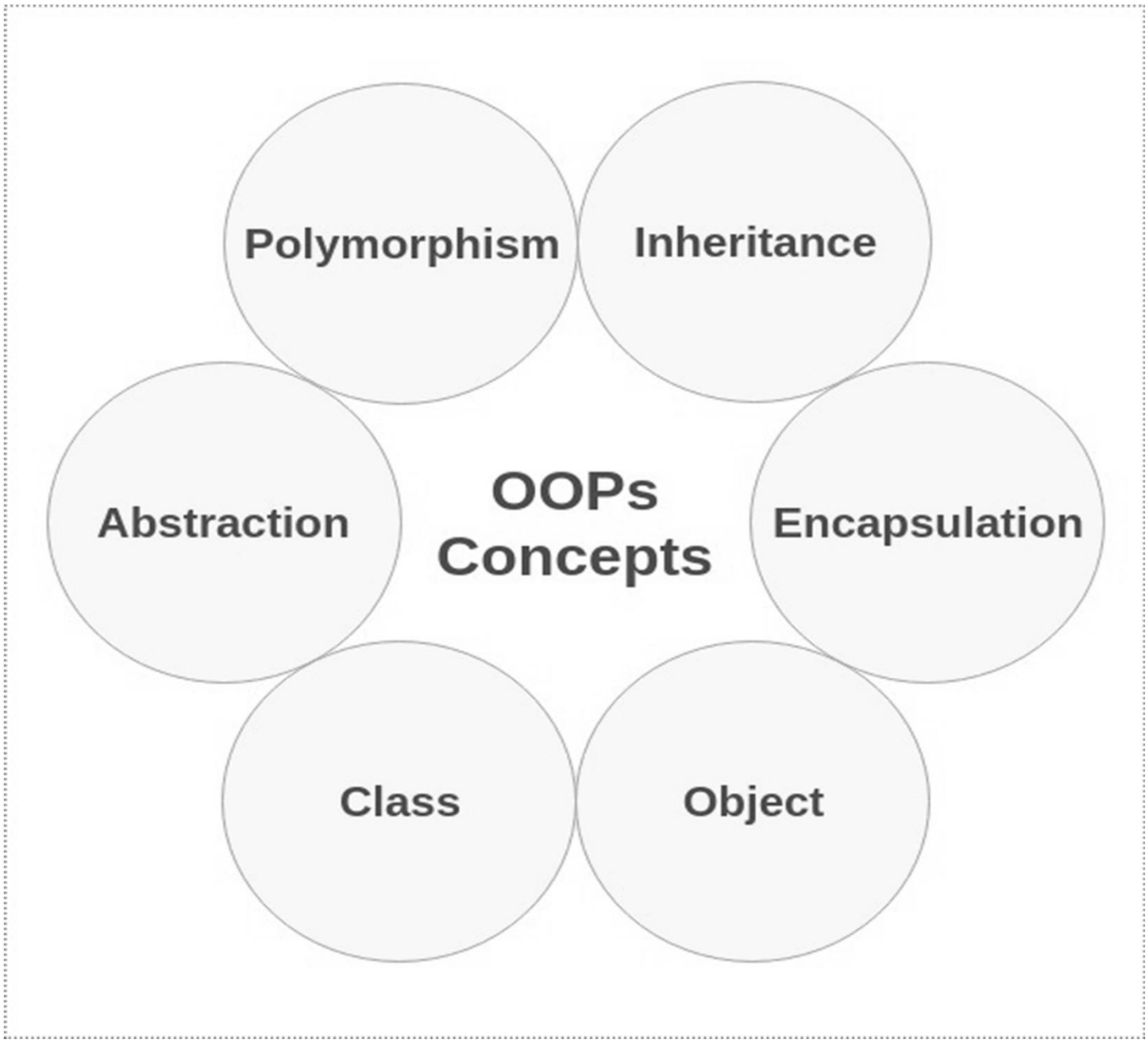
Object Oriented Programming (OOP)


Polymorphism
Inheritance
Abstraction
OOPs
Concepts
Encapsulation
Class
Object

Object and Class

… What is an Object?

An object has

- State (attributes)
- Well-defined behaviour (operations)
- Unique identity

Example – Ali is a Tangible Object

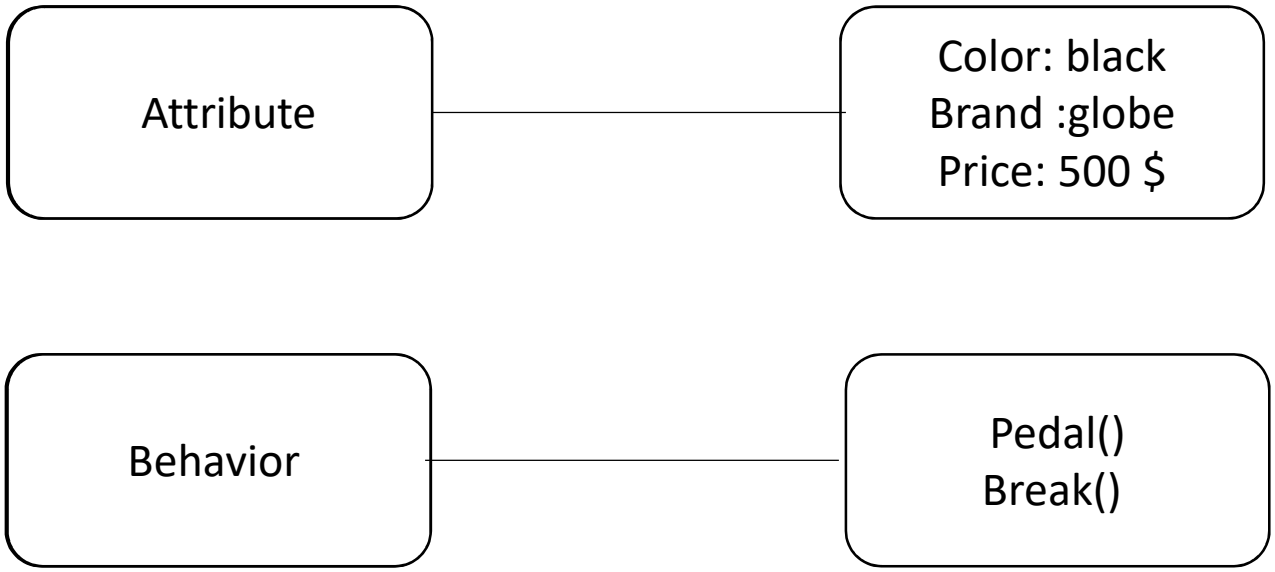
- State (attributes)
  - Name
  - Age
- Behaviour (operations)
  - Walks
  - Eats
- Identity
  - His name

Example – Car is a Tangible Object

- State (attributes)
  - Color
  - Model
- Behaviour (operations)
  - Accelerate
  - Start Car
  - Change Gear
- Identity
  - Its registration number

- Object: it is something with a unique identity.

for example, a bike is an object with a unique identity since it has own set of attribute and behaviors.



CLASS

- Is a blueprint which is containing only list of variables and methods .
- A class is a group of objects that has common properties.
- A class is a user defined data type just like integer.
- A class is a place where we can define the properties and functionalities of the object.

- A class is used to bind data member and member function in single unit.

- Once a class is defined , any number of object can be created which belongs to that class.

- Car: Ahmed Car or Ali Car

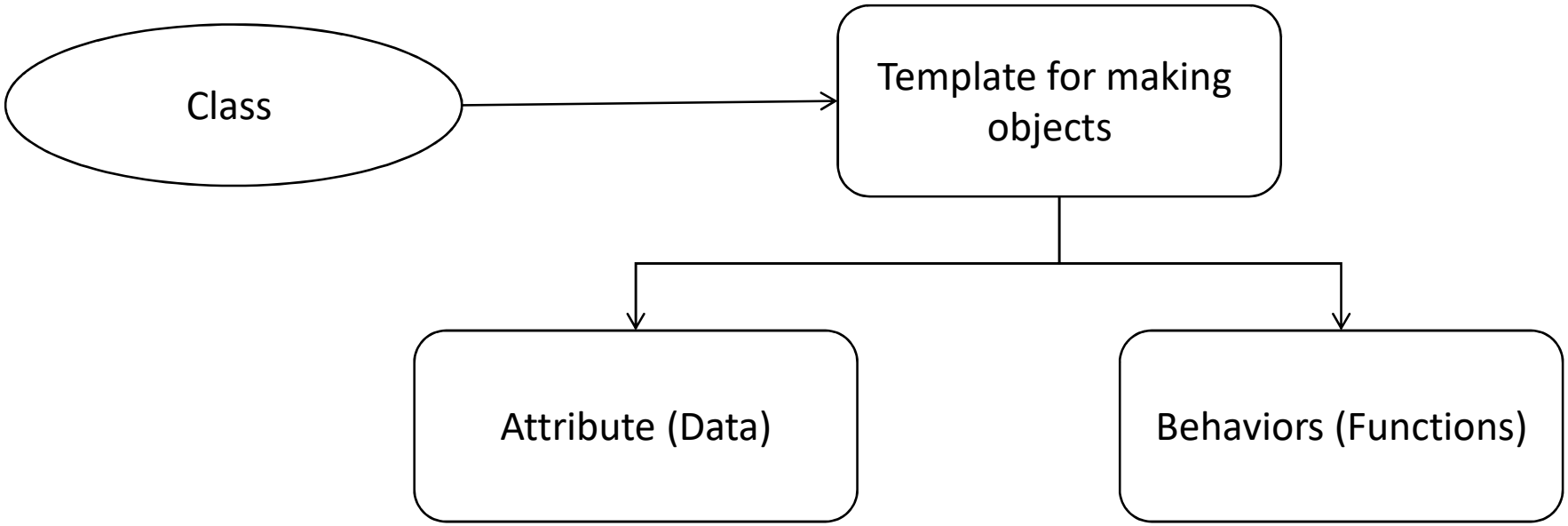
Class

Template for making Objects

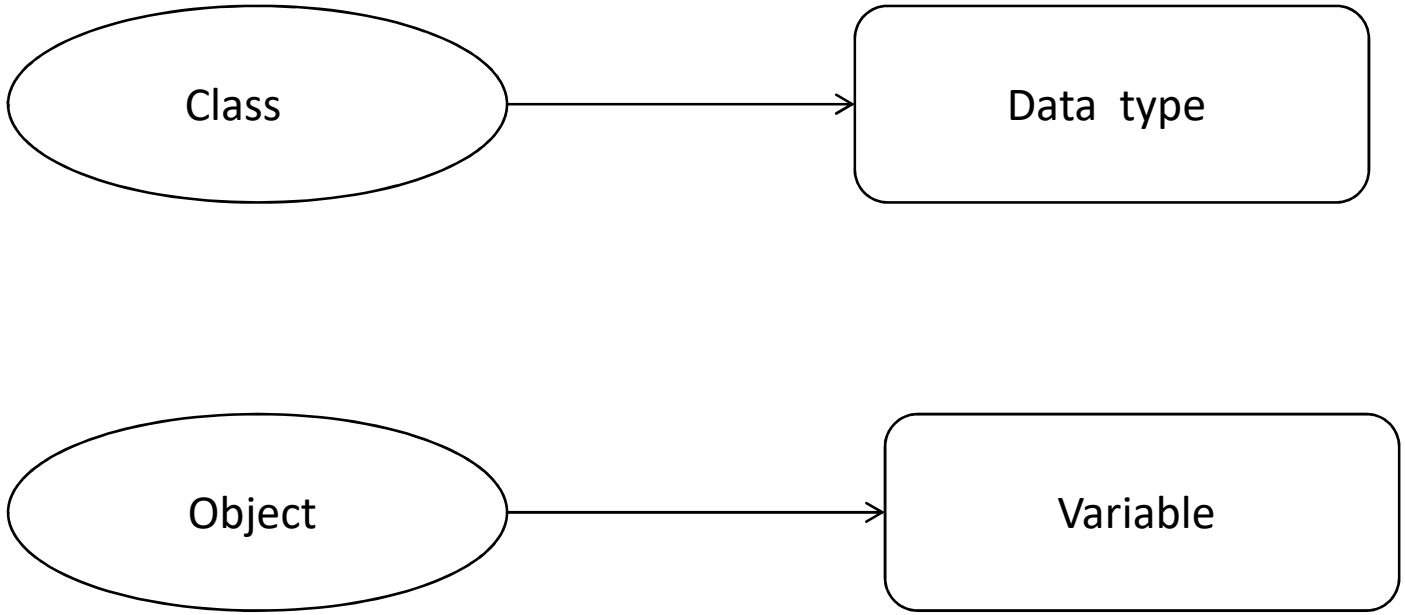
Bike Blueprint

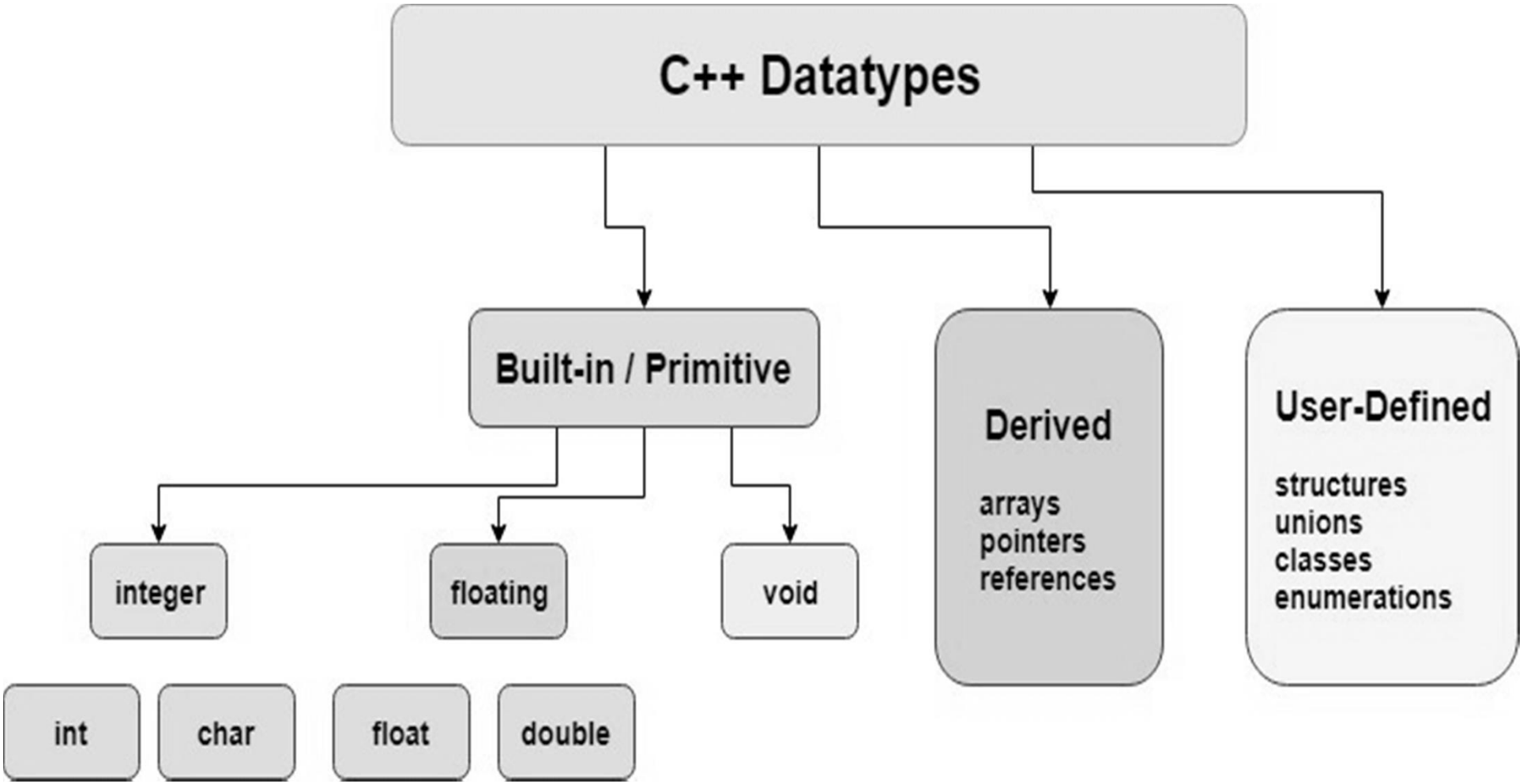
- In OOP a class is a template of creating objects.

- The template is a particular set of attribute and behaviors, objects implement these attribute as data , behavior as functions.



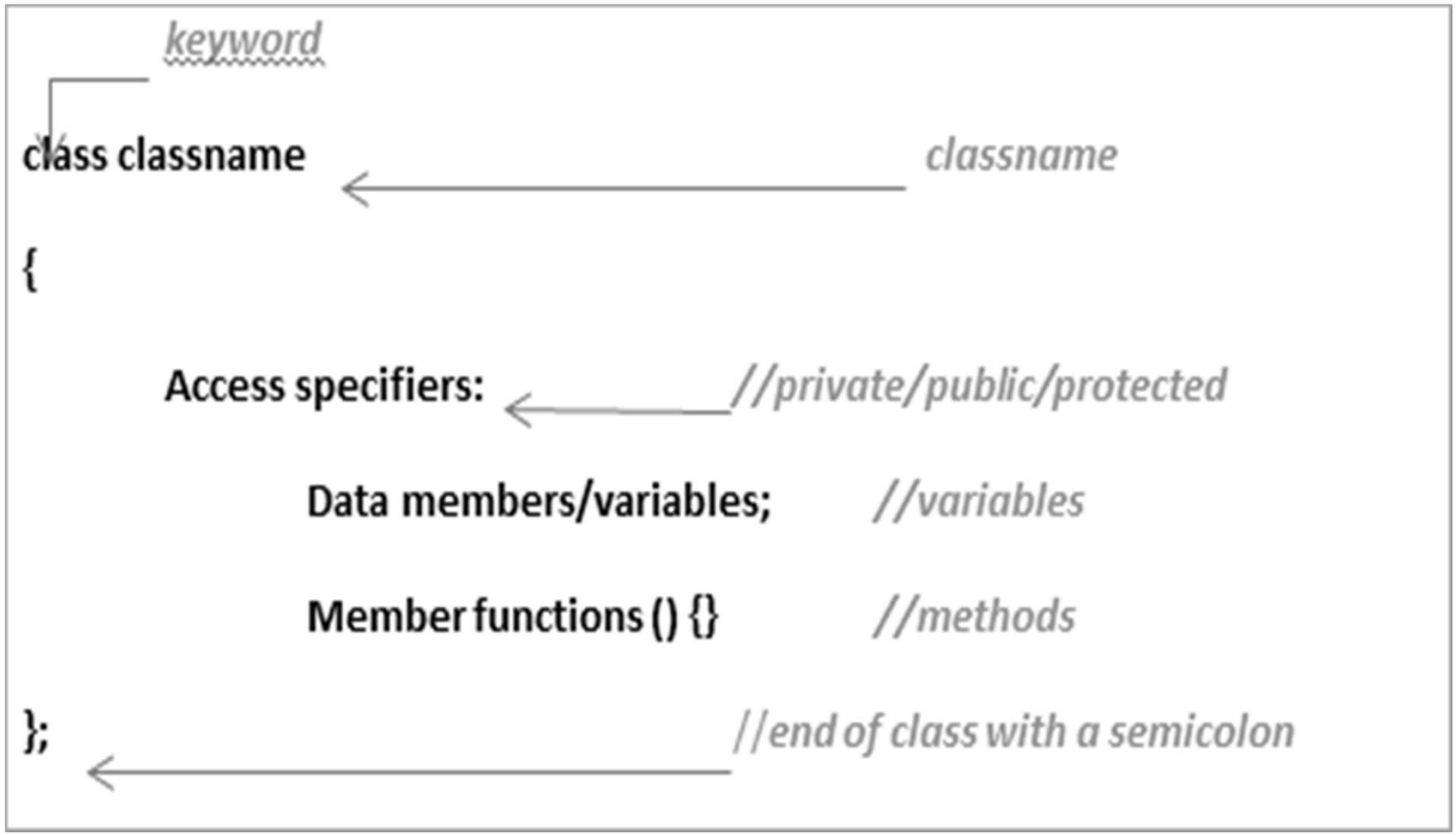
- A class is a data type and object is a variable.




C++ Datatypes
Built-in / Primitive
Derived
arrays
pointers
references
User-Defined
structures
unions
classes
enumerations
integer
floating
void
int
char
float
double

Class Declaration:

Declaration of class must start with the keyword *class* followed by the class name. Class members are declared within braces.



```
#include<iostream>
using namespace std;
class student
{
    private :
        int id;
        char name[20];
    public :
        Void Getdata(void);
        Void display (void)
        {
            cout << id <<'\t' << name << endl;
        }
};
int main( )
{
```

Data Members

Member Functions