Zhubatkanov Aidyn

1)

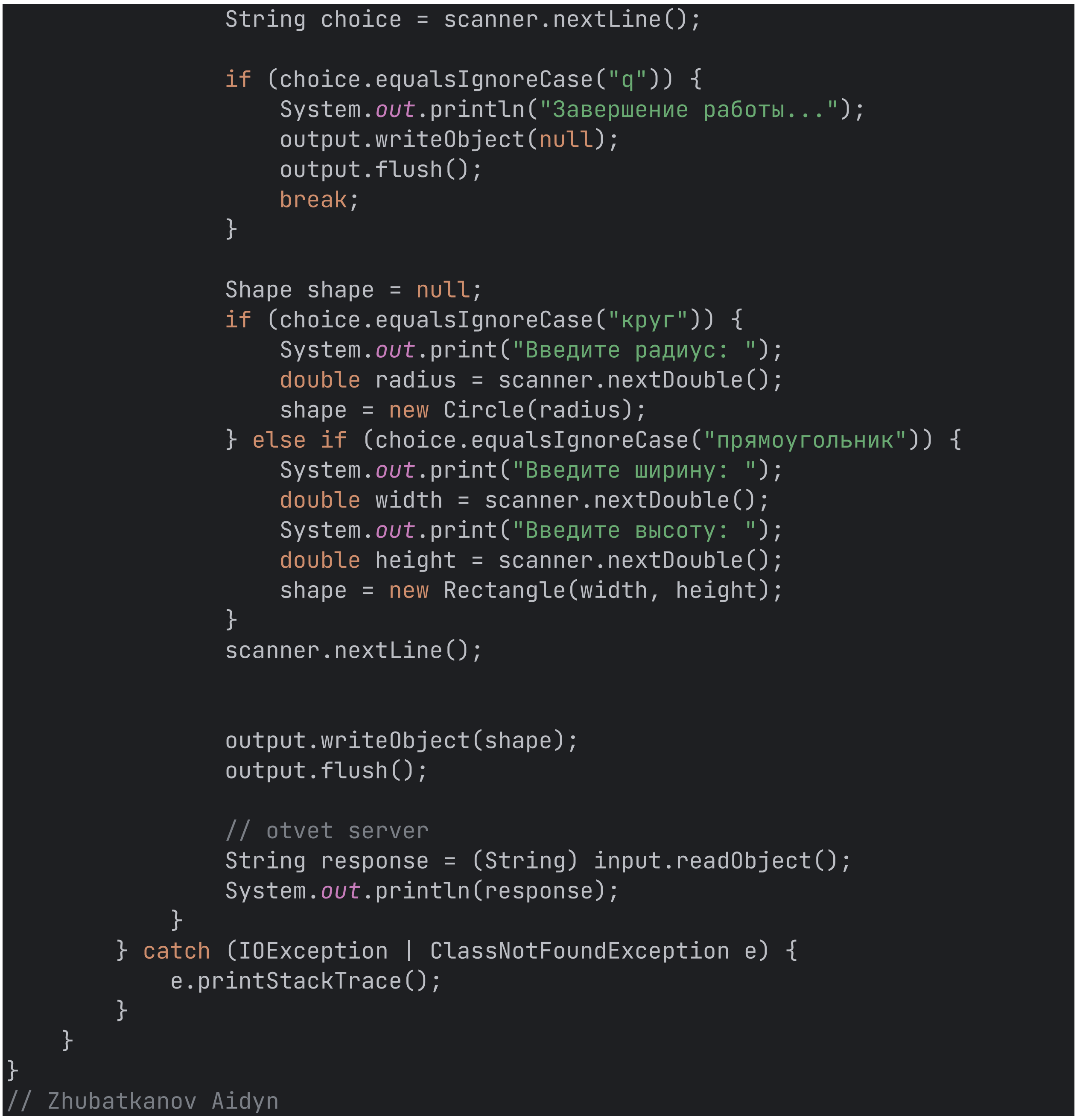
```java
package geometry;

import java.io.Serializable;

public abstract class Shape implements Serializable {
    private static final long serialVersionUID = 1L;

    public abstract double calculateArea();
}
```

```java
package geometry;

public class Circle extends Shape {
    private double radius;

    public Circle(double radius) {
        this.radius = radius;
    }

    @Override
    public double calculateArea() {
        return Math.PI * radius * radius;
    }
}
```

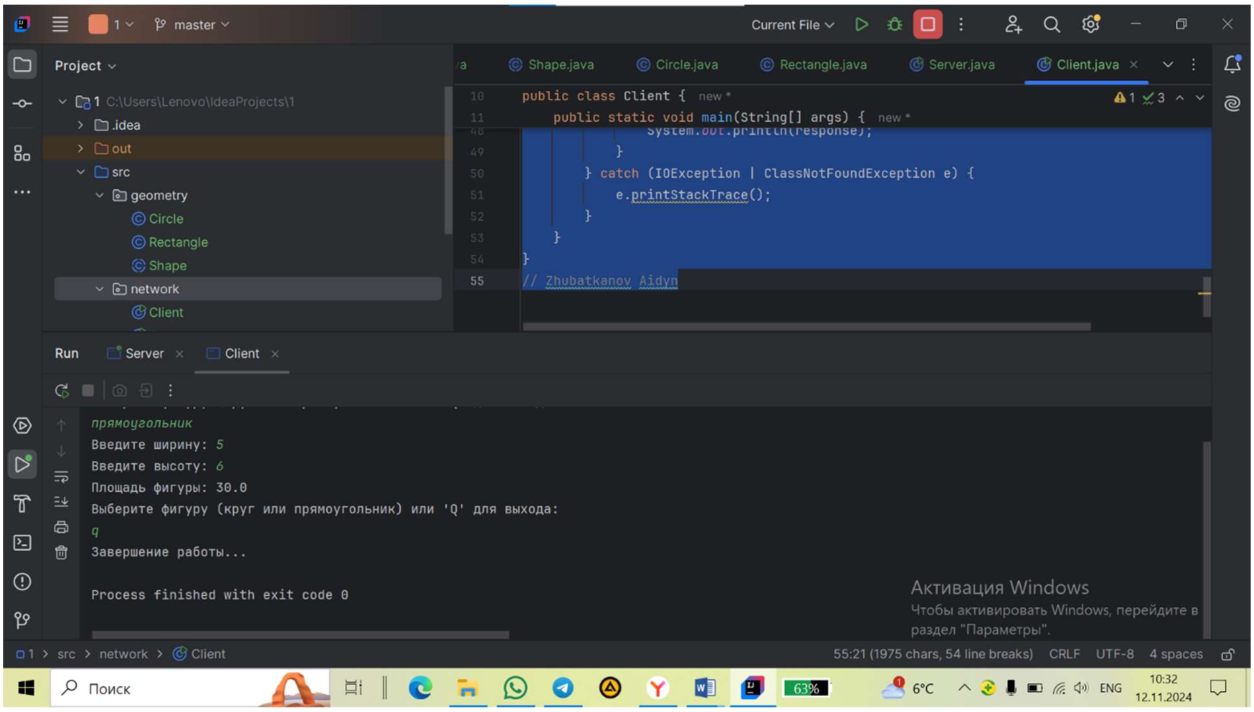
```java
package geometry;

public class Rectangle extends Shape {
    private double width;
    private double height;

    public Rectangle(double width, double height) {
        this.width = width;
        this.height = height;
    }

    @Override
    public double calculateArea() {
        return width * height;
    }
}
```

```java
package network;

import geometry.Shape;
import java.io.*;
import java.net.*;

public class Server {
    public static void main(String[] args) {
        try (ServerSocket serverSocket = new ServerSocket(5000)) {
            System.out.println("Сервер запущен и ожидает подключения...");
            while (true) {
                try (Socket socket = serverSocket.accept();
                     ObjectInputStream input = new
ObjectInputStream(socket.getInputStream());
                     ObjectOutputStream output = new
ObjectOutputStream(socket.getOutputStream())) {

                    System.out.println("Клиент подключен");


                    Shape shape = (Shape) input.readObject();
                    if (shape != null) {
                        double area = shape.calculateArea();
                        output.writeObject("Площадь фигуры: " + area);
                        output.flush();
                        System.out.println("Площадь отправлена клиенту: " +
area);
                    } else {
                        break;
                    }
                } catch (ClassNotFoundException e) {
                    e.printStackTrace();
                }
            }
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

```
package network;

import geometry.Circle;
import geometry.Rectangle;
import geometry.Shape;
import java.io.*;
import java.net.*;
import java.util.Scanner;

public class Client {
    public static void main(String[] args) {
        try (Socket socket = new Socket("localhost", 5000);
             ObjectOutputStream output = new
ObjectOutputStream(socket.getOutputStream());
             ObjectInputStream input = new
ObjectInputStream(socket.getInputStream());
             Scanner scanner = new Scanner(System.in)) {

            while (true) {
                System.out.println("Выберите фигуру (круг или прямоугольник)
или 'Q' для выхода:");
```



```
                String choice = scanner.nextLine();

                if (choice.equalsIgnoreCase("q")) {
                    System.out.println("Завершение работы...");
                    output.writeObject(null);
                    output.flush();
                    break;
                }

                Shape shape = null;
                if (choice.equalsIgnoreCase("круг")) {
                    System.out.print("Введите радиус: ");
                    double radius = scanner.nextDouble();
                    shape = new Circle(radius);
                } else if (choice.equalsIgnoreCase("прямоугольник")) {
                    System.out.print("Введите ширину: ");
                    double width = scanner.nextDouble();
                    System.out.print("Введите высоту: ");
                    double height = scanner.nextDouble();
                    shape = new Rectangle(width, height);
                }
                scanner.nextLine();


                output.writeObject(shape);
                output.flush();

                // otvet server
                String response = (String) input.readObject();
                System.out.println(response);
            }
        } catch (IOException | ClassNotFoundException e) {
            e.printStackTrace();
        }
    }
}
// Zhubatkanov Aidyn
```

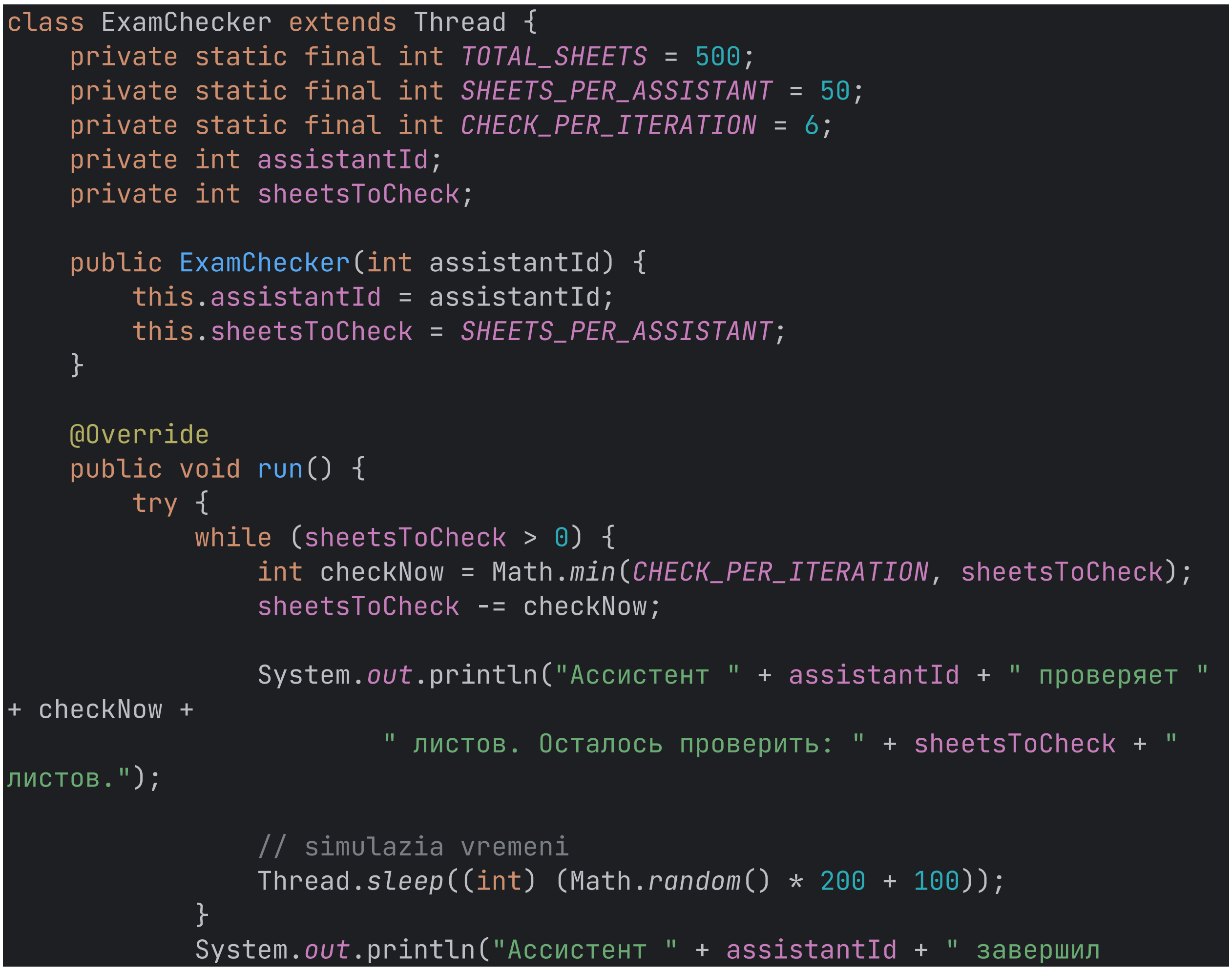


```java
public class Client {  new *
    public static void main(String[] args) {  new *
                    System.out.println(response);
                }
            } catch (IOException | ClassNotFoundException e) {
                e.printStackTrace();
            }
        }
}
// Zhubatkanov Aidyn
```

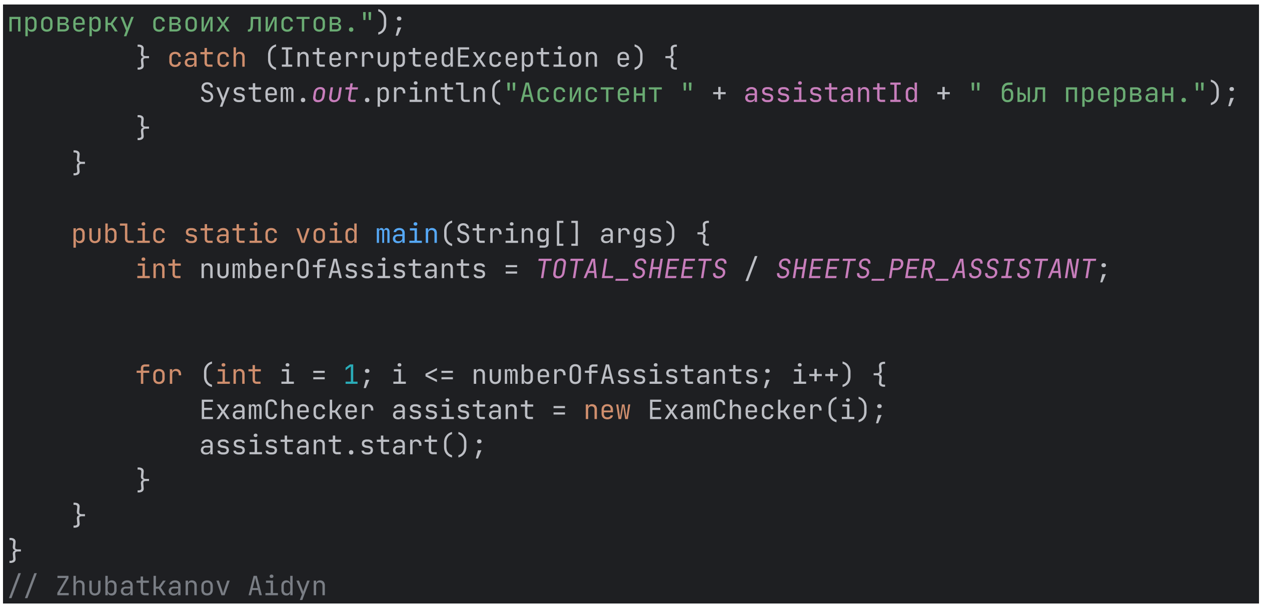
```
прямоугольник
Введите ширину: 5
Введите высоту: 6
Площадь фигуры: 30.0
Выберите фигуру (круг или прямоугольник) или 'Q' для выхода:
q
Завершение работы...

Process finished with exit code 0
```

Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".

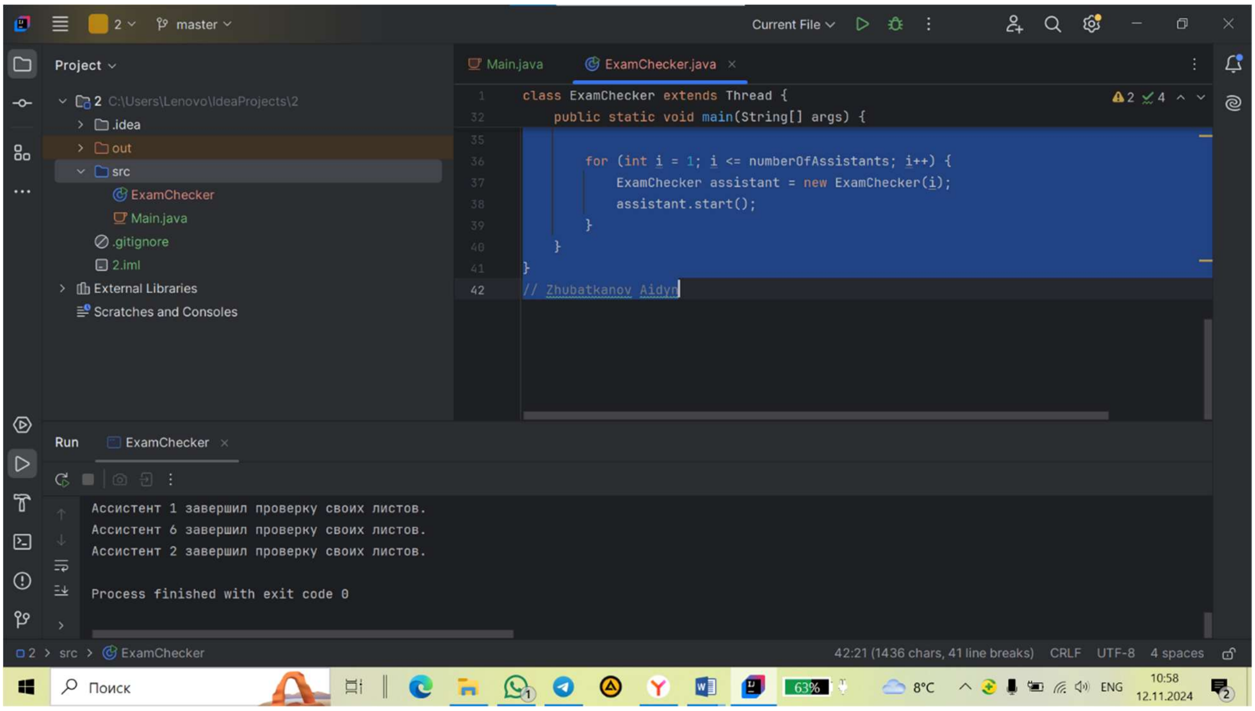
2)



```java
class ExamChecker extends Thread {
    private static final int TOTAL_SHEETS = 500;
    private static final int SHEETS_PER_ASSISTANT = 50;
    private static final int CHECK_PER_ITERATION = 6;
    private int assistantId;
    private int sheetsToCheck;

    public ExamChecker(int assistantId) {
        this.assistantId = assistantId;
        this.sheetsToCheck = SHEETS_PER_ASSISTANT;
    }

    @Override
    public void run() {
        try {
            while (sheetsToCheck > 0) {
                int checkNow = Math.min(CHECK_PER_ITERATION, sheetsToCheck);
                sheetsToCheck -= checkNow;

                System.out.println("Ассистент " + assistantId + " проверяет "
+ checkNow +
                        " листов. Осталось проверить: " + sheetsToCheck + "
листов.");

                // simulazia vremeni
                Thread.sleep((int) (Math.random() * 200 + 100));
            }
            System.out.println("Ассистент " + assistantId + " завершил
```



```java
проверку своих листов.");
        } catch (InterruptedException e) {
            System.out.println("Ассистент " + assistantId + " был прерван.");
        }
    }

    public static void main(String[] args) {
        int numberOfAssistants = TOTAL_SHEETS / SHEETS_PER_ASSISTANT;


        for (int i = 1; i <= numberOfAssistants; i++) {
            ExamChecker assistant = new ExamChecker(i);
            assistant.start();
        }
    }
}
// Zhubatkanov Aidyn
```



```java
class ExamChecker extends Thread {
    public static void main(String[] args) {

        for (int i = 1; i <= numberOfAssistants; i++) {
            ExamChecker assistant = new ExamChecker(i);
            assistant.start();
        }
    }
}
// Zhubatkanov Aidyn
```

```
Ассистент 1 завершил проверку своих листов.
Ассистент 6 завершил проверку своих листов.
Ассистент 2 завершил проверку своих листов.

Process finished with exit code 0
```