Module-3 Introduction to OOPS Programming:

Q.1 Introduction to C++:

- **What are the key differences between procedural programming and object-oriented programming?**

➢ Answer:

Features	Procedural programming	Object – oriented programming
Approach	Follows a top-down approach	Follows a bottom-up approach
Focus	Focuses on function or procedures	Focuses on object and classes
Data handling	Data is global and shared between functions	Data is encapsulated within objects
Security	Less secure	More secure
Reusability	Limited code reuse	Promotes inheritance

- **List and explain the main advantages of OOP over POP**

➢ Answer:

1. Modularity:
   - Code is divided into classes and object , making it easier to manage and organize

2. Reusability:
   - Classes can be reused in different programs using inheritance

3. Encapsulation:
   - Data is hidden inside objects, protecting it from unauthorized access.

4. Abstraction:
   - Complex details are hidden, only essential features are exposed to user

5. Inheritance :
   - One class can inherit features from another, reducing code duplication

6. Polymorphism:
   - Same function or method name can behave differently based on the object type

7. Better for large projects:
   - Easier to manage and scale big projects due to modular structure.

8. Real-world modelling:
   - Objects represent real-world enities, making problem-solving more natural

9. Easier maintenance:
   - Changes in one part of the program usually don't affect other parts.

10. Flexibility and extensibility:
    - Easy to add new features without modifying much existing code.

- **Explain the steps involved in setting up a C++ development environment**.

➢ Answer:
Step 1: install a C++ compiler:

1. Install and add the compiler path to system environment variables

Step 2: choose and install a code editor or IDE:

1. Dev-C++:
   - Simple and easy to use

Step 3: Configure the compiler in your IDE

1. In dev C++, compiler are usually pre-configured

- **What are the main input/output operations in C++? Provide examples**.

➢ Answer:
1. Output operation – cout:
   - Used to display text or variables on the screen.
   - Example:
     - Cout << "hello world";

2. Input operation – cin:
   - Used to take input from the user.
   - Example:
     - Cin >> variable;

3. Multiple inputs:
    - You can take multiple inputs using one cin.
    - Example:
        - Int a, b;
          Cin >> a >> b;

Q.2 variables, Data types, and operator:

- **What are the different data types available in C++? Explain the example.**

➢ Answer:

1. Derived data type:
2. Primitive data type:
3. User define data type:

1. Primitive data type:

Data type	Description	Example
Int	Stores integer	Int a = 25;
Float	Store decimal number	Float a = 2.25;
Char	Stores character	Char c = 'a';
Double	Stores decimal numbers	Double price = 99.98;

2. Derived data type:

Data type	Description	Example
Array	Collection of elements of the same data type	Int arr[5]={10,20,30,40,50};
Pointer	Stores address of another variable	Int *ptr = &age;

Function	Block of code that performs a task	Int sum(int a , int b)
		{
		a+b;
		}

3. User – define data type:

Data type	Description	Example
Struct	Group of related variables	Struct student {int age, char name[30]}
Union	Like struct, but shares memory	Union data { int I, float f};

Class	Blueprint for creating objects	Class student{public :int id}

- **Explain the difference between implicit and explicit type conversion in C++.**

➢ Answer :

1. Implicit type conversion :
   - Automatically done by the compiler
   - Happens when you mix data types in an expression
   - Converts smaller data type to larger to avoid data loss

2. Explicit type conversion
   - Manually done by the programmer
   - You forcefully convert one data type to another
   - Syntax:
     - (type)variable;

- **What are the different types of operator in c++? Provide example of each.**

➢ Answer:

1. Arithmetic operator:

Operator	function	example
+	Addition	a + b
-	subtraction	a – b
*	multiplication	a * b
/	division	a / b
%	module	a % b
++	increment	a++
--	decrement	a--

- Example:

```
#include<iostream>
Using namespace std;
main ()
{
        Int num1, num2,ans;
        Float ans1;
```

```
cout<<"\n enter num1";
cin>>num1;

cout<<"\n enter num2";
cin>>num2;

ans = num1+num2;
cout<<"\n addition is"<<ans;

ans = num1 - num2;
cout<<"\n substraction is"<<ans;

ans = num1 * num2;
cout<<"\n multiplication is"<<ans;

ans1 = (float)num1/num2;
cout<<"\n division is"<<ans1;

num1++;
cout<<"\n increment is"<<num1;

num2--;
cout<<"\n decrement is"<<num2;

}
```

2. Relational operator:

Operator	function	example
==	Equal to	a = b
>	Greater than	a >b
<	Less than	a < b
>=	Greater than equal to	a >= b
<=	Less than equal to	a <= b
!=	Not equal to	a != b

   - Example:

```
#include<iostream>
Using namespace std;
Main ()
{
        Int a=5, b=10,c;
```

```
        c=a>b;
        cout<<"\n grater is"<<c;

        c=a<b;
        cout<<"\n less than is"<<c;

        c=a>=b;
        cout<<"\n grater than equal to is"<<c;

        c = a<=b;
        cout<<"\n less than equal to is"<<c;

        c = a != b;
        cout<<"\n not equal to is"<<c;

        c = a==b;
        cout<<"\n equal to is"<<c;
    }
```

3. Assignment operator:

Operator	function	example
+=	Addition equal to	a +=
-=	Subtraction equal to	a -=
*=	Multiplication equal to	a *=
/=	Division equal to	a /=
=	Equal to	a = b
%=	Module equal to	a %= b
!=	Not equal to	a != b

- Example:

```
#include<iostream>
Using namespace std;
main (){
        int num=5;

        num += 5;
        cout<<"\n adition equal to"<<num;
```

```
        num -= 5;
        cout<<"\n substraction equal to"<<num;

        num *= 10;
        cout<<"\n multiplication equal to"<<num;

        num /= 10;
        cout<<"\n division equal to"<<num;

        num %= 3;
        cout<<"\n module equal to"<<num;
    }
```

4. Logical operator:

operator	function	example
&&	And	a>b && b>a
||	Or	a<b || b<a
!	Not	a ! b

- Example:

```
#include<iostream>
Using namespace std;
main ()
{
        int a,b;
        cout<<"enter a";
        cin>>a;

        cout<<"enter b";
        cin>>b;

        if(a>b && b<a)
        {
                cout<<"a is grater";
        }
        else
        {
                cout<<"b is grater";
        }

        if(a>b || b<a)
        {
```

```
            cout<<"\n a is grater";
        }
        else
        {
            cout<<"\n b is grater";
        }

        if(a != b)
        {
            cout<<"\n a is not equal to b";
        }
    }
```

5. Bitwise operator:

operator	function
&	And
^	exclusive
~	Complement
|	Or
<<	Left shift
>>	Right shift

6. Conditional operator:

operator	function
sizeof	Return the size of variable
&	Return the address of variable
*	Pointer to a variable
?:	Conditional expression

- **Explain the purpose and use of constants and literals in c++.**

➢ Answer:

1. Constant in c++

   - A constant is a values that cannot be changed once it is defined during the execution of a program

     → Purpose of constant:

- To protect variables from being modified
- To improve code readability and maintainability
- To avoid using “magic numbers” directly in the code
- To ensure the value remains fixed throughout the program

2. Literals in c++
   - A literal is a fixed value used directly in the code without any identifier
     → purpose of literals
   - To present fixed value in code
   - Used in assignments, expressions, conditions, etc

Q.3 Control flow statements

- **What are the conditional statements in c++? Explain the if-else and switch statement**

➢ Answer

Conditional statements in c++ are used to make decision in a program based on certain conditions. They allow the program to execute different block of code depending on whether a condition is true or false.

➔ Types of conditional statements in c++:

Statement type	Description
If statement	Executes a block of code if the condition is true
If--else	Executes one block if the condition is true, another if else
Else if leader	Tests multiple conditions in sequence
Nested if	If statement inside another if statement
Switch statement	Selects one of many block of code to be executed

1. If –else statement:

- In a if else statement , it executes one block if the condition is true, if condition is false it executed else statement
- Example :

```
#include<iostream>
Using namespace std;
```

```
Main ()
  {
      Int num1;
      Cout<<”enter the number”:
      Cin>>num1;

      If(num1 % 2 == 0)
      {
          Cout<<”number is positive”;
      }
     Else
      {
          Cout<<”number is negative”;
      }
  }
```

2. Switch statement:

- A switch statement in c++ is used to select one block of code from many options, based on the value of a variable or expression.
- It is cleaner alternative to multiple if..else if conditions when checking a single variable against many value

- Example:

```
#include <iostream>
using namespace std;

main() {
    int day = 3;

 switch(day) {
        case 1:
            cout << "Monday";
            break;

        case 2:
            cout << "Tuesday";
            break;

        case 3:
            cout << "Wednesday";
            break;

        case 4:
            cout << "Thursday";
```

```
                    break;

                case 5:
                    cout << "Friday";
                    break;

                default:
                    cout << "Weekend";

                }
        }
```

- What is the difference between for, while, and do-while loops in c++?

➢ Answer:

1. For loop:
   - When the number of iterations is known
   - Syntax:

```
For (initialization; condition; increment)
{
    Block of code;
}
```

   - Example:

```
for (int i = 1; i <= 5; i++)
{
cout << i << " ";
}
```

2. While loop:
   - When the condition is checked before execution and loop may not run at all condition is false initially
   - Syntax:

```
While(condition)
{
    Block of code;
}
```

   - Example:

```
int i = 1;
    while (i <= 5)
  {
    cout << i << " ";
```

```
        i++;
    }
```

3. Do-while loop:
   - When the loop must run at least once, even if the condition is false.
   - Syntax:

```
do {
        // code block
    } while (condition);
```

   - Example:

```
int i = 1;
do
{
    cout << i << " ";
    i++;
} while (i <= 5);
```

- **How are break and continue statements used in loops? Provide example**

➢ Answer :

1. Break statement
   - Used to immediately exit a loop, regardless of the loop condition
   - Example :

```
#include <iostream>
  using namespace std;

  main() {
      for (int i = 1; i <= 10; i++)
    {
        if (i == 5)
        break;
       cout << i << " ";
    }
}
```

2. Continue statement:
   - Used to skip the current iteration and jump to the next loop cycle.
   - Example:

```
#include <iostream>
using namespace std;

main()
{
    for (int i = 1; i <= 5; i++)
    {
        if (i == 3)
        continue;
        cout << i << " ";
    }
}
```

- **Explain nested control structures with an example.**

➢ Answer:

- Nested control structures occur when you place one control structure inside another. This allows you to write more complex decision making or iteration logic.
- Example:

```
#include <iostream>
using namespace std;

main() {
    int age = 20;
    char gender = 'M';

    if (age >= 18)
    {
        if (gender == 'M') {
        cout << "Eligible Male";
    }
    else {
        cout << "Eligible Female";
        }
    }
    else {
        cout << "Not Eligible";
        }
}
```

Q.4 functions and scope:

- **What is a function in c++? Explain the concept of function declaration, definition and calling**

- Answer:

⇨ Functions:

Functions is a set of statement than take the input, do some specific computation and produce the output

1. Function declaration:

- Tells the compiler about the function name, return type, and parameters

2. Function definition:

- Describe how the function performs its task.

3. Function call:

- Can be made from main() function

⇨ Example:

```
#include<stdio.h>
Void display ();   // function declaration
Void display ()
 {
      Printf (“hello world”);   // function definition
 }
Main ()
 {
     display ();   // function call
 }
```

- **What is the scope of variable in c++? Differentiate between local and global scope.**

- Answer:

➔ Scope:

- Scope refers to the region or part of a program where a variable can be accessed or used. It determines the lifetime and visibility of the variable.

➔ Types of variable scope in c++:

- Local scope
- Global scope

1. Local variable:

- Declared inside a function or block
- Exists only during function execution
- Cannot be accessed from outside that function

2. Global variable:

- Declared outside all functions
- Accessible by all functions in the life

➔ Example:

```
#include<iostream>

using namespace std;

// global variable
int c;

void add(int a, int b)
{
        // int a,b is local variable
        c=a+b;
        cout<<"\n addition is="<<c;
}
```

```
main()
{
        add(5,6);
}
```

- **Explain recursion in c++ with an example.**

➢ Answer :

➔ Recursion:

- Recursion is a programming technique where a function calls itself in order to solve a problem.

➔ Example:

```
- #include<iostream>
- using namespace std;
-
- int fact(int n)
- {
-       int fac;
-       if(n==1)
-       {
-             return 1;
-       }
-       else
-       {
-             fac = n*fact(n-1);
-             return fac;
-       }
- }
- main()
- {
-       cout<<"factorial is"<<fact(6);
- }
```

- **What are function prototypes in c++? Why are they used?**

➢ Answer:

- A function prototype is a declaration of a function that tells the compiler
- The function's name
- Its return type
- The number and types of parameters

➔ Why use function prototypes?

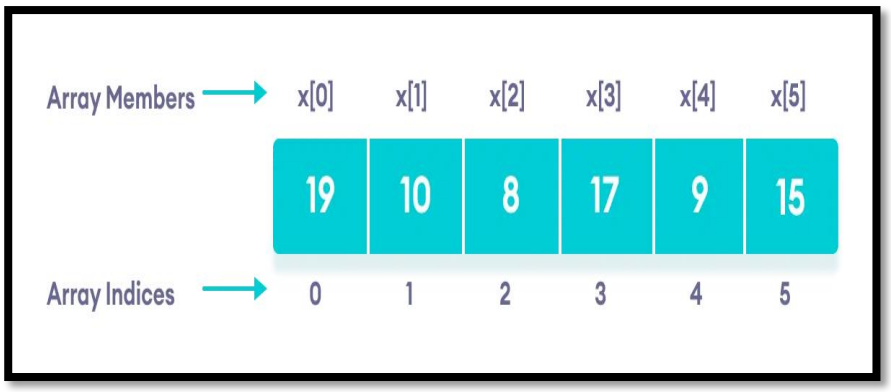
- Compiler awareness:
  = informs the compiler about a function before it is used.
- Enables top-down compilation:
  = allows calling a function before it's defined.
- Type checking:
  = ensures correct arguments and return types.
- Reduces errors
  = catches mismatches in argument number early

Q.5 Arrays and strings:

- **What are the arrays in c++? Explain the difference between single dimensional and multi dimensional arrays.**

➢ Answer:

- Arrays are collection of elements of the same data type. An array is a data structure that stores a fixed size data type



- Difference between single dimensional and multi dimensional arrays.

Features	One dimensional array	Multi-dimensional array
Definition	An array with a single row or column	An array with more than one row and column
Structure	Linear	Matrix-like
Representation	Int arr[5]	Int arr[5][5]
Memory	Uses less memory	Uses more memory

- **Explain string handling in c++ with examples.**

➢ Answer:

➔ What is a string?

- A string is a sequence of characters used to store and manipulate text.
- In c++, strings can be handled in two main ways:
  - → Using C-style string
  - → Using the string class from the standard template library

➔ Example:

```
#include<iostream>
#include<cstring>
using namespace std;

main()
{
        char str[50],count=1;
        int len,i;
        cout<<"enter the string";
```

```
        cin>>str;

        len = strlen(str);

        for(i=0; i<len/2; i++)
        {

                if(str[i] != str[len-1-i])
                {
           count= 0;
                   break;
                }
        }

        if(count==1)
        {
                cout<<"\n string is palindrome";
        }
        else
        {
                cout<<"\n string is not palindrome";
        }
}
```

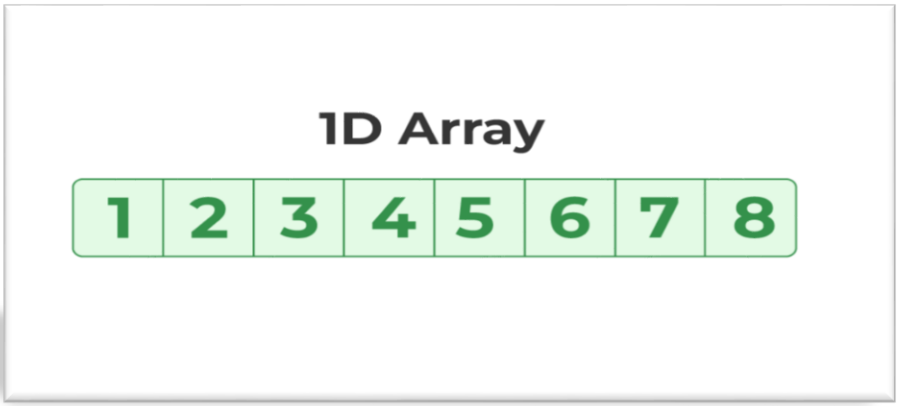
- **How are arrays initialized in c++? Provide examples of both 1D and 2D arrays.**

➢ Answer:

➔ Arrays:

- Arrays are collection of elements of the same data type. An array is a data structure that stores a fixed size data type

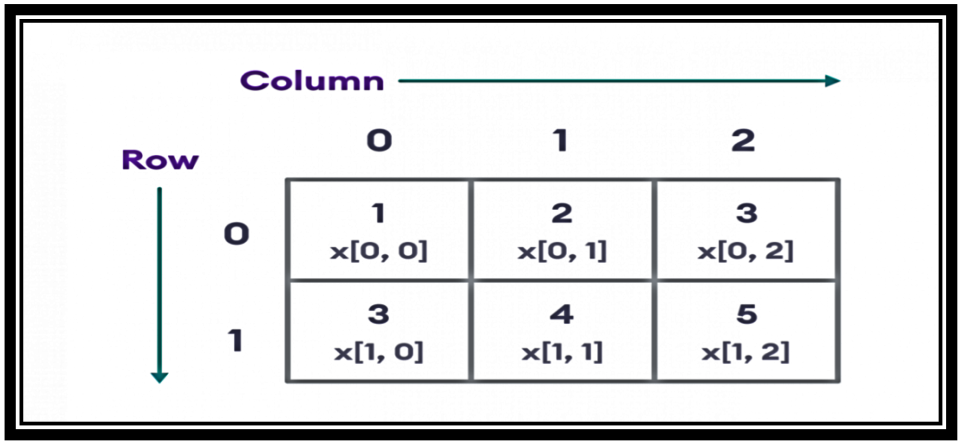
➔ 1D array [one – dimensional array]



- Example:

```
#include<iostream>
using namespace std;

main()
{
        int arr[5];
        int i,sum=0,ave;

        for(i=0; i<5; i++)
        {
                cout<<"\n enter arr"<<i;
                cin>>arr[i];
        }

        for(i=0; i<5; i++)
        {
                sum = sum + arr[i];
        }
          cout<<"\n sum is="<<sum;

        for(i=0; i<5; i++)
        {
                ave = sum/5;
        }

        cout<<"\n average is="<<ave;
}
```

➔ 2D array [2 dimensional array]:



- Example:

```
#include<iostream>
using namespace std;

main(){
	int arr1[3][3], arr2[3][3],arr3[3][3];
	int i,j;

	for(i=0; i<3; i++)
	{
		for(j=0; j<3; j++)
		{
			cout<<"\n enter arr"<<i<<j;
			cin>>arr1[i][j];

		}
	}

	for(i=0; i<3; i++)
	{
		for(j=0; j<3; j++)
		{

			cout<<"\t arr1"<<arr1[i][j];
		}
		  cout<<"\n";
	}

	cout<<"=========================================
========================";
	for(i=0; i<3 ;i++)
	{
		for(j=0; j<3; j++)
		{
			cout<<"\n enter arr"<<i<<j;
			cin>>arr2[i][j];
		}
	}

	for(i=0; i<3; i++)
	{
		for(j=0; j<3; j++)
		{
```

```
                cout<<"\t arr2"<<arr2[i][j];
            }
              cout<<"\n";
        }

        cout<<"=========================================
=======================================";

        for(i=0; i<3; i++)
        {
            for(j=0; j<3; j++)
            {
                arr3[i][j] = arr1[i][j]+arr2[i][j];

            }
        }

        cout<<"=========================================
=======================================";

        for(i=0; i<3; i++)
        {
            for(j=0; j<3; j++)
            {

               cout<<"\t sum is="<<arr3[i][j];
            }
              cout<<"\n";
        }
}
```

- **Explain string operations and functions in c++.**

➢ Answer:

➔ String operations:

1. String class operations
   - #include <string>
   - using namespace std;

2. c-style string functions [from <cstring>]
   - #include <cstring>

➔ String functions:

1. Strlen():

- Strlen function is used to find the length of string

2. Strcpy ():

- Strcpy function is used to copy one string to another string

3. Strcmp () :

- Strcmp is used to compare two string

4. Strcat ():

- Strcat function is used to concat two strings. It is used to join two string

5. strchr():

- strchr is used to find the first occurrence of a character in a string

Q.6 introduction to object-oriented programming:

- **Explain the key concepts of object-oriented programming.**

➢ Answer:

- Object-oriented programming is a programming paradigm based on the concept of “objects”, which can contain data and functions. C++ is one of the most popular OOP languages.

1. Class:

- Class is combination of data member and member functions.

2. Object:

- Object is a instance of a class

3. Encapsulation:

- Wrapping data and functions into a single unit and hiding internal details.

4. Abstraction:

- Hiding unnecessary details and showing only essential features to the user.

5. Inheritance:

- Inheritance is a [is-a] relationship , it create a new class from base class

6. Polymorphism:

- The ability to use the same function or operator in different ways.

- **What are classes and objects in c++? Provide an example**.

➢ Answer:

➔ Classes:

- Class is a combination of data member and member function. A class in c++ is a user-defined data type that serves as a blueprint for creating objects.

➔ Object:

- An object is an instance of a class. When a class is defined, no memory is allocated until an object of that class is created

→ Example:

```
#include<iostream>
using namespace std;

class calc{
    public:
        int a,b,c;

        void getvalue(){
            cout<<"enter a and b";
            cin>>a>>b;
        }
```

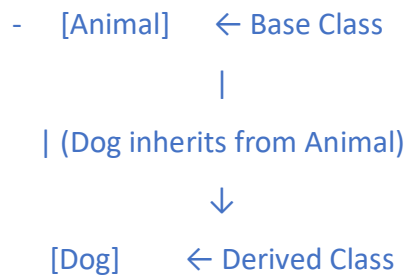
```
        void add()
        {
                cout<<"\n addition is"<<a+b;
        }

        void sub()
        {
                cout<<"\n substraction is"<<a-b;
        }

        void mult()
        {
                cout<<"\n multiplication is"<<a*b;
        }

        void div()
        {
                cout<<"\n division is"<<a/b;
        }
};

main()
{
calc c;
        c.getvalue();
        c.add();
        c.sub();
        c.mult();
        c.div();
}
```

- **What is inheritance in c++? Explain with an example.**

- Answer:
  - ➔ Inheritance:
  - Inheritance is a [is-a] relationship , in a inheritance a new class is created from a base class . a new class is known as a derived class, child class and sub class

    And a base class is known as super class and a parent class.
  - ➔ There are five types of inheritance:
    1. Single inheritance
    2. Multiple inheritance
    3. Multilevel inheritance
    4. Hierarchical inheritance
    5. Hybrid inheritance

    1. Single inheritance:
  - The a new class derived from only one base class is known as a single inheritance



  - example:

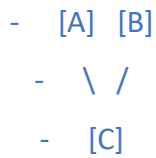
```
#include<iostream>
using namespace std;

class category{

     public:
    int catid;
    char catname[20];
```

```
        void getcategory()
        {
                cout<<"enter catid";
                cin>>catid;

                cout<<"enter catname";
                cin>>catname;
        }
};

class product : public category{
        public:
        int pid;
        char pname[50];
        int price;

        void getproduct(){
            cout<<"\n enter pid";
            cin>>pid;

            cout<<"\n enter pname";
            cin>>pname;

            cout<<"\n enter price";
            cin>>price;
        }

        void showproduct(){
                cout<<"\n catid="<<catid<<"\t catname="<<catname;
                cout<<"\n       pid="<<pid<<"\t       pname="<<pname<<"\t
price="<<price;
```

```
        }
};

main()
{
        product p1;
        p1.getcategory();
        p1.getproduct();
        p1.showproduct();
}
```

2. multiple inheritance:

- in a multiple inheritance a new class is derived from two or more base class



- Example:

```
#include<iostream>
using namespace std;

class category{
        public:
        int catid;
        char catname[20];

        void getcategory()
        {
                cout<<"enter catid catname";
                cin>>catid>>catname;
        }
};

class brand{
```

```
        public:
        int bid;
        char bname[50];

        void getbrand()
        {

        cout<<"\n enter bid bname";
        cin>>bid>>bname;
    }
};

class product : public category, public brand
{
        public:
                int pid;
                char pname[50];

                void getproduct(){
                        cout<<"\n enter pid pname";
                        cin>>pid>>pname;
                }

                void show()
                {
                        cout<<"\n catid="<<catid<<"\t catname="<<catname;
                        cout<<"\n bid="<<bid<<"\t bname="<<bname;
                        cout<<"\n pid="<<pid<<"\t pname="<<pname;
                }

};

main()
{
        product p1;
        p1.getcategory();
        p1.getbrand();
        p1.getproduct();
        p1.show();
}
```

3. Multilevel inheritance:

- A class is derived from another derived class is known as a multilevel inheritance

[A]
↓
[B]
↓
[C]

- Example:

```
class A
{
public:
   void a()
      {
          cout << "A\n";
      }
};

class B : public A
{
public:
   void b()
    {
        cout << "B\n";
    }
};

class C : public B {
public:
   void c()
        {
            cout << "C\n";
        }
};
```

4. Hierarchical inheritance:

- Multiple derived class derive from a single base class is known as a hierarchical inheritance

[Parent]

/ | \

[Child1][Child2][Child3]

- Example:

```
#include<iostream>
using namespace std;

class A{
        public:
                int a;

                void getA()
                {
                        cout<<"enter the value of a";
                        cin>>a;
                }
};

class B: public A
{
        public:
                int b;

                void getB()
                {
                        cout<<"enter the value of b";
                        cin>>b;
                }

                void add()
                {
                        cout<<"\n addition is="<<a+b;
                }

};

class C:public A{
        public:
                int c;

                void getC()
                {
                        cout<<"enter the value of c";
                        cin>>c;
```

```
        }

        void add()
        {
                cout<<"\n the addition is="<<a+c;
        }
};

main()
{
        C c1;
        c1.getA();
        c1.getC();
        c1.add();
        B b1;
        b1.getA();
        b1.getB();
        b1.add();
}
```

5. Hybrid inheritance:

- Hybrid inheritance is a combination of multilevel and multiple inheritance

- Example:

```
#include<iostream>

using namespace std;


class A{

        public:

         int a;

          void getA()

                {
```

```
                cout<<"enter the a";
            cin>>a;
        }
};

    class B:virtual public A{
        public:
            int b;

            void getB()
                {
                    cout<<"enter the b";
                cin>>b;
                }
            };

        class C:virtual public A{
                    public:
                        int c;

                        void getC(){
                            cout<<"\n enter the c";
                        cin>>c;
                        }
                    };

                class D:public C, public B{
                        public:
                            int d;
```

```
        void getD(){
                cout<<"enter the value of d";
                  cin>>d;
                }

          void add()
        {
          cout<<"\n addition is"<<a+b+c+d;
         }
  };

   main()
  {
       D d1;
     d1.getA();
    d1.getB();
    d1.getC();
   d1.getD();
  d1.add();
}
```

- **What is encapsulation in c++? How is it achieved in classes?**

➢ Answer:

➔ What is encapsulation?

- Encapsulation is the binding of data and functions that operate on that data into a single unit and restricting access to some components for security and protection
- Think of it like a capsule: it contains both data and method that act on the data but hides the inner working from the outside.

➔ How it achieved

- Use the class keyword
- Mark data member as private
- Use public functions to get or set values

➔ Example:

```
#include<iostream>
using namespace std;

class bank{
        public:
        char username[50];
        int accountno, balance;


        public:
   bank(){


                cout<<"\n enter username";
                cin>>username;

                cout<<"\n enter accountno";
                cin>>accountno;

                cout<<"\n enter balance";
                cin>>balance;

                cout<<"\n username="<<username;
                cout<<"\n accountno="<<accountno;
                cout<<"\n balance="<<balance;

        }

                bank(char username[50], int accountno, int balance)
        {
                this->username[50]=username[50];
                this->accountno=accountno;
                this->balance=balance;
   }

};

main()
{
```

```
        bank b;
        int choice;
        float i;
                cout<<"\n ===account details===";
                cout<<"\n 1. your account is saving";
                cout<<"\n 2. your account is current";

                cout<<"\n enter you choice";
                cin>>choice;

                switch(choice)
                {
                        case 1:
                        //i= 0.5+(b.balance/100);
                        i = b.balance+0.5;
                        cout<<"\n saving account balance is"<<i;
                        break;

                        case 2:
                        //i = 0.5-(b.balance/100);
                        i=b.balance-0.5;
                        cout<<"\n current account balance is"<<i;
                        break;
                }
}
```