SPECIAL PROGRAM IN ICT 10
ADVANCED PROGRAMMING 10
First Quarter, Week 4

Name of Learner: _____ Date:_____

Grade Level /Section: _____

VB.NET DATA TYPES

BACKGROUND INFORMATION FOR LEARNERS

In VB.NET, data type is used to define the type of a variable or function in a program. Furthermore, the conversion of one data type to another type using the data conversion. Data type also refers to the type of data and value which will be kept in a variable. It's the content of a variable but the content must be supported the storage capacity of a particular or particular data type. Furthermore, it also refers to which type of data or value is assigning to a variable or function so that a variable can hold a defined data type value.

A variable is that the container where you save your data like numbers or text. A variable features a name and a knowledge type. These two can't be separated. A variable may keep a reputation, quantity, or
amount. A reputation may be a textual data; quantity may be an integer value, while the quantity of an item
may have a numeric value with floating-point values or decimal points. Variable is that the container and
therefore the content is that the data type.

Examples given below are from the definition of the data type.

Name = "Melissa"
Quantity = 10
Amount = P 6.50

Sample situation:

Let's say you'll attend school; your mother prepared your snacks e.g. juice, and cookies for your recess

Another example, when we declare a variable, we have to tell the compiler what type of data or value is allocated to different kinds of variables to hold different amount of space in computer memory. There are various data types in VB.NET. they include:

Data Types	Required Space	Value Range
Boolean	A Boolean type depends on the implementing platform	True or False
Byte	1 byte	Byte range start from 0 to 255 (unsigned)
Char	2 bytes	Values range from 0 to 65535 (unsigned).
Date	8 bytes	Values range from 0:00:00 (midnight) January 1, 0001 to 11:59:59 PM of December 31, 9999.
Decimal	16 bytes	Range from 0 to +/-79,228,162,514,264,337,593,543,950,335 (+/-7.9...E+28) without any decimal point; And 0 to +/-7.9228162514226433759354395033 5 with 28 position to the right of the decimal
Double	8 bytes	-1.79769313486231570E+308 to -4.94-65645841246544E-324 for negative values; 4.94065645841246544E-324 to 1.79769313486231570E+308, for positive values
Integer	4 bytes	-2,147,483,648 to 2,147,483,647 (signed).
Long	7 bytes	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807(signed)
String	String datatype depend on the implementing platform	It accepts Unicode character from 0 to approximately 2 billion characters.

Type Conversion Functions

There are functions that we can use to convert from one data type to another. They include.:

- CBool (*expression*): converts the expression to a Boolean data type.
- CDate(*expression*): converts the expression to a Date data type.
- CDbl(*expression*): converts the expression to a Double data type.
- CByte (*expression*): converts the expression to a byte data type.
- CChar(*expression*): converts the expression to a Char data type.
- CLng(*expression*): converts the expression to a Long data type.
- CDec(*expression*): converts the expression to a Decimal data type.
- CInt(*expression*): converts the expression to an Integer data type.

- CObj(*expression*): converts the expression to an Object data type.
- CStr(*expression*): converts the expression to a String data type.
- CSByte(*expression*): converts the expression to a Byte data type.
- CShort(*expression*): converts the expression to a Short data type

Variable Declaration

In VB.net, the declaration involves the variable a name and defining the data type to which it belongs. We use the following syntaxes:

Dim *variable_name* As DataType

Dim *variable_name* As DataType = *value*

Where

Dim – it is useful to declare and allocate the storage space for one or more variables.
v*ariable_name* - it defines the name of the variable that you assign to store values
As – it allows you to define the data type.
DataType – it represents the name of the data type that you assign to a variable.
Value – assigning a required value to the variable.

For example:

Dim x As Integer
In the above example, '*x*' is the variable name while Integer is the data type to which variable *x* belongs.

Dim x As Integer

x = 10
This example initialize the variable, meaning we assign value to the variable. In the above example, we have declared an integer variable named '*x'* and assigned it a value of 10. Here is another example:

Dim name As String

Name = "Juan"
Above, we have declared a string variable name and assigned it a value of *Juan.*

If you declare a Boolean variable, its value must be either True or False. For example:

Dim checker As Boolean
checker = True

Above, we have defined a Boolean variable named *checker* and assigned it a value of True.

Try this program:

```
Module Module1
Sub Main()
Dim id As Integer
Dim name As String = "Juan Dela Cruz"
Dim percentage As Double = 75.15
Dim gender As Char = "M"
Dim isVerified As Boolean
Id = 10
IsVerified = True

Console.WriteLine("Id: {0}", id)
```

```
Console.WriteLine("Name: {0}", name)
      Console.WriteLine("Percentage: {0}", percentage)
        Console.WriteLine("Gender: {0}", gender)
Console.WriteLine("Verified: {0}", isVerified)
Console.ReadLine()
End Sub
End Module
```

The output should be:

```
Id: 10
Name: Juan Dela Cruz
Percentage: 75.15
Gender: M
Verified: True
```

Try this another program using different conversion function

```
Module DataTypes
Sub Main()
Dim n As Integer
Dim da As Date
Dim bl as Boolean = True
n = 1234567
da = Today

Console.WriteLine(bl)
Console.WriteLine(CSByte(bl))
                Console.WriteLine(CStr(bl))
                Console.WriteLine(CStr(da))
                Console.WriteLine(CChar(CChar(CStr(n))))
Console.WriteLine(CChar(CStr(da)))
Console.ReadKey()
End Sub
End Module
```

The output should be:

```
True
-1
True
12/4/2012
1
1
```

Getting Values from the User in VB.NET

In VB.NET, the Console class provides the *ReadLine()* function in the System namespace. It is to take input from the user and assign a value to a variable. For example:

```
Dim name As String
name =Console.ReadLine
```

Try this program:

```
Module Module1
Sub Main()
Dim user_message As String
```

```
Console.Write(“Enter your message: ”)
user_message = Console.ReadLine
Console.Writeline()
        Console.WriteLine(“You typed:{0}”, user_message)
Console.ReadLine()
End Sub
End Module
```

The output should be:

```
Enter your message: I love programming

You typed: I love programming
```

Lvalues and Rvalues

VB.NET expressions are of two types:

• Lvalue – an Lvalue expression may appear on the left-hand or on the right-hand side of the assignment operator

• Rvalue – an Rvalue expression can only appear on the right-hand of the assignment operator but not on the left-hand side.

Variables are lvalues, meaning that we can put them on the left side of the assignment operator. For example:

Dim x As Integer = 32

For numeric literals, they can neither be assigned nor can they appear on the left-hand side of the assignment operators since they are Rvalues. For Example:

32 = x

The above expression is wrong and will generate a compile-time error.

LEARNING COMPETENCY

To identify different data types and their uses and applying variables in a program.

ACTIVITIES

ACTIVITY 1

Direction: Describe the variable and the data type in the given situation.

Let say; you run out of stock in your refrigerator. You visited the nearby store, bought something for your dinner. You read the things listed in your receipts like P100.00 for Chicken Teriyaki, P155.45 amount of Beef Steak, and P20.00 for a cup of rice. The textual details are the rice and menus, while the quantity of every item including the entire amount is that the numeric value or floating-point.

Data Type Variable

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____

ACTIVITY 2

Directions:
Write a Console application that declare a variable to store the age of a person. Then the output of the program is an example shown below:
You are 16 years old.

ACTIVITY 3

Directions:
Write a Console application that declare an integer variable, one decimal variable and one string variable and assign 35, 56.25, and "I love programming" to them respectively. Then display their values on the screen.

ACTIVITY 4

Directions:
Write a Console application that prompt a user to input his/her name, grade level, section and then the output will be shown as an example below:

Hello Juan Dela Cruz!
You are a Grade 10 – Mark Zuckerberg student. Have a nice day.

REFLECTION
What is the importance of data type in a programming language?

_____

_____

_____

_____

_____

REFERENCES

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