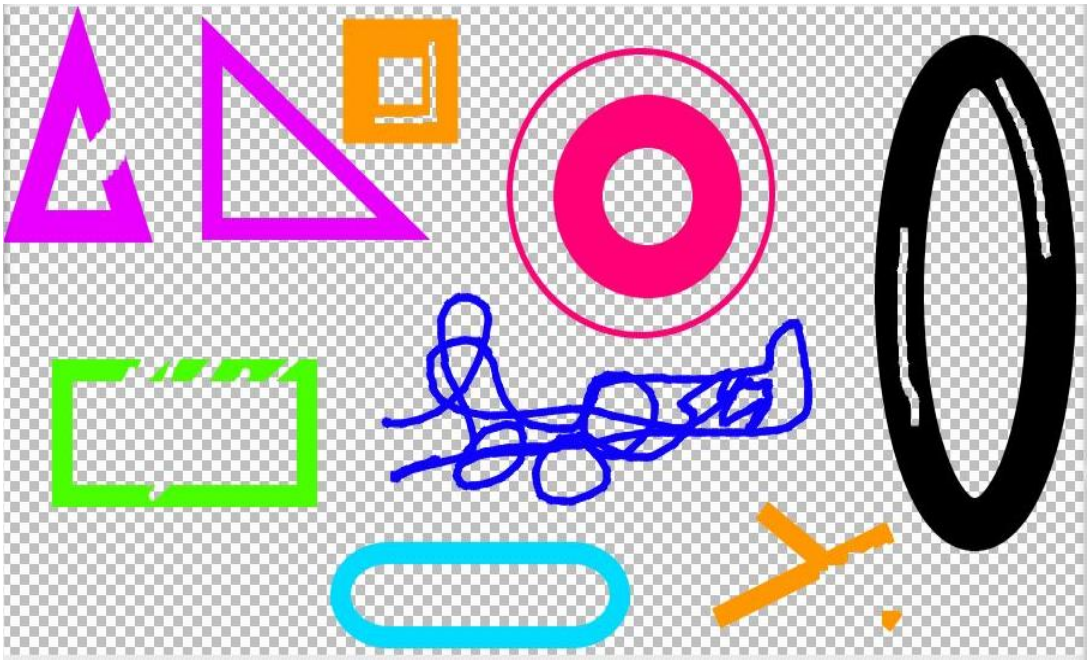
  - Opening an existing file.

  - Saving file as '.abouda'.

  - Exporting file as .png .jpg .bmp .gif
  - Printing the output image.



- Canvas Operations



  - Selecting Object/s.
  - Moving Object/s.
  - Resizing an Object.
  - Changing Object/s Border Width.
  - Changing Object/s Border Color.
  - Filling Objects' Intersections.
  - Merging Multiple Objects into Single Object.
  - Drawing Objects on -/+ve XY co-ordinates.
  - Pasting External Image Objects from Clipboard.
  - Un/Redo features on drawing/changing Objects.

- Undo & Redo Mechanism

  We have implemented a structure that manages saving snapshots every time an event occurs for any of the drawn objects. By using 2 stacks we could track every change and had the ability to redo/undo these occurred events.

- Saved File Structure

  We have realized that saving any drawing for future editing is essential for any paint program, so we had to implement a saving mechanism to be used for this purpose. We had some choices of using JSON, XML or Serialized Objects but then we came up with a new optimized file format specially designed for our paint program.

ABOUDA File Format