**Exercise 1:**

public class Exercise1 {

public static void main(String[] args) {

int rands[] = new int[100];

int min = 1;

int max = 1000;

//init array with random values in range

for (int i = 0; i < rands.length; i++) {

rands[i] = ThreadLocalRandom.current().nextInt(min,max+1);

}

int largest = rands[0];

int smallest = rands[0];

int sevenCount = 0;

int sum = 0;

double avg;

//find the smallest, largest nums in the array

//find the freq of 7 in the array

//find the sum of all values

for (int i = 0; i < rands.length; i++) {

if (rands[i] < smallest) {

smallest = rands[i];

}

if (rands[i] > largest) {

largest = rands[i];

}

if (rands[i] == 7) {

sevenCount++;

}

sum += rands[i];

}

//compute avg

avg = (double) sum / rands.length;

//display answers

System.out.println("Smallest is " + smallest);

System.out.println("Largest is " + largest);

System.out.println("Number of 7's in the array " + sevenCount);

System.out.println("Sum is " + sum);

System.out.println("Average is " + avg);

}

}

**Exercise 2:**

public class Exercise2 {

public static void main(String[] args) {

int rands[] = new int[5000];

int frequency[] = new int[30];

int min = 0;

int max = 29;

int randomValue = 0;

int modal = 0;

int value = 0;

//init array with random values in range

for (int i = 0; i < rands.length; i++) {

randomValue = ThreadLocalRandom.current().nextInt(min, max + 1);

rands[i] = randomValue;

frequency[randomValue]++;

}

System.out.println("Frequency Distribution Table");

for (int i = 0; i < frequency.length; i++) {

System.out.println(i + " occured " + frequency[i] + " times");

}

value = frequency[0];

for (int i = 1; i < frequency.length; i++) {

if (frequency[i] > value) {

modal = i;

value = frequency[i];

}

}

System.out.println("\n\nModal value is " + modal + " as it occured " + value + " times");

}

}

**Exercise 3:**

public static void main(String[] args) {

int rands[] = new int[5000];

int min = 5;

int max = 50;

boolean flag = false;

for (int i = 0; i < rands.length; i++) {

rands[i] = ThreadLocalRandom.current().nextInt(min, max + 1);

}

for (int i = 0; i < rands.length; i++) {

if (i % 20 == 0)

System.out.println("");

System.out.print(rands[i] + "\t");

}

System.out.println("\n\n");

for (int i = 0; i < rands.length; i++) {

if ((rands[i] % 8==0) && (rands[i] % 7==0)&& (rands[i] % 6==0)) {

System.out.println(rands[i] + " at index " + i + " is a multiple of 6, 7 and 8");

flag = true;

}

}

if (!flag)

System.out.println("\nThere were no numbers in the array that are multiples of 6, 7 and 8 ");

}

}