TP02

Java Data Input

Remark

1. In Java, we can request user to input data by using class Scanner in package java.util. To use Scanner, we need to import java.util.Scanner. Example:

```
import java.util.Scanner;

public class UsingScanner {
   public static void main(String[] args) {
       Scanner sc = new Scanner(System.in);
       int a = sc.nextInt();
       long b = sc.nextLong();
       float c = sc.nextFloat();
       double d = sc.nextDouble();
       String e = sc.nextLine(); // read a line (including space)
       String f = sc.next(); // read until space or line break
       char g = sc.nextLine().charAt(0); // read as String and get first character
   }
}
```

2. Datatypes:

Type	Java	C
char	16 bits	8 bits
short	16 bits	16 bits
int	32 bits	16, 32 or 64 bits
long	16 bits	32 or 64 bits
float	32 bits	32 bits
double	64 bits	64 bits
boolean	1 bit	(use int)
byte	8 bits	(use char)
String	-	(use char array or pointer)

3. Specialties of String:

   String has 2 roles:

   a. A Class type:

      i. It can be null example: `String str = null;`

      ii. We can create object from String, example: `String str2 = new String("Titi");`

   b. A Base type: example:

```
String str;
str = "This is normal value";
str = str + " use just like int datatype";
```

TP02.1. Hello One's Name

Implement an application Java that displays "Hello *<input_name>*!" where *<input_name>* represents user input from keyboard. Example:

```
Input your name: Visal
Hello Visal!
```

TP02.2. Rectangle

Write a program in Java to calculate perimeter and surface of a rectangle with given width and height from keyboard. Example:

```
Program for calculating perimeter and surface of a Rectangle.
Please input width (in meter): 20
Please input height (in meter): 30

Perimeter = (20 + 30) x 2 = 100 m
Surface = 20 x 30 = 600 m^2
```

TP02.3. Equation

Write a program in Java to calculate value of x in a formula below:

$$\frac{1}{x} = \frac{1}{y} + \frac{1}{z}$$

Where y and z are given by user from keyboard. Suppose that x, y, z are non-zero. Example:

```
Program for calculating equation 1/x = 1/y + 1/z
Please input y: 2.25
Please input z: 2
Result x = 1.0588236
```

TP02.4. Hundreds Counter

Write a program in Java to count number of hundreds of given number from keyboard. Example:

```
Program for counting the number of hundreds.
Please input a positive number: 2000

There are 20 hundred in number 2000.
```

TP02.5. Cheater Game

Write a program in Java to let user input a number from keyboard. After input, program will display a number that is 1 bigger than inputted number. Example:

```
Program for guessing your luckiness.
Please input a positive number: 65

I got 66. I am luckier.
```

TP02.6. Summation without looping

Write a Java program to calculate the summation of integers between a start number and an end number with a fixed increment, without using a loop. The user will input the start, end, and increment numbers.

For example:
If the start number is 1, the end number is 10, and the increment is 1, the summation is 1+2+3+4+5+6+7+8+9+10 = 55.

Or, if the start number is 3, the end number is 11, and the increment is 2, the summation is 3+5+7+9+11 = 35.

Or, if the start number is 3, the end number is 10, and the increment is 2, the summation is 3+5+7+9 = 24.

```
Input the start number: 1
Input the end number: 10
Input the increment: 1
The summation is: 55

Input the start number: 3
Input the end number: 11
Input the increment: 2
The summation is: 35

Input the start number: 3
Input the end number: 10
Input the increment: 2
The summation is: 24
```