

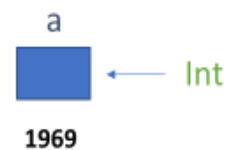
## Lecture #3:

# Datatypes in C

- It is a part of the syntax of declaration a variable.
- Syntax:

Datatype Identifier;

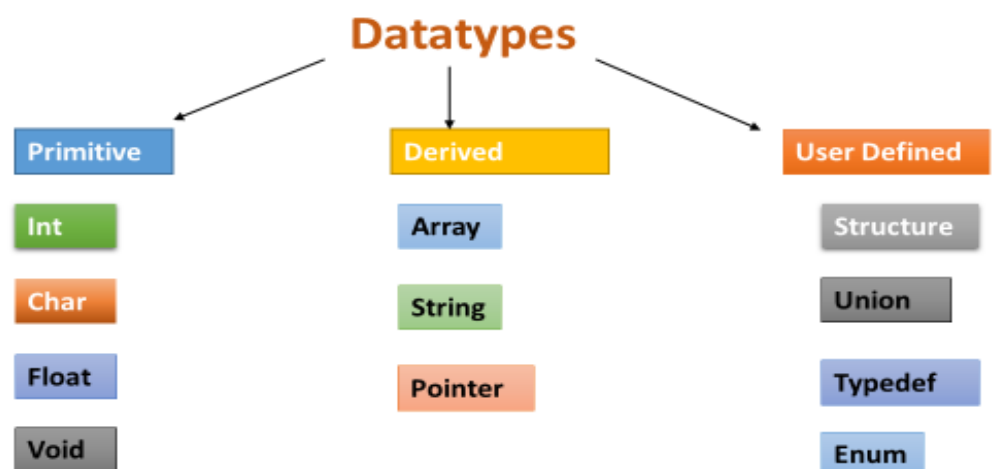
Ex: **int** a=10;



Datatypes are used to represent two things about a variable:

1. What type of values are allowed to be stored in the variable.
2. How much memory is required to store the data.

## Type of Datatypes



## Primitive Datatypes

Primitive Datatypes are considered as the most fundamental and primary datatypes that C has to offer. The Datatypes that come under Basic Datatypes are as follows.

- Int
- Char
- Float
- Void

## Derived Datatypes

A **derived type** is formed by using one or more basic **types** in combination. They are the object types whose functionalities are predefined in the C libraries.

- Function types
- Pointer types
- Array types
- Structure types
- Union types

## Every C compiler supports five primary data types:

<b>void</b>	As the name suggests, it holds no value and is generally used for specifying the type of function or what it returns. If the function has a void type, it means that the function will not return any value.
<b>int</b>	Used to denote an integer type.
<b>char</b>	Used to denote a character type.
<b>float, double</b>	Used to denote a floating point type.
<b>int *, float *, char *</b>	Used to denote a pointer type.

### Three more data types have been added in C99:

- `_Bool`
- `_Complex`
- `_Imaginary`

## Examples of Data Types in C

Each variable in C has an associated data type. Each data type requires different amounts of memory and has some specific operations which can be performed over it. Let us briefly describe them one by one:

Following are the examples of some very common data types used in C:

- **char**: The most basic data type in C. It stores a single character and requires a single byte of memory in almost all compilers.
- **int**: As the name suggests, an int variable is used to store an integer.
- **float**: It is used to store decimal numbers (numbers with floating point value) with single precision.
- **double**: It is used to store decimal numbers (numbers with floating point value) with double precision.

Different data types also have different ranges upto which they can store numbers. These ranges may vary from compiler to compiler. Below is list of ranges along with the memory requirement and format specifiers on 32 bit gcc compiler.

We can use the [sizeof\(\) operator](#) to check the size of a variable. See the following C program for the usage of the various data types:

You have seen the basic structure of a C program, so it will be easy to understand other basic building blocks of the C programming language.

**# This is first part of the Topic: Datatypes in C**

**Don't forget to watch other parts too for further learning.**

Source: [GeeksForGeeks](#) || [CodeCogs Contributors](#).

# CodeCogs

