第二次作业

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6.4 反向显示一个整数

```
package HomeworkCode;

import java.util.ArrayList;
import java.util.Scanner;

public class ReverseInterger {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("please input the number will be test.");
        int number = sc.nextInt();
        boolean result = isPalindrome(number);
        System.out.println("the number you input is: "+number+" and the result
of whether it is a isPalindrome "+result);
    }

    public static int reverse(int number) {
        ArrayList<Integer> arrayList = new ArrayList();
        while(number%10!=0) {
            int m = number%10;
            arrayList.add(m);
            number /= 10;
        }
        int finalNum=0;
        int digit = 1;
        for(int i=0;i<arrayList.size();i++) {
            finalNum += arrayList.get(arrayList.size()-1-i) * digit;
            digit *= 10;
        }
        return finalNum;
    }

    public static boolean isPalindrome(int number) {
        if(number==reverse(number))
            return true;
        else
            return false;
    }
}
```

结果:

```
"C:\Program Files\Java\jdk-14.0.2\bin\java.exe" "-javaagent:D:\Software setup\IDEA\I
please input the number will be test.
54545
the number you input is: 54545 and the result of whether it is a isPalindrome true

Process finished with exit code 0
```

```
"C:\Program Files\Java\jdk-14.0.2\bin\java.exe" "-javaagent:D:\Software setup\IDEA\Int
please input the number will be test.
45615
the number you input is: 45615 and the result of whether it is a isPalindrome false

Process finished with exit code 0
```

6.17 显示0和1构成的矩阵

```java
package HomeworkCode;

import java.util.Random;
import java.util.Scanner;

public class RandomMatrix {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("pleast input the dimension n:");
        int dim = sc.nextInt();
        int[][] matrix= new int[dim][dim];
        matrix = CreateMatrix(matrix,dim);
        DrawMatrix(matrix,dim);
    }

    public static int[][] CreateMatrix(int[][] matrix,int dim) {
        for(int i=0;i<dim;i++) {
            for(int j=0;j<dim;j++) {
                matrix[i][j] = (int)(Math.random()*2);
            }
        }
        return matrix;
    }

    public static void DrawMatrix(int[][] matrix,int dim) {
        for(int i=0;i<dim;i++) {
            for(int j=0;j<dim;j++) {
                System.out.print(matrix[i][j]+" ");
            }
            System.out.println();
        }
    }
}
```

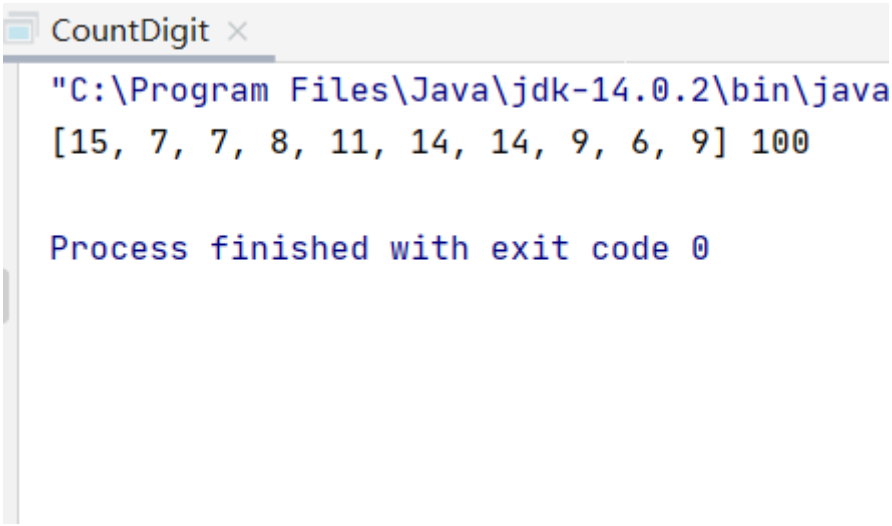
结果显示

```
"C:\Program Files\Java\jdk-14.0.2\
pleast input the dimension n:
5
1 1 0 0 1
0 0 1 0 1
0 1 1 0 0
0 1 1 1 0
1 0 1 0 1
```

7.7 统计一位数的个数

```java
package HomeworkCode;

import java.lang.reflect.Array;
import java.util.Arrays;

public class CountDigit {
    public static void main(String[] args) {
        //随机生成100个随机整数
        int[] vectors = CreateNum();

        int[] result = new int[10];
        //统计各个个位数的数目
        for(int i=0;i<vectors.length;i++) {
            result[vectors[i]]++;
        }
        System.out.println(Arrays.toString(result)+" "+vectors.length);
    }

    public static int[] CreateNum() {
        int[] vectors = new int[100];
        for(int i=0;i<100;i++) {
            vectors[i] = (int)(Math.random()*10);
        }
        return vectors;
    }
}
```

结果显示



7.10 找出最小元素的下标

```
package HomeworkCode;

import java.util.Scanner;

public class FindMinIndex {
    public static void main(String[] args) {
        System.out.println("please input 10 num you want to compare.");
        int count=0;
        double[] array = new double[10];
        while (count<10) {
            Scanner sc = new Scanner(System.in);
            System.out.print("please input "+(count+1)+" number:");
            array[count] = sc.nextDouble();
            count++;
        }
        int index = indexOfSmal1estEIement(array);
        System.out.println("index of the samllest element of these numbers is:"+
index);
    }

    public static int indexOfSmal1estEIement(double[] array) {
        int index=0;
        double minNum = array[0];
        for(int i=0;i< array.length;i++) {
            if(minNum>array[i]) {
                index = i;
            }
        }
        return index;
    }
}
```

结果显示

```
"C:\Program Files\Java\jdk-14.0.2\bin\java.exe" "-java
please input 10 num you want to compare.
please input 1 number:5
please input 2 number:4
please input 3 number:6
please input 4 number:3
please input 5 number:7
please input 6 number:1
please input 7 number:8
please input 8 number:0.5
please input 9 number:7
please input 10 number:9
index of the samllest element of these numbers is:7
```

求矩阵主对角元素之和

```
package HomeworkCode;

import java.util.Scanner;

public class CountofMatrixdiv {
    public static void main(String[] args) {
        //读取矩阵的维度，生成相应的矩阵
        Scanner sc = new Scanner(System.in);
        System.out.print("pleast input the dimension n:");
        int dim = sc.nextInt();
        double[][] matrix=new double[dim][dim];
        //读取数据
        int count=0;
        while (count<dim*dim) {
            int i = count/dim;
            Scanner sc2 = new Scanner(System.in);
            System.out.print("please input "+(i+1)+" line "+(count-dim*i+1)+"
column"+"number:");
            matrix[i][count-dim*i] = sc2.nextDouble();
            count++;
        }
        //计算和
        double result = sumMajorDiagonal(matrix);
        //打印相关内容
        for(int i=0;i<dim;i++) {
            for(int j=0;j<dim;j++) {
                System.out.print(matrix[i][j]+" ");
            }
            System.out.println();
        }
        System.out.println("sum of the MajorDiagonal is: "+result);

    }
```

```
    public static double sumMajorDiagonal (double[][] m) {
        double result=0.0;
        for(int i=0;i<m[0].length;i++) {
            for(int j=0;j<m[0].length;j++) {
                if(i==j) {
                    result+=m[i][j];
                }
            }
        }
        return result;
    }
}
```

结果显示

```
"C:\Program Files\Java\jdk-14.0.2\bin\java.e
pleast input the dimension n:3
please input 1 line 1 columnnumber:1.1
please input 1 line 2 columnnumber:2
please input 1 line 3 columnnumber:3
please input 2 line 1 columnnumber:4
please input 2 line 2 columnnumber:5.5
please input 2 line 3 columnnumber:6
please input 3 line 1 columnnumber:7
please input 3 line 2 columnnumber:8
please input 3 line 3 columnnumber:9.9
1.1 2.0 3.0
4.0 5.5 6.0
7.0 8.0 9.9
sum of the MajorDiagonal is: 16.5
```