

### Session 06: Structure and Classes

## STRUCTURE

### 1. Definition

- Structure is a collection of logically related data items of different data types grouped together under a single name.
- Structure is a user defined data type.
- Structure helps to organize complex data in a more meaningful way.

### 2. Data handling and memory allocation

- Each member is assigned its own unique storage area.
- Objects are stored inside the stack memory.
- All members share the same storage area. Total memory required by all members is allocated.
- Data is wrapped into a single entity called structure.

### CLASSES

#### 1. Definition

-The classes are the most important feature of C++ that leads to Object Oriented programming. Class is a user **defined data type**, which holds its own data members and member functions, which can be accessed and used by creating instance of that class.

-The variables inside class definition are called as data members and the functions are called member functions.

Example - : Class of birds, all birds can fly and they all have wings and beaks. So here flying is behaviour and wings and beaks are part of their characteristics. And there are many different birds in this class with different names but those all possess this behaviour and characteristics.

#### 1. Data Handling and memory allocation

-Objects are stored inside the heap memory.

-Allocation fashion is same as Structure

### Structure V/S Class

Property	Structure	Class
<b>Data type</b>	User defined	User defined
<b>Support</b>	C/C++	C++( based on OOP)
<b>Contains</b>	Data members and Functions	Data members and Functions
<b>“this” keyword</b>	Doesn't support	Supports
<b>Memory location</b>	Its object is created on Stack memory.	Its object is created on heap memory.
<b>Member variable initialization</b>	The member variable of structure cannot be initialized directly.	The member variable of class can be initialized directly.
<b>Constructor</b>	Supports only Parameterized Constructors.	Supports all types of Constructors.
<b>Default visibility</b>	Public	Private
<b>Security/Abstraction</b>	No	Yes

### END NOTE

Hope this proves to be useful to you. If you have any doubts regarding the content in this doc or any other related (or unrelated) topic feel free to reach out. I am as excited for this as you are. Any and every feedback is appreciated.

We will try to continue preparing documents suited to your need so that you can have a look on your own whenever you feel like it. ***Remember that programming is actually a self-taught thing. There exists no one who can teach you programming, just the ones who do it with you and you all learn in the process.***

Good day!

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