

NETCRACKER LEARNING CENTER

УЧЕБНОЕ ПРАКТИЧЕСКОЕ ЗАДАНИЕ № 1

## **Задание 1. Объектно-ориентированно епрограммиорвание в Java**

выполнил студент

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Код лежит на GitHub:

## 1 Задача 1

**Цель:** Разработайте класс для решения квадратных уравнений. Вычисление дискриминанта должен осуществлять вложенный класс. После компиляции объясните структуру class файлов. Проанализируйте использование вложенного класса.

```
import java.util.Scanner;

public class Solver {

    class Discr {

        public double discr_calc(int a, int b, int c) {
            double discr = b*b - 4*a*c;
            return discr;
        }
    }

    public static double[] answer(int a, int b, double discr) {
        double[] res = new double[2];
        for (int i=0; i<2; i++) {
            res[i] = (-b + Math.pow(-1, i) * Math.sqrt(discr)) / (2 * a);
        }
        return res;
    }

    public static void main(String[] args) {

        int[] coeffs;
        double[] answer = new double[2];

        Scanner in = new Scanner(System.in);

        coeffs = new int [3];
        for (int i=0; i<3; i++) {
            System.out.print("Enter coeff " + i + " : ");
            coeffs[i] = in.nextInt();
        }
        in.close();

        int a = coeffs[0];
        int b = coeffs[1];
        int c = coeffs[2];

        Solver solver = new Solver();
        Discr discr = solver.new Discr();

        double discriminante = discr.discr_calc(a, b, c);

        if (a == 0 && b == 0 && c == 0) {
            System.out.println("The Answer: Infinity amount of solutions!");
        } else {
            if (discriminante < 0) {
                System.out.println("The Answer: No solution in Real numbers!");
            } else {
                if (a == 0) {
                    double answer_linear = -c / b;
                    System.out.println("The Answer: " + answer_linear);
                }

                if (a == 0 && b == 0 && c != 0) {
                    System.out.println("The Answer: No solution");
                }
            }
        }
    }
}
```

```
    } if (a != 0) {  
        answer = answer(a, b, discriminante);  
        System.out.println("The Answer: " + answer[0] + " and " + answer[1]);  
    }  
}  
}
```

```
yarvod@yarvod-mac Practise % javac Solver.java  
yarvod@yarvod-mac Practise % java Solver  
Enter coeff 0 : 0  
Enter coeff 1 : 0  
Enter coeff 2 : 0  
The Answer: Infinity amount of solutions!  
yarvod@yarvod-mac Practise % java Solver  
Enter coeff 0 : 1  
Enter coeff 1 : 2  
Enter coeff 2 : 3  
The Answer: No solution in Real numbers!  
yarvod@yarvod-mac Practise % java Solver  
Enter coeff 0 : 0  
Enter coeff 1 : 1  
Enter coeff 2 : 2  
The Answer: -2.0  
yarvod@yarvod-mac Practise % java Solver  
Enter coeff 0 : 1  
Enter coeff 1 : 5  
Enter coeff 2 : 4  
The Answer: -1.0 and -4.0  
yarvod@yarvod-mac Practise % java Solver  
Enter coeff 0 : 1  
Enter coeff 1 : 2  
Enter coeff 2 : 1  
The Answer: -1.0 and -1.0  
yarvod@yarvod-mac Practise %
```

Рис. 1: Решение задачи 1