

## **Practical Lecture 2: Concepts & Basics of C++ Programming**



# Quick Recap

Let's take a quick recap of previous lecture –

A) structure

B) union

C) enum

D) class

E) object

# Today's

Today we are going to cover -

- Class
- Object
- Explaining class and object with example
- Creating class function inside the class.
- Creating Class function Outside the class
- Practice Questions

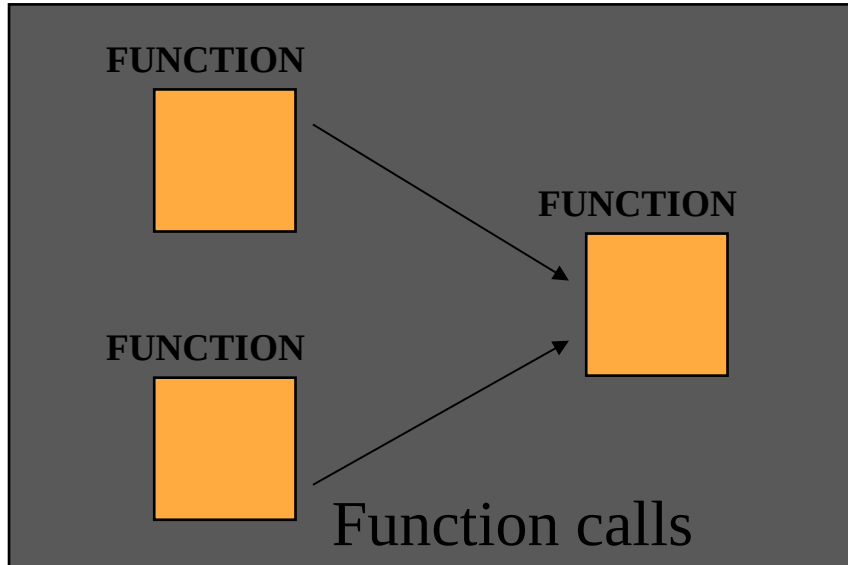
# MCQ Questions

**Let's Get Started-**

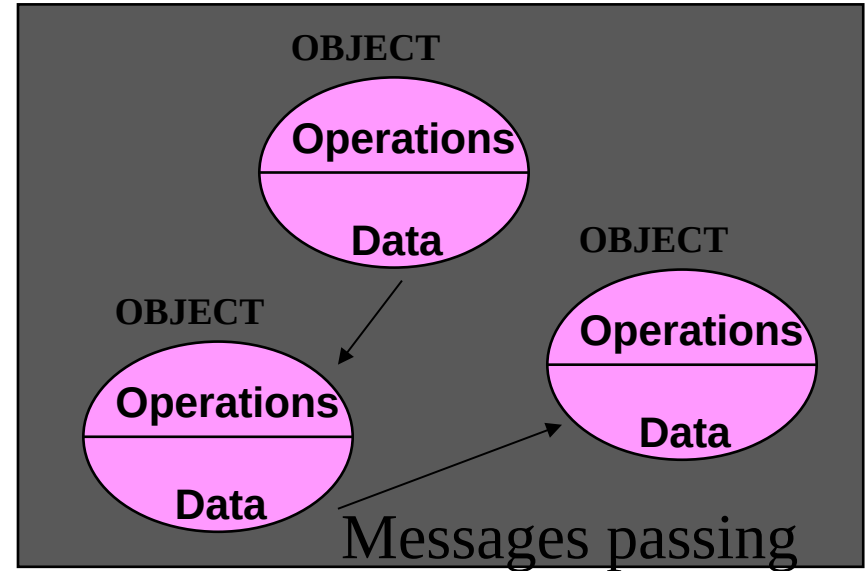
# Review:

## Two Programming Paradigms

### Structural (Procedural) PROGRAM

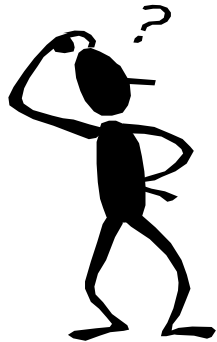


### Object-Oriented PROGRAM

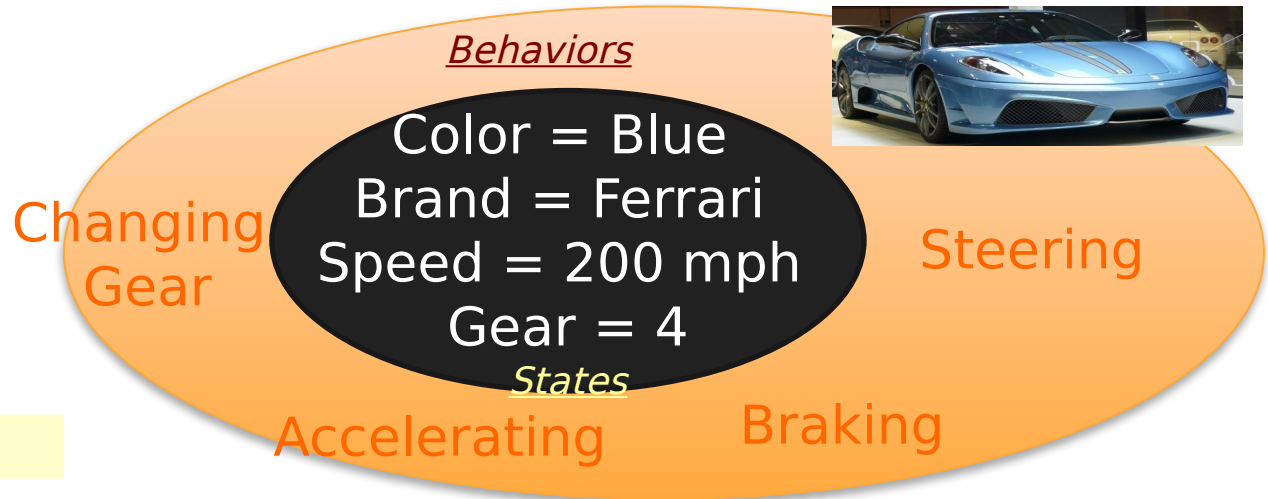


# What is an Object?

- The real world is composed of different kinds of objects:  
buildings, men, women, dogs, cars, etc.
- Each object has its own **states** and **behaviors**.



Variables and functions



# Object-Oriented Programming-- Introduction to Classes

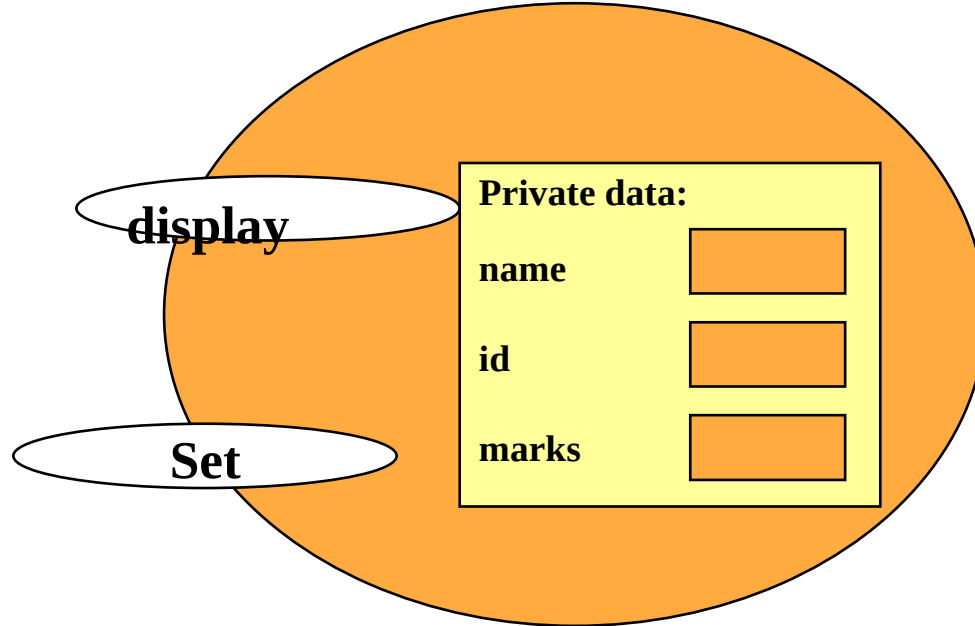
- Class Definition
- Class Examples
- Objects

# Class and object



# Class Interface Diagram

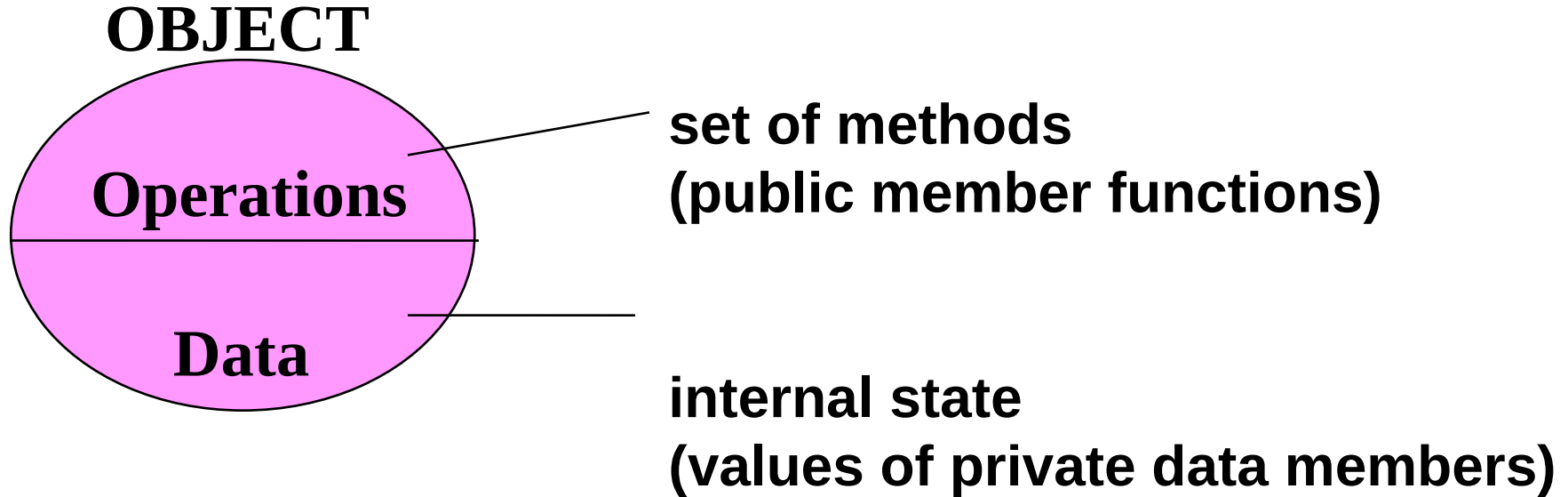
## student class



# Objects

- Object:
  - a variable or an **instance** of a class
- Declaration of an Object
- Initiation of an Object

# What is an object?



# Problem - 1

**1.Which of the following statement is correct about cout?**

- A.It is an instance of the ostream class.
- B.It is used to display output on the screen.
- C.The data displayed should be displayed in >>.
- D. Option 1 and 2 are correct.

# Solution

**1. Which of the following statement is correct about cout?**

- A. It is an instance of the ostream class.
- B. It is used to display output on the screen.
- C. The data displayed should be displayed in >>.

**D. Option 1 and 2 are correct.**

# Problem - 5

**5. When struct is used instead of the keyword class means, what will happen in the program?**

- A.) Access is public by default.
- B.) Access is private by default.
- C.) Access is protected by default.
- D.) None of the mentioned.

# Solution

**5. When struct is used instead of the keyword class means, what will happen in the program?**

**A.) Access is public by default.**

B.) Access is private by default.

C.) Access is protected by default.

D.) None of the mentioned.

**Explanation: Access is public by default will happen When struct is used instead of the keyword class.**

# Problem - 6

**6.What will be used when terminating a structure?**

a) :

b) }

c) ;

d) ;;



# Solution

**6.What will be used when terminating a structure?**

A) :

B) }

**C) ;**

D) ;;

**Explanation: While terminating a structure, a semicolon is used to end this up.**

# Problem-7

**7.What is the similarity between a structure, union and enumeration?**

- A.)All of them let you define new values.
- B.)All of them let you define new data types.
- C.)All of them let you define new pointers.
- D.)All of them let you define new structures.

# Solution

7. What is the similarity between a structure, union and enumeration?

A.) All of them let you define new values.

**B.) All of them let you define new data types.**

C.) All of them let you define new pointers.

D.) All of them let you define new structures.

# Problem-8

**8.A union cannot be nested in a structure**

A.True

B.False

# Solution

**8.A union cannot be nested in a structure**

A.True

**B.False**

**Answer: Option B**

# Let's have a quick hands-on some

## practice Questions

- 1.Explain Object Oriented programming paradigms.
- 2.explain difference between procedural and object oriented programming paradigms.
- 3.What are the header files available in C++ for Input/Output operations.
- 4.Explain class and object with example.
- 5.Explain class members and how can we access class memebbers?
- 6.What is union and how the size of union is decided?
- 7.Example difference between Unions and Classes Enumeration.
- 8.Explain Enumeration with example.

# Coding Questions Time

**1. Write a program in C++ to swap two numbers without taking third variable.**

Sample Output:

Swap two numbers :

Input 1st number : 25

Input 2nd number : 39

After swapping the 1st number is : 39

After swapping the 2nd number is : 25

# Coding Questions Time

**2. Write a program to print the sum and product of all number in a given array.**

```
a=[2,3,4,1,10,8]
```

```
sum=28
```

```
product=1920
```



# Coding Questions Time

**3. Write a program to print the sum of all numbers in a digit.**

Input:-2981

Output:-20

**4. Write a program to check whether a number is palindrome or not.**

Input:13231

# Coding Questions Time

**5. Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' with a function to print the area and perimeter.**

**6. Declare a structure to represent a complex number (a number having a real part and imaginary part). Write C++ functions to add, subtract, multiply and divide two complex numbers**

A blurred photograph of a conference or seminar. In the foreground, the backs of several audience members' heads and shoulders are visible. One person on the left has their hand raised. In the background, a speaker is standing at a podium, gesturing with their right hand. A large screen is visible on the left side of the stage.

Any  
Questions ??

# Thank You!

**See you guys in next class.**