

problem: line drawing

brief

With this problem you will build a program to construct drawings from simple 2D shapes.

Java outcomes (see other notes for explanation)

- mouse methods
- new GUI components
- drawing on Java Graphics objects
- collections
- some 2D geometry
- more objects & methods
- design patterns

stage 1

- investigate (i) mouse events and (ii) mouse adapters;
- write a prototype program with a Frame/JFrame containing a graphics panel that your program can draw onto;
- write a mechanism to handle mouse clicked events which draws some kind of mark at the coordinates where the mouse is clicked;

stage 2

- refine your stage 1 mouse handling to mark start and end points for lines and draw a line conforming to the start & end points;

stage 3

- extend your program by building a GUI that allows a user to specify whether they want to draw a line, a rectangle or an oval;
- extend it further to allow for filled or unfilled rectangles & ovals;
- refine it further to allow users to select from a choice of colors (at least 4) – think about this, with a good design strategy you can write clean/elegant code, with a poor design your code can get messy;

stage 4

- define a new class (or hierarchy) of object(s) to define drawn shapes (what they are, where they are, their colors, etc);
- use a collection to hold multiple drawn objects (in the order they are created);
- for testing purposes develop a mechanism which allows you to clean your graphics panel then add drawn objects one at a time;
- add a facility to delete the latest drawn object from the collection;

stage 5

- design a format for representing drawn objects as some kind of text string;
- refactor & re-use your file handling mechanisms from previous problems to build facilities to save & load drawings;