Introductory Message

This school-based module of **Leandro V. Locsin Senior High School** is produced through the efforts, collaboration, and teamwork of LVLSHS Faculty Members, Quality Assurance Team, and under the supervision of the school principal, Dr. Merygee L. Javier. This is in connection to the **LVLSHS' U-WINN**, an innovation or school project planned and organized by the above-named people. This D-WINN project which means **Upholding Writing Skills through Instructions in the New Normal** enhanced and developed teachers' writing or research skills which are necessary in academic writing.
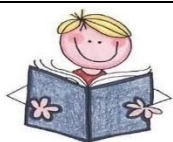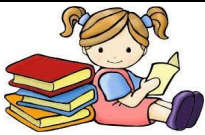
This module is under the umbrella of the school's **Learning Continuity Plan** for this school year 2020-2021. Also, this is an additional learning material which can be used by the students and teachers for a better teaching-learning process.

Likewise, this module has been designed to provide simple yet meaningful and valuable activities which can be utilized by the learners even at their own pace. This assures the health and safety of educators and students in this time of the "New Normal".

The lesson/s in this module is/are aligned with the Department of Education's Most Essential Learning Competencies (MELCS) crafted to streamline the K to 12 Curriculum.

This school-based module has the following parts with the corresponding icons and their descriptions:

Icon	Part	Description
	Topic at a Glance	This part presents the specific title of the lesson, module number, week number, and the focused learning competency where this module abounds.
	Pretest	This part presents an activity which helps to identify the easy and difficult areas of the lesson.

	Read to Learn	This part includes the brief discussion of the lesson and the specific reading material/s used by the writer as a springboard of the lesson and the learning process of the competency involved.
	Key Points	This part presents the important information or key concepts which the learners must know and comprehend in the lesson.
	Activity/ies	This includes preliminary activity/ies which will evaluate students' understanding of the lesson.
	Enrichment Activity/ies	This part contains additional activity/ies which will enrich or enhance students' knowledge of the lesson learned.
	Assessment	This part is a summative test which aims to evaluate the comprehension level of the learners in achieving the learning competency.
	References	This part includes a list of learning resources used by the writer in accomplishing or developing this module.

LVLSHS welcomes you! Happy learning.
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MELC-Based Modified Module in Computer Programming:
An Additional Learning Material of LVLSHS
SY:2020-2021
Writer: Ma. Cecilia C. Siva

Semester: 1
Quarter: First
Track/Strand: TVL/ICT/Computer Programming/(Specialized Subject)

TOPIC AT A GLANCE

Topic: Use Mathematical Concepts and Techniques
Module No: 8
Learning Competency (Learning Outcome):
● Apply mathematical techniques based on the problem identified
● Perform mathematical computations to the level of accuracy required for the problem
● Determine results of mathematical computation and verify based on job requirements

OBJECTIVES:

At the end of the lesson, the students would be able to:
1. identify variables; and
2. know its corresponding data type

PRETEST

Multiple Choice: Choose the letter of the correct answer that referred to the statements below.

1. It is a data type that holds numbers with a decimal point.
   a. Boolean
   b. Integer
   c. String
   d. Float
   e. Char

2.　It is a data type that holds date values, time values, or the combination of both.
   a.　Void
   b.　 Char
   c.　Date
   d.　String
   e.　Boolean

3. It is a data type that holds only whole numbers, but loads fast to compare to other data types.
   a.　Integer
   b.　Float
   c.　Date
   d.　String
   e.　Char

4. It is a data type used to hold a set or multiple of characters, like words, and sentences.
   a.　Char
   b.　String
   c.　Void
   d.　Boolean
   e.　Float

5. It is a data type that can only contain two values, True or False, Yes or No, or On and OFF is also possible.
   a.　String
   b.　Date
   c.　Float
   d.　Char
   e.　Boolean

KEY POINTS

Technical Terms:

   Data Type – description of a specific data that can be stored in a variable, the amount memory the item occupies, and the operations it can perform.
   Logical Operation - an operation that acts on binary numbers to produce a result according to the laws of Boolean logic
   Rational Operation – is nothing more than a fraction in which the numerator and/or the denominator are polynomials.

When creating a variable, we also need to declare the data type it contains. This is because the program will use different types of data in different ways. Programming languages define data types differently. For example, almost all languages differentiate between 'integers' (or whole numbers, eg 12), 'nonintegers' (numbers with decimals, eg 0.24), and 'characters' (letters of the alphabet or words). In computer science and computer programming, a data type or simply type is an attribute of data which tells the compiler or interpreter how the programmer intends to use the data. This data type defines the operations that can be done on the data, the meaning of the data, and the way values of that type can be stored. A data type, in programming, is a classification that specifies which type of value a variable has and what type of mathematical, relational or logical operations can be applied to it without causing an error. A string, for example, is a data type that is used to classify text and an integer is a data type used to classify whole numbers

WHAT IS DATA TYPE?

A data type is a description of a specific data that can be stored in a variable, the amount of memory the item occupies, and the operations it can be performed.

Common data types	
Data type:	Example value:
Integer	35462216
Floating-point	0.002756
Char	H
String	Hello, World!
Boolean	true

Boolean	● can only contain two values, True or False, Yes or No or On and Off is also possible. ● represents one bit of information. ● representing logical values. ● used for simple flags that track true/false conditions. Default value is false.	e.g., True or False, boolean one = true
Char	● used to hold a single character, specifically a single Unicode character. Unicode is a 16-bit character which represents all the letters and symbols of all major languages existing. ● encode text numerically ● used to store any character ● single 16-bit Unicode character	e.g., a char letter A = 'A' 97 (in ASCII, 97 is a lowercase 'a')
Date	● data type that holds date values, time values, or the combination of both.	e.g., 03/01/2016
Float	● floating point - number with a decimal point ● used for precise values such as currency. Default value is 0.0f. ● single precision 32-bit IEEE 754 floating point	e.g., 1.234, float f1 = 234.5f
Integer	● holds only the whole number, but loads fast compared to	e.g., 7, 12, 999, 1234, int a = 100000, int b = -200000

	other data types. ● generally used as the default data type for integral values unless there is a concern about memory. Default value is 0. ● 32-bit signed two's complement integer	
String	● data type used to hold a set or multiple of characters, like words and sentences.	e.g., abcd, hello world, Alice, Bob123
Void	● data type that has no values or operators and is used to represent nothing	e.g., no data, void, N/A

EXAMPLES OF DATA TYPE

1. A Teacher would like to create a program that will classify if a student's grade must be marked Passed or Failed. Any grades lower than 60 is considered failed. From this given information, please provide the necessary data type.

Answer: Data Type: Float

The float data type is the best data type for this variable since a student's grade is usually a real number (numbers with decimal places).

2. Identify the data type to convert the length in feet to centimeter

Answer: Data Type: Float

Float because the possible answer is a number with a decimal point.

3. Identify the data type that will read the two sides of a rectangle and calculate its area.

Answer: Data Type: Integer

Integer because the possible answer is a whole number.

4. Identify what data type that will calculate the roots of a quadratic equation ax2+bx+c=0. Hint: d=sqrt(b2-4ac), and the roots are: x1=(-b+d)/2a and x2=(-b-d)/2a

Answer: Data Type: Void

Void because it has no values and is used to represent nothing.

5. Identify what data type that will determine the largest value and print the largest value with an identifying message.

Answer: Data Type: Integer or Float

Generalization

As its name indicates, a data type represents a type of the data which you can process using your computer program. It can be numeric, alphanumeric, decimal, etc.

ACTIVITY

Home Based Activity 1: Identify the data type of the following:

1. Find the area of a circle: Area=3.14*r*r

2. Gets two numbers and prints the sum of their value.

3. Find the greater number between two numbers.

4. Find the sum of the first 50 natural numbers.

5. Print 1 to 20.

6. Convert temperature: Fahrenheit to Celsius. C=5/9*(F-32)

7. "I love Philippines"

8. True or False, Yes or No or On and Off.

9. 11/12/2019

10. 'C'

Home Based Activity 2

Identification: Identify the following data types:

a. letterA = 'A'

b. True or False

c. a = 100000

d. 1.234

e. Hello World

ASSESSMENT

Post Test: Multiple Choice: Choose the letter of the correct answer that referred to the statements below.

1. It is a data type that holds numbers with a decimal point.
   a. Boolean
   b. Integer
   c. String
   d. Float
   e. Char
2. It is a data type that holds date values, time values, or the combination of both.
   a. Void
   b. Char
   c. Date
   d. String
   e. Boolean

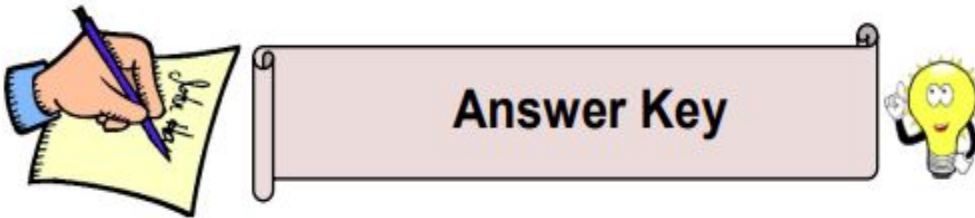3. It is a data type that holds only whole numbers, but loads fast to compare to other data types.

a. Integer
b. Float
c. Date
d. String
e. Char

   4. It is a data type used to hold a set or multiple of characters, like words, and sentences.
a. Char
b. String
c. Void
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e. Float

   5. It is a data type that can only contain two values, True or False, Yes or No, or On and OFF is also possible.
a. String
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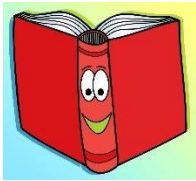d. Char
e. Boolean

Answer Key

Home Based Activity 1:

1. Float

2. Integer or Float

3. Integer or Float

4. Integer

 5. Integer

 6. Float

7. String

8. Boolean

 9. Date

10. Char

Home Based Activity 2

Identify the following data types:
 a. letterA = 'A' - Answer: Char

b. True or False - Answer: Boolean

c. a = 100000 - Answer: Integer

d. 1.234 - Answer: Float

 e. Hello World - Answer: String

REFERENCES

- Programming Copyright @Vibal Group Inc. and Mapua Information and Technology Center.
- APPLYING PROGRAMMING SKILLS IN A SECOND LANGUAGE

    -Division of City School - Manila by GIBSON J. OLAZO Master Teacher II

Websites:

https://www.slideshare.net/VarunGarg7/lect-1-introduction-to-programming-languages

https://docs.google.com/document/d/12_tih68i7iTxELhbnusKEJmn--euvScO/edit