# What is Data Type?

-> Data types is used to defines the type of value to be used in a program. Based on the type of value specified in a program specified amount of required bytes will be allocated to the variables used in programs.

A data type specified the type of data that a variable can store such as integer, float, character etc.

# Two important things about data type:

1. Defines a certain **domain** of values.

2. Defines **Operations** allowed on those values.

Example 1:

int type

* Takes only integer values.
* Operations: addition, subtraction, multiplication, bitwise operations etc.

Example 2:

float type

* Takes only floating point values
* Operations: addition, subtraction, multiplication, division etc. (bitwise and % operation are not allowed).

# What is Abstract Data Types?

-> Abstract Data Types are like user defined data types which defines operations on values using functions without specifying what is there inside the function and how the operations are performed. ADT Provides Abstraction.

Note: - Let say, if someone wants to use the stack in the program, then he can simply use push and pop operations without knowing its implementation.

Example: Stack ADT

A stack consists of elements of same type arranged in a sequential order.

Operations:

Initialize () - initializing it to be empty.

Push () - Insert an element into the stack.

Pop () – Delete an element from the stack.

isEmpty () – checks if stack is empty.

isFull () – checks if stack is full.