LAB 3

The Div / خارج القسمة and Mod % باقي القسمة operators:

In java, When dividing two integers, we have two operations:

1) Div / (خارج القسمة) which gives the result of the division without the remainder.

نأخذ بخارج القسمة أو حاصل القسمة ونهمل الباقي. مثلا عند قسمة 7 على 2 يكون حاصل القسمة 3 والباقي 1 . فيكون الناتج 3.

For example, 7 / 2 = 3 (the remainder 1 is discarded)

5 / 2 = 2 (the remainder 1 is discarded)

13 / 5 = 2 (the remainder 3 is discarded)

2 / 3 = 0 (the remainder is 2 and is discarded)

11 / 10 = 1

349 / 100 = 3 (the remainder 49 is discarded)

349 /10 = 34 (the remainder 9 is discarded)

Mod % (باقي القسمة) which gives you the remainder of the division only.

نأخذ بباقي القسمة ونهمل حاصل القسمة.. على سبيل المثال،، عند قسمة 7 على 3 فإن باقي القسمة هو 1 وهو الناتج اللذي نأخذ به ونهمل حاصل القسمة.

For example,

7 % 3 = 1 (1 is the remainder)

5 % 2 = 1 (1 is the remainder of the division)

13 % 5 = 3 (باقي قسمة 13 على 5 هو 3)

2 % 3 = 2 (باقي قسمة 2 على 3 هو 2)

11 % 10 = 1

349 % 100 = 49

349 % 10 = 9

Q1) Write a Java Program that will read a three digit integer **x** and print the first, middle and last digit separately.

Create a project **Lab03**

Name your class **ThreeDigits**

Hint: Use / and % to extract digits.

In Java, the div operator / will give you division result without the remainder.

For example 386 / 10 = 38. (Ignoring the remainder 6)

While the mod operator, %, will give you the remainder of division.

For example 386 % 10 = 6 (The remainder 6 is the result of mod operation)

Note: Div and Mod applies to integers only!

Sample Run:

```
Please Enter X: 486 ↵
First digit is 4
Middle Digit is 8
Last Digit is 6
```

Q2) Write a Java Program that will read three strings representing first name, middle name and last name of a student. Add the word "AL" to the last name and then combine them in a fourth string using the + operator to form a full name. Finally, print the full name.

Name your class **ThreeNames**

Hint: Use kb.next() to read a string. kb.next() will read a string until a blank or new line.

Sample Run:

```
Please Enter The First name: Mohammed ↵
Please Enter The Middle name: Saad ↵
Please Enter The Last name: Fahad ↵
The Full Name: Mohammed Saad ALFahad
```

Q3) Write a Java Program that will read a five digit integer x and print the first digit and last digit and middle digit. (i.e. if x = $d_1 d_2 d_3 d_4 d_5$ then d_5 is the 5th digit or last and d_1 is the first)

Name your class **FiveDigits**

Sample Run:

```
Please Enter the number: 73295 ↵
First digit is 7
Middle Digit is 2
Last Digit is 5
```

Q4) Write a Java program that reads a five digit integer x and then change the location of digits 2 and 4 and print the changed number.

Name your class **SwitchDigits**

Sample Run:

```
Please Enter the number: 73295 ↲
The changed number is 79235
```

Q5) Write a Java program that reads a five digit integer and then reverse the digits and print the reverse number.

Name your class **ReverseDigits**

Sample Run:

```
Please Enter the number: 73295 ↲
The reverse number is 59237
```

Solutions:

Q1)

```
import java.util.Scanner;
public class ThreeDigits{
public static void main(String args[]) {
Scanner kb = new Scanner(System.in);
System.out.print("Please Enter X:");
int x = kb.nextInt();

System.out.println("First Digit is " + (x / 100) );
System.out.println("The Middle Digit is " + (يحلها الطالب ));
System.out.println("last Digit is " + ( x % 10 ) );

    }
}
```

Q2)

```
import java.util.Scanner;
public class ThreeNames {
public static void main(String args[]) {
Scanner kb = new Scanner(System.in );
System.out.print("Please Enter The First Name:");
String first = kb.next();
System.out.print("Please Enter The Middle Name:");
String middle = kb.next();
System.out.print("Please Enter The Last Name:");
String last = kb.next();
last = "AL"+last;
String full = first + middle + last;
System.out.println("The Full Name: "+full);
    }
}
```