מבוא למדעי המחשב בשפת java
סטונדנט 1: דליה ויליאם.
סטודנט 2: גיא רחמים.

```
//Dalya William & Guy Rahamim
//Home assignment 6.

import java.util.Scanner;
public class Functioning
	{
		public static Scanner input = new Scanner(System.in);
		public static void main(String[] args)
		{
			Scanner input = new Scanner(System.in);
			boolean quit=false;
			double radius=0;
			int num1=0, num2=0, num3=0,num4=0;



			while (!quit)
				{

					switch (getMenuChoice())
					{
						case 1:	// case for calling the
"squares" function.
						{
							//ask users for input.
							System.out.println("Please enter 3
numbers: ");

							num1=input.nextInt();
							num2=input.nextInt();
							num3=input.nextInt();

							//function call
							System.out.println("The answer is: " +
squares(num1,num2,num3) + "\n");

							break;
						}

						case 2: //case for calling the
"checkRectangle" function.
						{
							//asking the user for input.
							System.out.println("Please enter
numbers for 4 sides of a rectangle:");

							num1=input.nextInt();
							num2=input.nextInt();
							num3=input.nextInt();
							num4=input.nextInt();
```

```
                                                //function call.
                                                System.out.println("Can these be 4
adjacent sides of a rectangle?\n"
                                                + "The answer is " +
checkRectangle(num1,num2,num3,num4) +"\n");
                                                break;
                                          }

                                          case 3: //case for calling the "circleSum"
function.
                                          {
                                                //asking the users for input.
                                                System.out.println("Please enter a
circle's radius:");
                                                radius=input.nextDouble();

                                                //function call
                                                System.out.println(circleSum(radius) +
"\n");
                                                break;
                                          }

                                          case 4: // case for calling the "factAVG"
function.
                                          {
                                                System.out.println("Please enter 3
numbers to be factored and averged:");
                                                num1=input.nextInt();
                                                num2=input.nextInt();
                                                num3=input.nextInt();

                                                //function call.
                                                System.out.println("The averaged value
is: " + factAVG(num1, num2, num3) +"\n");
                                                break;
                                          }

                                          case 5: //case for leaving the program.
                                          {
                                                System.out.println("We are at an end.
Thank you for participating!");
                                                quit=true;
                                          }
                                    }//end switch

                              }//end while
                              input.close();
                        }//end main

                  //a function that takes 3 numbers and check if they are consecutive
powers of 2.
                        public static boolean squares (int num1,int num2,int num3) //
Ex.1
                        {
```

```
                        return (Math.pow(num1, 2)==num2?(Math.pow(num2,
2)==num3?true:false):false);
                }


                //a function that takes 4 numbers and checks if they can be 4
sides of a rectangle.
                public static boolean checkRectangle(int side1, int side2, int
side3, int side4) //Ex.2
                        {
                                //if all 4 numbers are positive
                                if ((side1>0 && side2>0 && side3>0 &&side4 > 0) &&
((side1==side3) && (side2==side4)))
                                {
                                        return true;
                                }
                                return false;
                        }


        //function that takes a radius and computes the circle's circumference +
area.
        public static double circleSum (double radius) //Ex.3
        {
                //returns the circles circumference + area for the given radius.
                System.out.print("the circle's circumference + area, given radius
" + radius + " is: ");
                return (2*Math.PI*radius + Math.PI*radius*radius);
        }



        public static double factAVG(int num1, int num2, int num3) //Ex.4
        {
                int i;
                double factorialsum1=1,
                                factorialsum2=1,
                                factorialsum3=1,
                                numberOfDivisors=3;

                for (i=1;i<=num1;i++)
                        factorialsum1*=i;

                for (i=1;i<=num2;i++)
                        factorialsum2*=i;

                for (i=1;i<=num3;i++)
                        factorialsum3*=i;

                return
((factorialsum1+factorialsum2+factorialsum3)/numberOfDivisors);
        }

        //function that prints the options and takes the choice from the user.
```

```
	public static int getMenuChoice() //Ex.5
	{
		int menuChoice;
		//prints choices.
		System.out.println("Please choose one of the following:\n" +
				"1.Check if each number of 3 given are squares in
sequence.\n"
				+ "2.Check if 4 given numbers can be 4 sides of a
rectangle. \n"
				+"3.Calculate the circumference plus the area of a
circle given its radius. \n"
				+"4.Calculate the average of 3 given numbers'
factorial values.\n"
				+"5.Exit the program.");

		//take the users selected choice.
		menuChoice=input.nextInt();

		//if the users selection is valid (between 1 and 5, inclusive)
		//return the choice.
		//else, print "bad input" and then return the the choice.
		if (menuChoice>=1 && menuChoice<=5)
			return menuChoice;
		else
			System.out.println(menuChoice);
		return menuChoice;
	}
}//end class
```

```
Functioning [Java Application] C:\Program Files\Java\jdk-13.0.1\bin\javaw.exe (Dec 8, 2019, 9:05:02 PM)
Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
1
Please enter 3 numbers:
3
9
81
The answer is: true

Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
```

```
Functioning [Java Application] C:\Program Files\Java\jdk-13.0.1\bin\javaw.exe (Dec 8, 2019, 9:05:43 PM)
Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
2
Please enter numbers for 4 sides of a rectangle:
5
4
5
4
Can these be 4 adjacent sides of a rectangle?
The answer is true

Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
```

```
Functioning [Java Application] C:\Program Files\Java\jdk-13.0.1\bin\javaw.exe (Dec 8, 2019, 9:06:08 PM)
Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
3
Please enter a circle's radius:
4.5
the circle's circumference + area, given radius 4.5 is: 91.89158511750145

Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
```

```
Functioning [Java Application] C:\Program Files\Java\jdk-13.0.1\bin\javaw.exe (Dec 8, 2019, 9:06:37 PM)
Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
4
Please enter 3 numbers to be factored and averged:
2
3
5
The averaged value is: 42.666666666666664

Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
```

```
<terminated> Functioning [Java Application] C:\Program Files\Java\jdk-13.0.1\bin\javaw.exe (Dec 8, 2019, 9:07:05 PM)
Please choose one of the following:
1.Check if each number of 3 given are squares in sequence.
2.Check if 4 given numbers can be 4 sides of a rectangle.
3.Calculate the circumference plus the area of a circle given its radius.
4.Calculate the average of 3 given numbers' factorial values.
5.Exit the program.
5
We are at an end. Thank you for participating!
```