DATA TYPES

A data type indicates how a computer system should interpret a piece of data. The concept of a data type is used in programming to describe the type of value a variable has and the mathematical, relational, or logical operation it can undergo without causing an error. A string, for instance, is a data type used to classify text, whereas an integer is a data type used to classify whole numbers. Understanding data types will ensure that data is collected in the preferred format and that each property's value is expected.

Basic Data Types:

Integer: Integer data types are identified by the keyword int. It typically takes 4 bytes to store an integer and ranges from -2147483648 to 2147483647.
Example: 0, 52, -52

Character: Character data types are used to store characters. The keyword char identify a character data type. Characters usually require 1 byte of memory space ranging from -128 to 127 or 0 to 255.
Example: 'a', 'z', 'A'

Boolean: Boolean data type is used for storing boolean or logical values. A boolean variable can store either true or false. The keyword used for the boolean data type is bool.
Example: True, False

Floating Point: The Floating Point data type stores floating-point values or decimal values. A floating-point data type's keyword is float. Floating-point variables typically require 4 bytes of memory.
Example: 3.15, 9.06, 00.13

String: It is a sequence of characters and the most commonly used data type to store text. A string can also include digits and symbols; however, it is always treated as text.
Example: hello world, Bob123, data_@type

Array: A list, or array, is a data type that holds a collection of elements in a specific order, typically all of the same type. An array stores multiple elements or values, so the structure of data stored in an array is called an array data structure.
Example: arr[20], arr={1,2,3,4}

Enumerated type (enum): It contains a small set of predefined unique values (also known as elements or enumerators) that can be assigned to a variable of an enumerated data type. Enumerated types can have numerical or textual values. The boolean data type is a predefined enumeration of values true and false. The enumerated type allows values to be stored and retrieved as numeric indices (0, 1, 2) or strings.
Example: Compass directions (values of NORTH, SOUTH, EAST, and WEST) and the days of the week.

Date: Date data type typically stores date in the YYYY-MM-DD format.
Example: 2020-08-30, 1989-05-20

Time: Time data types store a time in hh:mm:ss format. In addition to the time of day, it can also store the elapsed time or the distance between two events which might be greater than 24 hours.
Example: 12:45:12, 20:15:42

Datetime: Datetime datatype Stores a value containing both date and time together in the YYYY-MM-DD hh:mm:ss format.
Example: 1000-01-01 00:00:00, 9999-12-31 23:59:59

Timestamp: A timestamp represents the number of seconds since midnight (00:00:00 UTC), 1st January 1970, in Unix time. Computer systems typically use it to record events down to the second, in a format independent of time zones. Therefore unlike DateTime, timestamp remains the same irrespective of your geographical location.
Example: 1970-01-01 00:00:01 UTC, 2038-01-19 03:14:07 UTC