OOP LAB 2 (27 Sept 22)

Introduction to C#

By: Miss Tia

Variables

Give me an example of a variable

C# Datatype	Bytes	Range
byte	1	0 to 255
short	2	-32,768 to 32,767
int	4	-2 billion to 2 billion
long	8	-9 quintillion to 9 quintillion
float	4	7 significant digits[1]
double	8	15 significant digits[2]
char	2	Unicode characters
decimal	24	28 to 29 significant digits[4]
bool	1	true, false[5]

float	4	7 significant digits[1]
double	8	15 significant digits[2]

```
float number = 2.8f;
decimal number = 2.8m;
```

How to declare a variable?

Hint: type variableName = value;

```
int myNum = 5;
double myDoubleNum = 5.99D;
char myLetter = 'D';
bool myBool = true;
float myFloat = 22.3f
string myText = "Hello";
```

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```
float number = 2.8f;
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```

To combine both text and a variable, use the + character:

Eg 1: Character

```
string firstName = "John ";
string lastName = "Doe";
string fullName = firstName + lastName;
Console.WriteLine(fullName);
```

Eg 2: Numeric

```
int x = 5;
int y = 6;
Console.WriteLine(x + y);
```

Operators

```
int a = 6;
int b = 2;

// Arithmetic Operators

Console.WriteLine(a + b);
Console.WriteLine(a - b);
Console.WriteLine(a * b);
Console.WriteLine(a / b);
Console.WriteLine(a % b);
Console.WriteLine(a++);
Console.WriteLine(b--);
```

Just like maths we can subtract, add, divide and multiply. We can also increase the amount of our variable by 1 or decrease by 1. Lastly, the (a % b) percentige operator will give the remainder of a divided variable.

```
// Comparison Operators

a = 6;
b = 2;

Console.WriteLine(a == b);
Console.WriteLine(a != b);
Console.WriteLine(a > b);
Console.WriteLine(a >= b);
Console.WriteLine(a < b);
Console.WriteLine(a <= b);
```

Also, comparison operators we can compare between data and will be useful in a (if , else) statements

Let the debugging begins

Exercise 1:

a= 5

b = 10

c = a + b

c ?

a= 5

b = 10

c = a + b

c ?

Exercise 2:

```
a = 10;
b = ++a;
```

```
//a = 11, b = 11
```

```
a = 10;
b = a++;
```

```
//a = 11, b = 10
```

Operators

```
// Assignment Operators

a = 6;
b = 2;

Console.WriteLine(a = b);
Console.WriteLine(a += b);
Console.WriteLine(a -= b);
Console.WriteLine(a *= b);
Console.WriteLine(a /= b);
```

Comparison operators we can compare between data and will be useful in a (if , else) statements. a++ is postfix increment (returns the value before incrementing) and ++a is prefix increment (returns the value increase after incrementing)
(a+= a) is the shorter version of addition: (a = a + a) So, (a +=b) is actually: (a = a+b)

```
// Logical Operators

a = 6;
b = 2;

Console.WriteLine(a != b && b == 2);
Console.WriteLine(a != b && b == 10);
Console.WriteLine(a != b || b == 2);
Console.WriteLine(!(b == 10));
```

Logical Operators is where we do Boolean TRUE/FALSE statements.

The && is AND in C# While || is OR in C#

Let the debugging begins

Exercise 1: Output a statement that gives

Hello your name, your age is ____ , with matric ID is ID number , false

Exercise 2: Output a statement that gives

Hello your name, your age is ____ , with matric ID is ID number , true

THANKS!

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