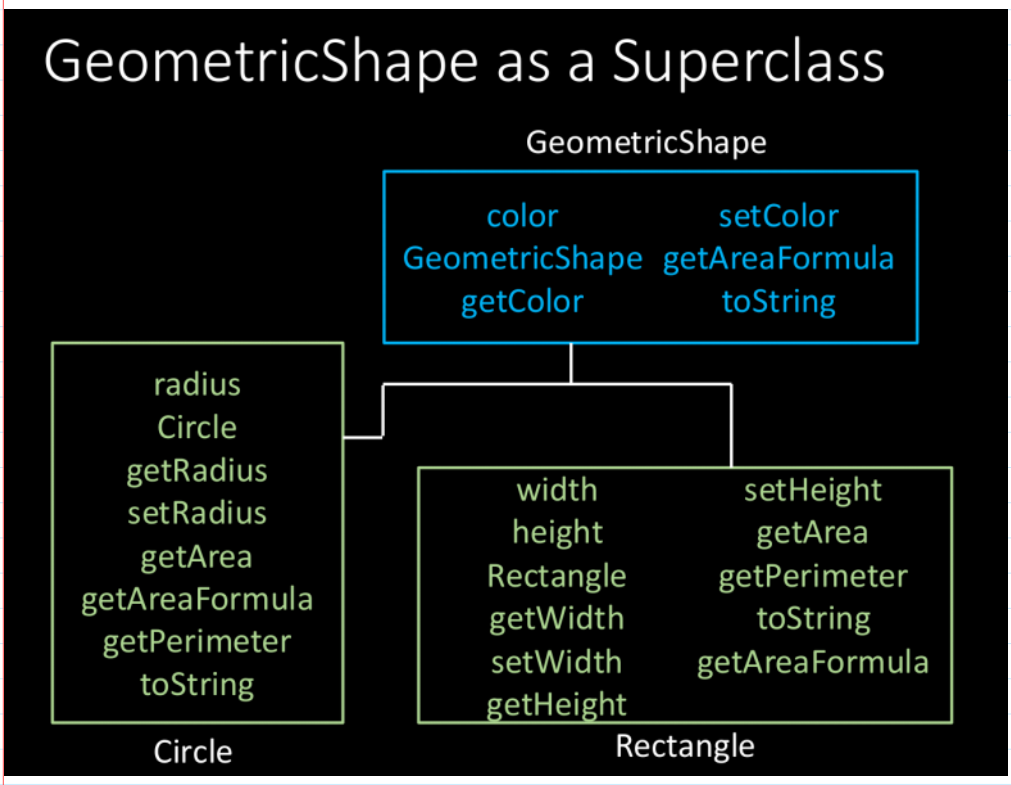
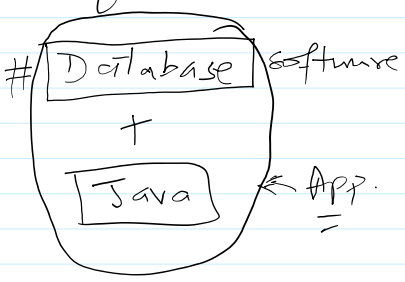
Polymorphism

08 May 2025 20:38



BigInteger

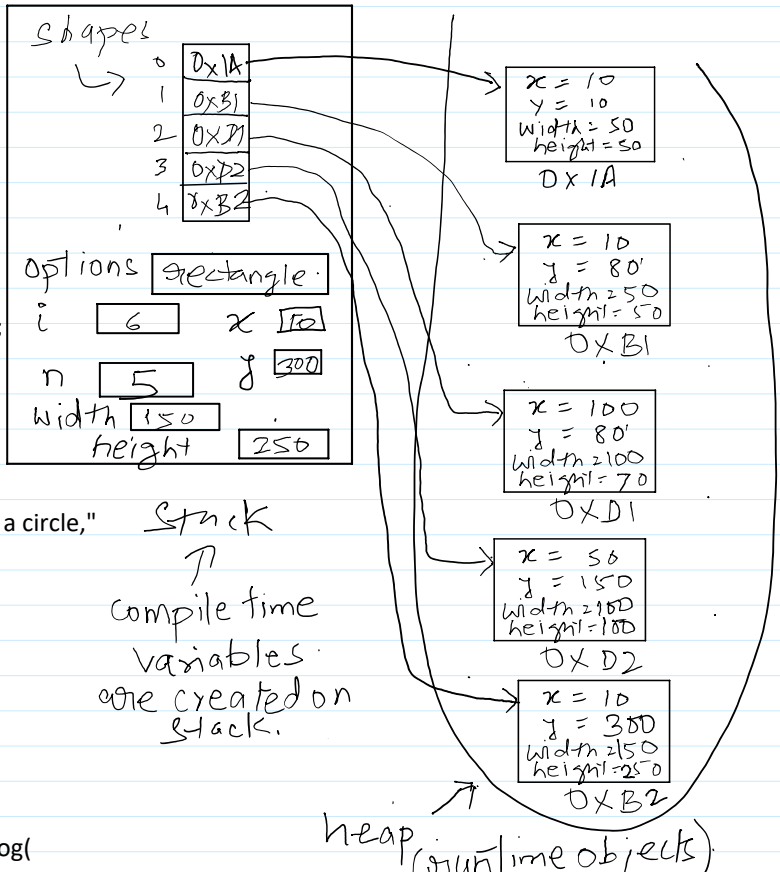
BigDecimal




```
package Polymorphism;
import javax.swing.*;
import MyGraphics.*;
/**
 * Write a description of class DrawingCircleAndRectangle here.
 *
 * @author (your name)
 * @version (a version number or a date)
 */
public class DrawingCircleAndRectangle
{
   public static void main(String args[]){
      int n = Integer.parseInt(
            JOptionPane.showInputDialog("Enter number of Shapes:"));
      Shape shapes[] = new Shape[n];

      String options;
      double x, y, width, height;
      for(int i = 0 ; i < n; i++){
         options = JOptionPane.showInputDialog("Input Circle to draw a circle,"
               + "\nand input Rectangle to draw rectangle: ");

         switch(options){
            case "Rectangle":
            case "rectangle":
               x = Double.parseDouble(JOptionPane.showInputDialog(
               "Enter your x coordinate:"));
               y = Double.parseDouble(JOptionPane.showInputDialog(
               "Enter your y coordinate:"));
               width = Double.parseDouble(JOptionPane.showInputDialog(
```

circle

rectangle.



Stack

↑

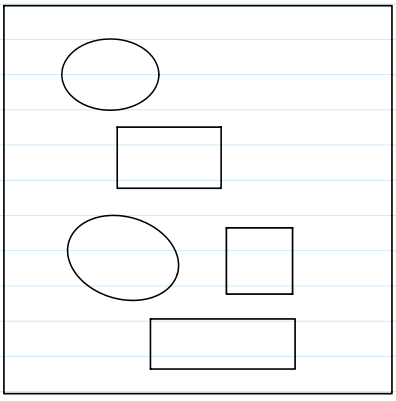
compile time variables are created on stack.

```
            y = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter your y coordinate:"));
            width = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter your width of rectangle:"));
            height = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter height of Rectangle: "));
            shapes[i] = new Rectangle(x, y, width, height);
            break;
         case "Circle":
         case "circle":
            x = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter your x coordinate:"));
            y = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter your y coordinate:"));
            width = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter your width of Circle:"));
            height = Double.parseDouble(JOptionPane.showInputDialog(
            "Enter height of Circle:"));
         shapes[i] = new Ellipse(x, y, width, height);
            break;

         default:
            JOptionPane.showConfirmDialog(null, "Wrong option typed!!!");
            i--;
      } //end of swith case

   }//end of for loop

   Canvas canvas = Canvas.getInstance();
   for (Shape s: shapes){
      canvas.show(s);
   }
  }
}
```

heap (runtime objects)

0xB2

depending upon shape objects different shapes will be drawn on the canvas



Canvas.

Rect(10, 10, 100, 70)
Circle(10,120,120,120)
Circle(150,120,150,150)
Rect(10,200, 200, 250)

The parent reference variable of type (Abstract class or Interface), can keep the reference of its child objects during the execution of code. This is called runtime polymorphism.