WSCAD Code Challenge

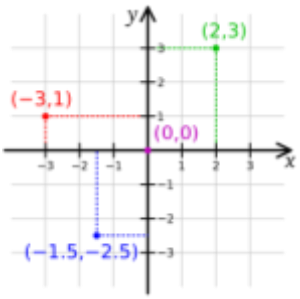
The task for the challenge is to to implement a simple vector graphic viewer:

Main Task

1. The vector graphic viewer should read data from JSON file and display the result on the screen.

2. The viewer can show primitives of the following types:
    a. Line. A line is described by coordinates of edges and color.
    b. Circle. A circle is described by coordinates of center, radius, color and fill flag (if the circle is filled or not).
    c. Triangle. A triangle is described by coordinates of edges, color and fill flag.

3. Data types:
    a. Color is represented as ARGB value.
    b. Coordinate is represented as a pair of floats X and Y. The coordinate system is Cartesian:



4. As X and Y can be any valid float numbers and window size is limited to a screen resolution, all primitives should be automatically and proportionally scaled to be fit for the window.

Desing note

The solution should be designed in the way, that the following requirements could be easly implemented in the future:

1. To design and implement rectangles processing.
   The fourth type of primitives, the rectangle, should be introduced to the application.

2. To implement other data source reading.
   In addition to the JSON input file format, the application should be able to read a primitive list from other data source (e.g. XML files).

3. To select primitives with mouse clicks and show properties.
   The user should be able to click onto the primitive to see its properties (points, color, line type).

Simple example of input file

There is a simple example of input file representing a list of three primitives (line, circle and triangle):

```
[
 {
   "type": "line",
   "a": "-1,5; 3,4",
   "b": "2,2; 5,7",
   "color": "127; 255; 255; 255"
 },
 {
   "type": "circle",
   "center": "0; 0",
   "radius": 15.0,
   "filled": false,
   "color": "127; 255; 0; 0"
 },
 {
   "type": "triangle",
   "a": "-15; -20",
   "b": "15; -20,3",
   "c": "0; 21",
   "filled": true,
   "color": "127; 255; 0; 255"
 }
]
```