C++ Full Course

C++ Syllabus :-

⊙ C++ Basic

i) Introduction to C++
ii) Structure of C++
iii) Download
- → Turbo C++
- → Dev C++
- → Code::blocks

→ Compiler

iv) Run First C++ program.
v) Compilation & Execution process of C++ program.
vi) Datatype
vii) Variables
viii) Keyword
ix) Constants
x) Identifiers
xi) Operators
xii) .....

C++ full course

Q. What is C++? full explaination.

Ans→ C++ is a high-level semi-object Oriented programming language developed by "Bjarne Stroustrup" in the year 1979, at "BELL LAB".

Note :- i) C++ is a case-sensitive language.

ii) In earlier the name of C++ was "C with classes".

iii) C++ is a portable programming language.

Syntax of C++ program :-

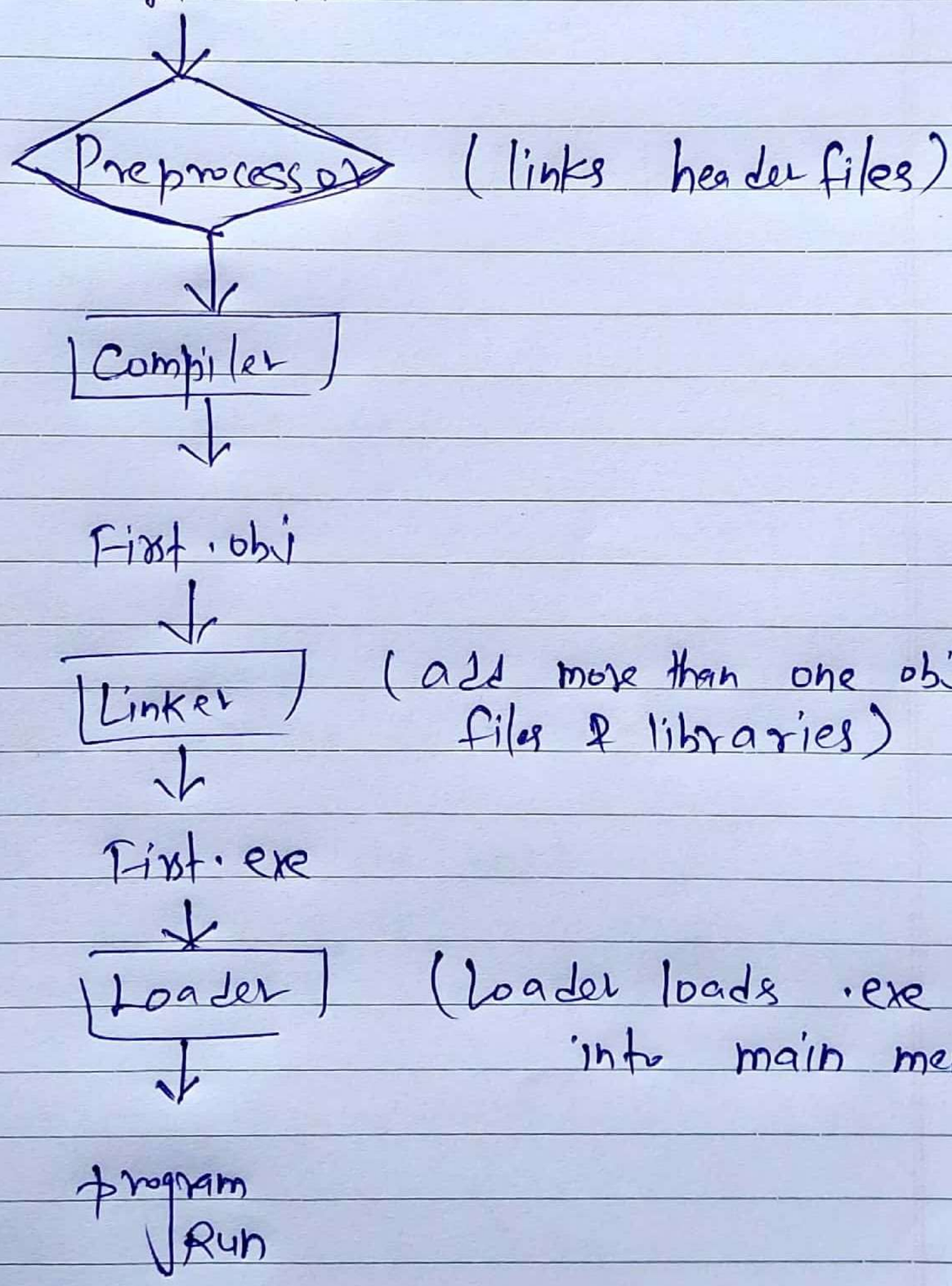
```
#include<iostream.h>
#include<conio.h>

return-type main()
{
    // Code;

}
```

How to Download "Turbo C++"

C++ Full Course

Page No :
Date : / /

Compilation & Execution process of C++ program :-



full course

PDF

C++ full course

Q. What is datatype? full explaination.

Ans-> Datatype defines the type of value mean what kind of value the variable will store.

C++ has 3-types of datatype :-

(I) Basic datatype.
(II) Derived datatype.
(III) User-defined datatype.

Basic datatype :-

	Size	Range
⊙ int	4 bytes	-32768 to +32767
⊙ char	1 byte	-128 to +127
⊙ float	4 bytes	$-3.4E^{-38}$ to $3.4E^{38}$
⊙ double	8 bytes	
⊙ bool	1 byte	true to false
⊙ void	No Size	

C++ Full Course

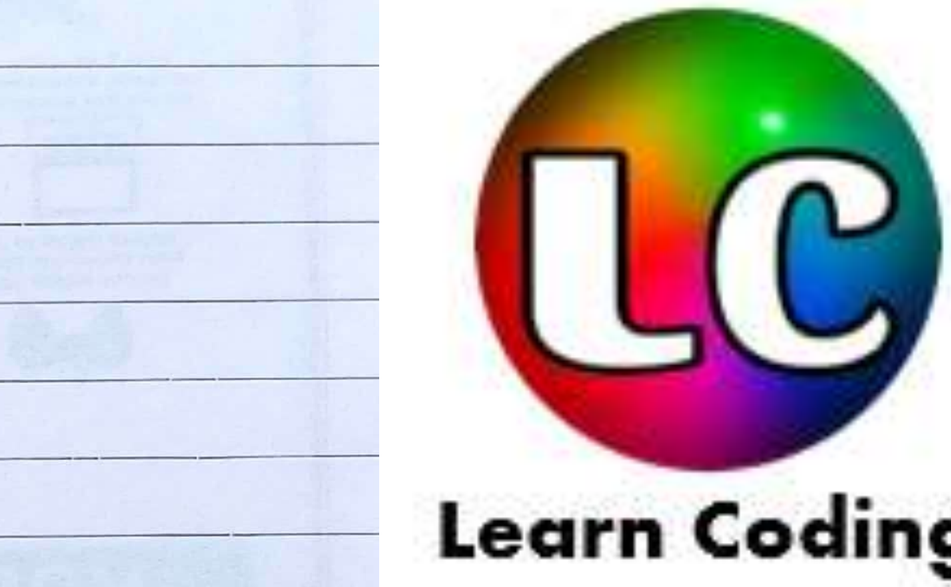
Page No :
Date : / /

Derived data type :-

- Array
- Function
- pointer
- Reference

User-defined data type :-

- Structure
- Union
- class
- Enumeration



full course

C++ Full Course

Page No :
Date : / /

Q. What is Keyword ? full explaination.

Ans→ Keyword is nothing but reserved word, whose meaning already defined on the compiler.

Note :- (i) we can't use keyword as a variable & constant name.

(ii) Keyword must be in lowercase.

for_ex→ int, char, float, static, inline, template, class, struct etc....

full course

PDF

C++ Full Course

Q. What is variable ? full explaination.

Ans → Variable is the name of memory location where we store value.

Note :- int a = 10L

use

(i) Variables are case-sensetive in c++. a ≠ A

(ii) In c++, variable must be starts with either (a-z, A-Z) or _ (underscore). _a2= a2= a=1

(iii) We can't give extra spaces between the variable

num = 10

nu_m = 10

C++ Full Course

Page No :
Date : / /

Q. what is Constant ? full explaination.

Ans→ Constant means fixed value, which does not change in run time.

Note :- i) Const keyword is used to declare a Constant.

ii) Constant can be of any datatype.

iii) Constants are also called literals.

iv) We can change the value of constant for using pointer.

full course

PDF

C++ Full Course

Page No :
Date : / /

Q. What is identifier? full explaination.

Ans-> Identifier refers a name used to identify a variable, function, class, module or any other user-defined item.

Note :- Keywords can't be used as identifier name.

full course

C++ Full Course

⊙ Conditional Statement :-

i) if
ii) if-else
iii) nested if-else
iv) else-if ladder
v) Switch statement

⊙ Looping Statement :-

i) while
ii) do-while
iii) for
iv) nested loops.

C++ Full Course

Q. What is Operators? full explaination.

Ans→ Operators is a symbol that is used to perform mathematical and logical task.

C++ Operators :-

(I) Arithmetic Operator (+, -, *, %, ÷)

(II) Relational operator (>, <, >=, <=, ==, !=)

(III) Logical operator (&& , || , !)

(IV) Assignment operator (=, +=, -=, *=, /=)

(V) Ternary operator (? :)

(VI) Bitwise operator (&, |, ^, ~, <<, >>)

full course

C++ Full Course

Page No :
Date : / /

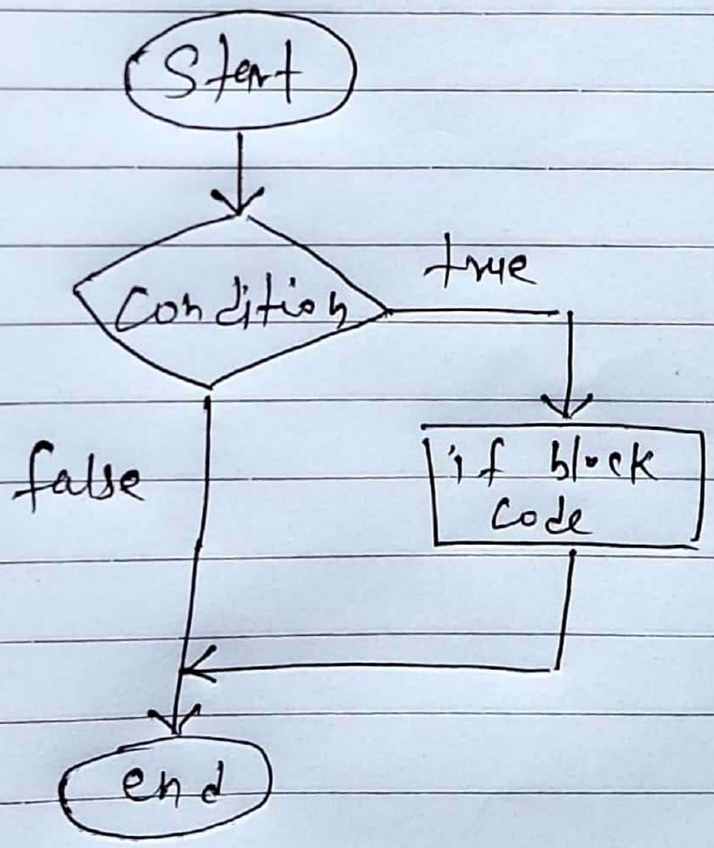
Q. what is if-statement ?

Ans→ If statement test conditions, if condition is true then if block code will be executed otherwise no action taken.

Syntax:-

```
if ( condition )
{
    // codes;
}
```

Flowchart :-



Q. W.A.P. to show the simple example of if ?

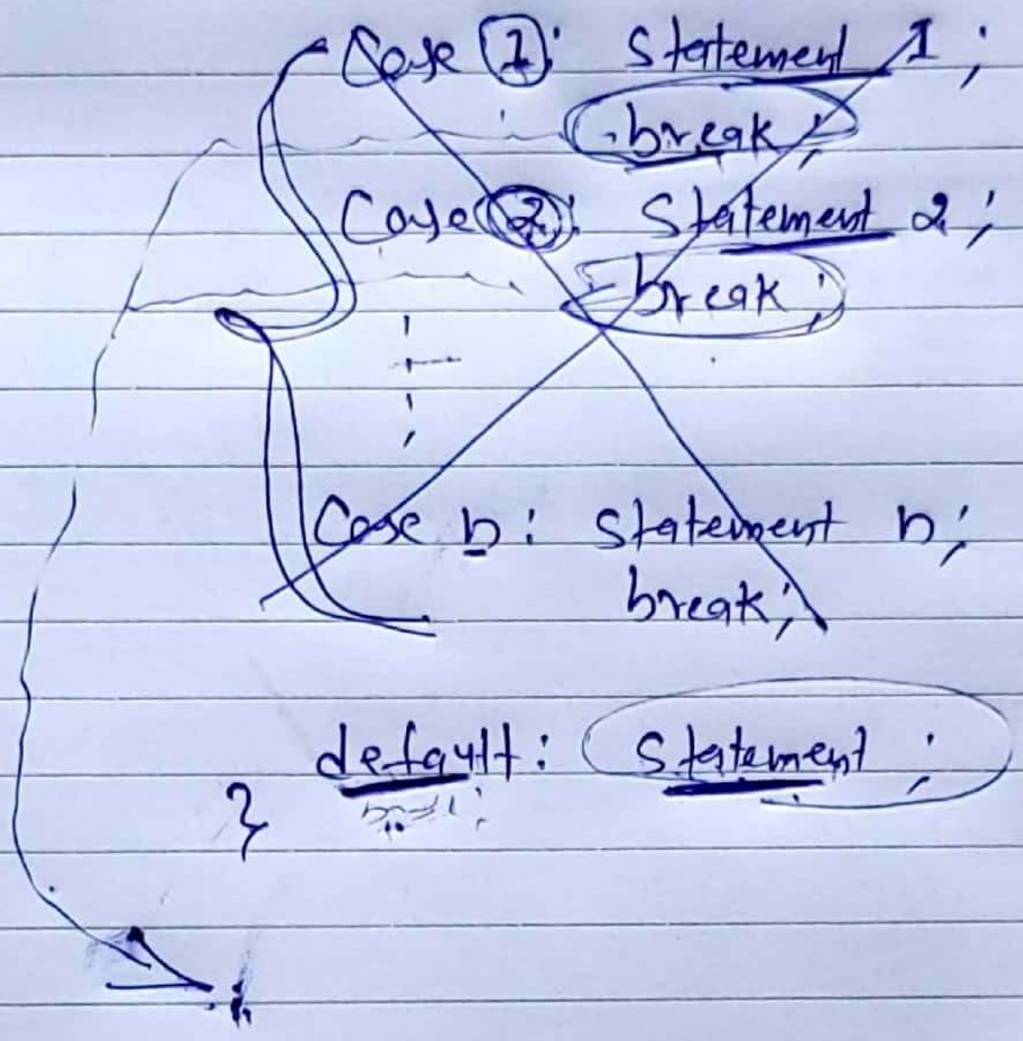
C++ Full Course

What is Switch Statement ?

=> Switch Statement used when we want to select only one case out of multiple cases.

Syntax:-

```
switch (exp)
{
    case 1: statement 1;
            break;
    case 2: statement 2;
            break;
    :
    case b: statement b;
            break;
    default: statement ;
}
```



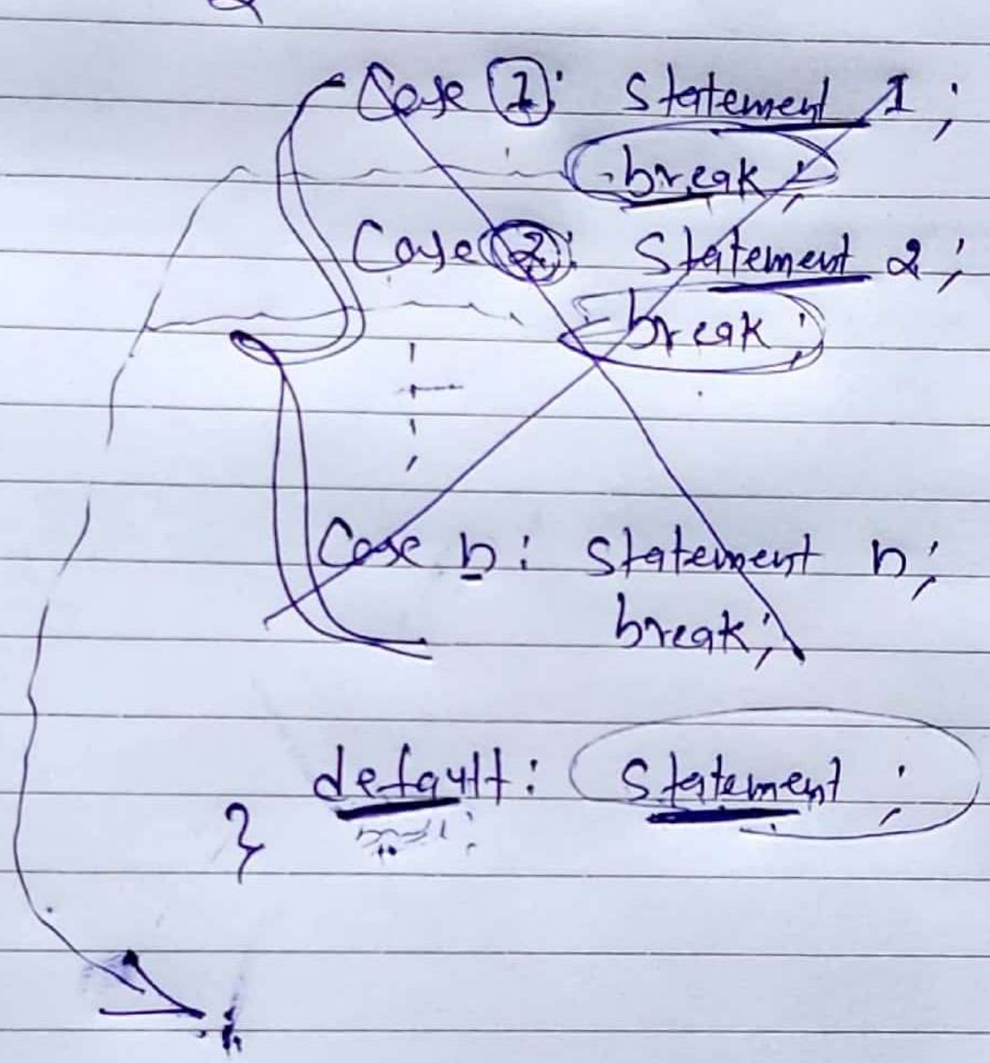
C++ Full Course

Q. What is Switch Statement ?

Ans=> Switch Statement used when we want to select only one case out of multiple cases.

Syntax:-

```
Switch ( exp )
{
    Case 1: Statement 1;
            break;
    Case 2: Statement 2;
            break;
    .
    .
    .
    Case n: Statement n;
            break;

    default: Statement ;
}
```



C++ Full Course

Q. What is nested if - ~~statement~~ else statement ?

Ans-> whenever we defined (if - else) block inside another (if - else block) called (nested) - if else statement.

Syntax :-

```
if ( condition 1)
{
   if ( condition 2) {
   {
      (Statement 1);
   }
else
{
   (Statement 2);
}
}
else
{
   if ( condition 3)
   {
      Statement (3);
   }
   else
   {
      (Statement 4);
   }
}
```

full course

PDF

C++ Full Course

Q. What is else-if ladder statement ?

Ans→ else-if ladder statement is used when we have multiple conditions (more than one conditions)

Syntax :-

```
if (condition 1)
{
    Statement 1;
}
else if (condition 2)
{
    stmt 2;
}
else
{
    Statement 3;
}
```

Q. W.A.P. to show the example of else-if ladder ?

full course

PDF

C++ Full Course

Q. What is if-else statement ?

Ans ⇒ It is used to execute two statements for a single condition, if given condition is true if block executed otherwise else block will be executed.

Syntax:-

```
if (condition)
{
    statement 1;
}
else
{
    statement 2;
}
```

Q. W.A.P. to give example of if-else ?

C++ Full Course

Q. What is array? full explaination.

Ans-> Array is a derived datatype which is constructed by the help of primitive datatype.
It stores multiple values in single variable with continous memory location.

Syntax:-

```
data-type arr-var[size];
```

Q. W.A.P. to show the example of array.

Types:-

- 1D Array
- 2D Array

C++ Full Course

Q. what is increment & decrement operator

Ans → Increment Operator :- Increment operator is used to increase the va of variable by 1.

Types :-

- Pre - increment (++a)
- Post - increment (a++)

Decrement Operator :- Decrement operator is used to decrease the val of variable by 1.

Types :-

- Pre - decrement (--a)
- Post - decrement (a--)

C++ Full Course

Q. What is string? full explanation.

Ans→ A string is a one-dimensional array of characters terminated by null characters.

Syntax:- datatype Str.var[size];

String Pre-defined functions:-

1. strlen()
2. strcpy()
3. strrev()
4. strcat() and so on.

C++ Full Course

Page No :
Date : / /

Q. Jump statement :-

- -> Break
- -> Continue
- -> goto
- -> exit
- -> return

⊙ Live Practical

full course

PDF

C++ Full Course

Page No :
Date : / /

Q. what is do-while loop?

Ans-> It is also known as exit control loop, because it tests condition at the end of loop body.

Note :- ① It executes at once even the given condition is true or false.

Syntax :-
```
do
{
    // statements;

    incr/decr;
}
while (condition);
```

Q. W.A.P. to show the simple example of do-while loop.

full course

PDF

C++ Full Course

Q. What is loop? full explaination.

Ans→ Loop is nothing but iterative statement which ~~allows~~ allow a block of code to be executed repeatedly.

Types of loops :-

1) while loop :- while loop is also known as entry controlled loop. The statement will be executed continously until the given condition is no longer satisfied.

Syntax :-
```
while ( condition)
{
    // Statements;
    inc/ decr;

}
```

Q. W.A.P. to show the simple example of while loop.

C++ Full Course

Page No :
Date : / /

Q. for loop :- Unlike while loop, for loop performs all operations in single line.

Syntax :- for(initialization; condition; incr/decr)
{
// block of codes;
}

Q. W.A.P to show the simple example of for loop.

full course

C++ Full Course

⊙ Derived Datatype

i) Array
ii) String
iii) Pointer
iv) Function

SUBSCRIBE

full course

PDF

C++ Full Course

Page No :
Date : / /

⊙ Storage class :-

(I) auto
(II) static
(III) register
(IV) extern

⊙ Function :-

(I) User-defined
(II) pre-defined

⊙ User-defined datatype :-

(I) enum
(II) Structure
(III) Union
(IV) Class

(1) File Handlin
(2) Exception Han

C++ Full Course

Q. What is storage class? full explaination.

Ans→ Storage class defines the scope and lifetime of variable and function.

Types :-

1. auto (local)
2. static
3. register
4. extern. (global)

Storage class	Memory	default value	Scope	life
auto	RAM	Garbage	within block	Still is a
Static	RAM	0	within block	till t
extern	RAM	0	anywhere	terminat
Register	Register	Garbage	within block	still the is ac

C++ Full Course

Page No :
Date : / /

Q. What is function ? full explaination.

Ans → Function is a block of code that runs only when it is called. {—}

types :-

→ Pre-defined function.

→ User-defined function.

Pre-defined function :-

(I) Strcpy();
(II) Strcat();
(III) Strlen();

User-defined function :-

(I) main() {—}
(II) fun() {—}
(III) add() {—}

Syntax :-

return-type fun-name() {

// your Code;

}

Learn Coding

SUBSCRIBE

full course

PDF

C++ Full course

Page No:
Date: / /

Q. what is enum datatype ?

Ans⇒ Enumeration is a user defined name that consists of integral constants.

month → 12
week → 7 days

Syntax:-

enum enum-name { value1, value2, ---- valueN };

cout << value1; → 0

enum-name var = value2;

cout << var; → 1

SUBSCRIBE

full course

PDF

C++ Full Course

Q. What is Structure? full explaination.

Ans-> Structure is a user-defined datatype which are used to store dis-similar types of value.

Note :- ⊙ The size of Structure is equals Sum of all Structure member size.

Syntax :- struct Structure-name
{
// members;
};

Union :-

Note :- ⊙ The size of union is equal to its biggest member size.
(4).

Syntax :- union union-name
{
// members;
};

C++ Full Course

Q. What is Macro ? full explaination.

Ans→ Macro is a peice of code in a program which is given some name. Whenever the name is used, it is replaced by the contents of the macro.

Note :- ⊙ Macro is define by the help of #define.

Syntax :-

```
#define macro_name content
```

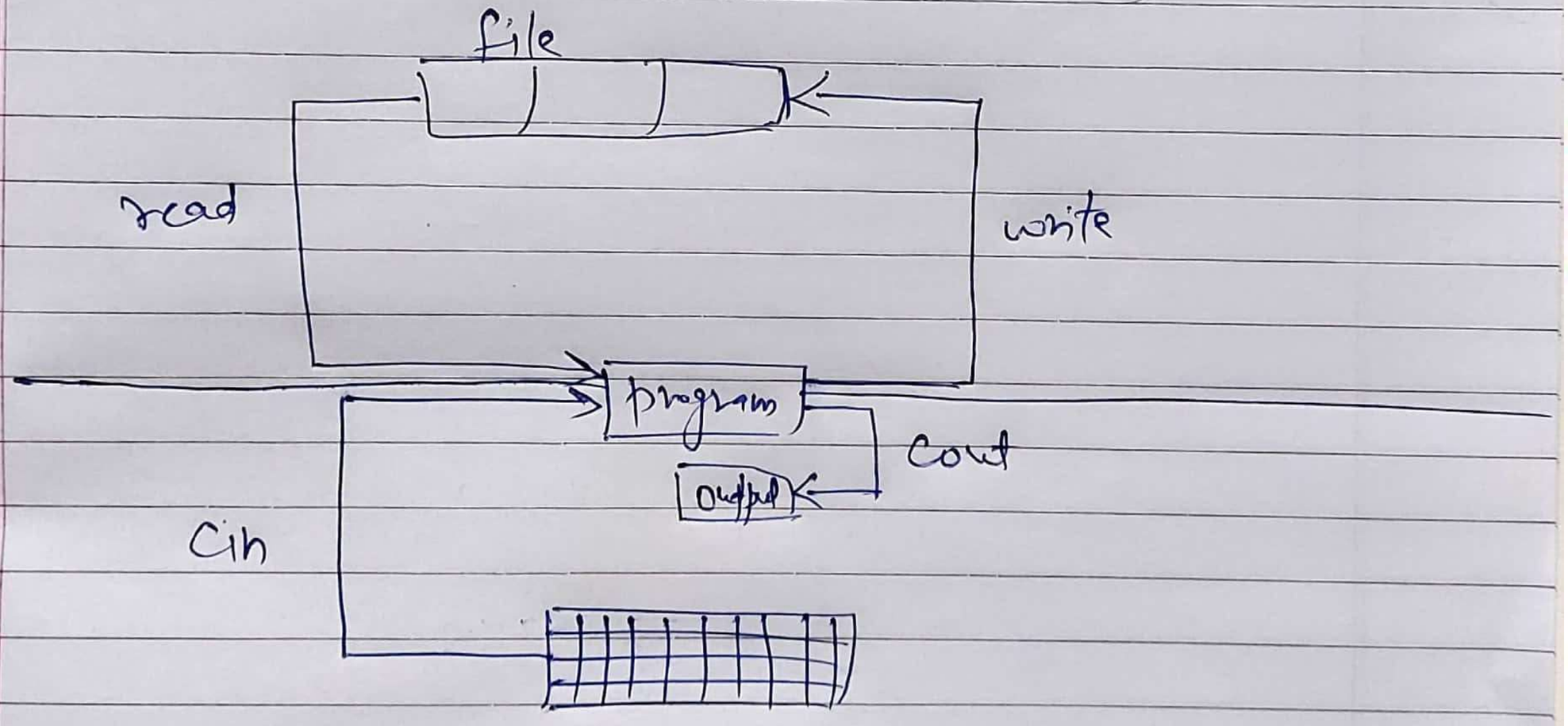
Types :-

- → Object like macro.
- → Function like macro.

C++ File Handling

Q. What is file handling? full explaination.

Ans→ File handling is a mechanism so that we can store the output of the program in the file and we can perform many operations on the data present in a file.



File Operating :-

- → Create → ofstream
- → write → ofstream
- → read → ifstream

C++ Full Course

Q. What is exception handling ?

Ans-> An exception is unexpected / unwanted / abnormal situation that occured at runtime called exception.

Syntax :-

```
try
{
    throw exception
}
catch(type arg)
{
    // Solved problem
}
```

H.W

C++ Full Course

Page No :
Date : / /

Q. W.A.P. to sort array elements in ascending and descending order.

Q. W.A.P. to insert element at beginning, ending and any position of array.

Q. W.A.P. to print array element in reverse order.

Q. W.A.P. to find maximum & minimum element of array.

Q. W.A.P. to print transpose matrix.

Q. W.A.P. to print mirror matrix.

Q. W.A.P. to add two matrix.

Q. W.A.P. to swap two matrix.

Q. W.A.P. to print palindrome sting. mam

Q. W.A.P. to Convert characters upper to lower and Vice-Versa.

Q. W.A.P. to Convert temperature Celsius to fahrenheight and Vice-Versa.

Q. W.A.P. add two number using pointer.

Q. W.A.P. to print 5 Student records using Structure & Union.

+1·W

C++ Full Course

Q. W.A.P. to Add two numbers.

Q. W.A.P. to check a number is Odd or even.

Q. W.A.P. to make Calculator using switch case.

Q. W.A.P. to reverse a number.

Q. W.A.P. to Calculate Sum of digits.

Q. W.A.P. to check a number is palindrome or not.

Q. W.A.P. to check a number is armstrong or not.

Q. W.A.P. to print first N natural numbers.

Q. W.A.P. to check a number is perfect or not.

Q. W.A.P. to check a number is prime or not.

Q. W.A.P. to find factorial of a number.

Q. W.A.P. to print fibonacci & tribonacci series.

Q. W.A.P. to find prime numbers between two ranges.

Q. W.A.P. to Calculate area of Circle, Square, rectangle and triangle.

Q. W.A.P. to check a year is leapyear or not.

Q. W.A.P. to Swap two numbers.

H.W

C++ Full Course

Page No :
Date : / /

Q. W.A.P. to Calculate total and average marks of 5 subjects.

Q. W.A.P. to Calculate tax.

Condition <=10000 → "No tax"
>10000 && <=100000 → "10% tax"
>100000 → "25% tax".

Q. W.A.P. to add array elements.

Q. W.A.P. to Search array ~~array~~ elements with appropriate location.

Q. print _ pattern:-

i)
```
*
* *
* * *
* * * *
* * * * *
```

ii)
```
* * * * *
* * * *
* * *
* *
*
```

iii)
```
        *
      * * *
    * * * * *
  * * * * * * *
* * * * * * * * *
```

iv)
```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

Learn Coding

SUBSCRIBE

full course

PDF

C++ Full Course OOP

Oops Concept :-

- Class & Object
- Access Specifiers
- Constructor & Destructor
- Friend function
- Friend class

- Encapsulation.
- Abstraction
- inheritance
- Polymorphism
- Abstract class
- Template
- NameSpace

C++ Full Course

Q. What is class and object?

Ans → **Class**:- class is a user-defined datatype. It has its own "data members" and member functions which are used by creating an "instance of the class".

Syntax:- class class-name
{
// data members; private
public:
...
// member functions;
};

Note:- ⊙ By default the access specifier of class is "private".

Object:- Object is an "instance of class, that have State and behaviour.

Syntax:- class-name object-name;

Q. W.A.P. to print messege using class & object.

C++ Full Course

Q. Accessibility of access specifiers :-

- ⊙ private → i) class itself
  ii) friend of class
- ⊙ protected → i) class itself
  ii) inherited class.
- ⊙ public → i) Anywhere accessible

C++ Full Course

Q. what is destructor ?

Ans→ Destructor is also a special type of member function that is used to de-allocate the memory, allocated by the constructor.

Syntax:-
```
class A
{ public:
   A()
   {
   }
  ~A()
   {
   }
};
```

SUBSCRIBE

full course

PDF

C++ Full Course

Q. What is Constructor? full explaination.

Ans→ Constructor is a special type of function which is automatically called at the time of object creation.

⊙ Note:- The main purpose of Constructor is used to "initialize the object".

Syntax:-
```
class A
{
  A()
  {
  }
};
```

```
A()  →  P
{
}
```

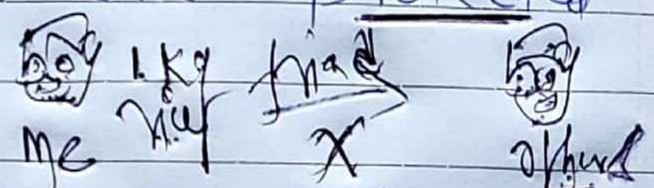
```
A()
{
  P.
}
```

Types:- i) Default ←
ii) Parametrized
iii) Copy

C++ Full Course

Q. What is friend function? full explaination.

Ans→ Friend function is a function which is not the member of class instead of that it can access private and protected member of class.



Note :- ⊙ friend function is declared with keyword (friend).

⊙ Using friend function we can work with two different classes members.

Syntax :- friend return-type function-name(class ref);

Q. W.A.P. to add two numbers using friend function.

C++ Full course

Q. What is Encapsulation ? full explaination.

Ans-> Encapsulation is the Concept of Oops, that is used to wrap the data member and member function into a single unit.

Note :- (·) The main purpose of encapsulation is to secure the data. (wif)

Syntax :-
```
class A
{
    private:
    // data member
    public:
    // member function
};
```

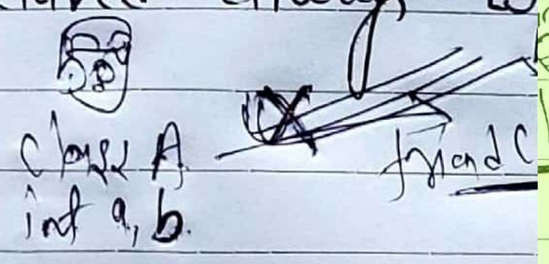
Q. W.A.P. to show the example of encapsulation.

C++ Full Course

Q. What is friend class? full explaination.

Ans→ If a class become a friend class to a other class then it can access the all private and protected member of that class.

Note :- ① friend class is declared always with friend keyword.



Syntax :- friend class class-name;

Q. W.A.P. to show the example of friend class

C++ Full Course

Q. What is abstraction? full explaination.

Ans→ Data abstraction is a technique by which only necessary data is shown to the user and unnecessary data is hidden.

Q. W.A.P. to show the simple example of data abstraction.

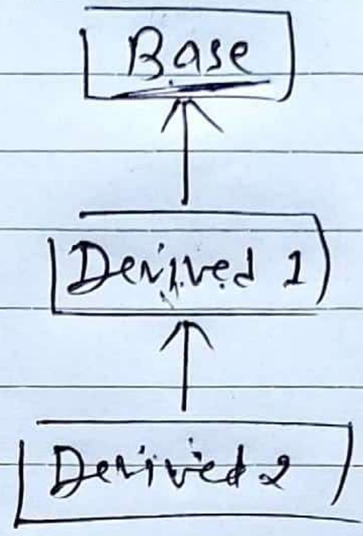
```
class Bank
{
    int display() // hide
    int account_number() // show
};
```

full course

PDF

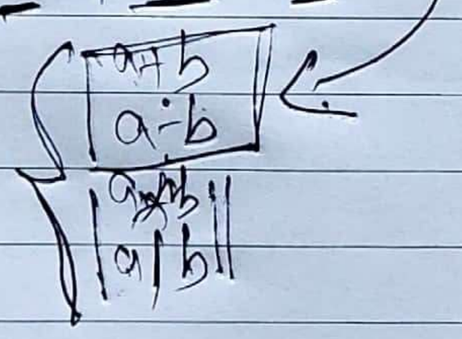
C++ Full Course

(11) Multi-level inheritance :-



Syntax:-

```
class A
{
    a+b;
};
class B: public A
{
    a+b
    a-b
};
class C: public B
{
};
```



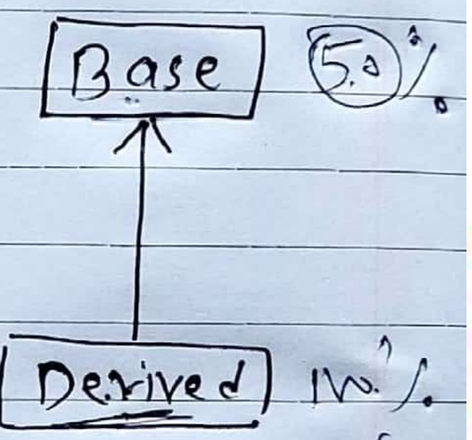
C++ Full course OOP

Q. What is inheritance? full explaination.

Ans→ Inheritance is nothing but when one class access the property of another class is called inheritance.

Types:-

① Single/simple inheritance :-



Syntax:- Class A
{

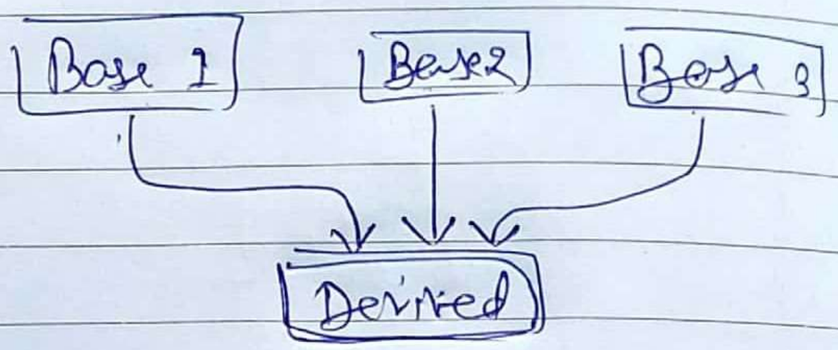
};
Class B: public A
{

};

C++ Full Course

Q. What is multiple inheritance ?

Ans →



Syntax:-

```
class A                 class B.                class C
{                       {                       {
  a+b;                    a-b;                    a*b
};                      };                      a/b.
                                                };
```

```
class D: public A, public B, public C
{
  a+b | a-b | a*b | a/b    a%b
  a>b   a<b   a==b
};
```

C++ Full Course

Q. What is polymorphism? full explaination.

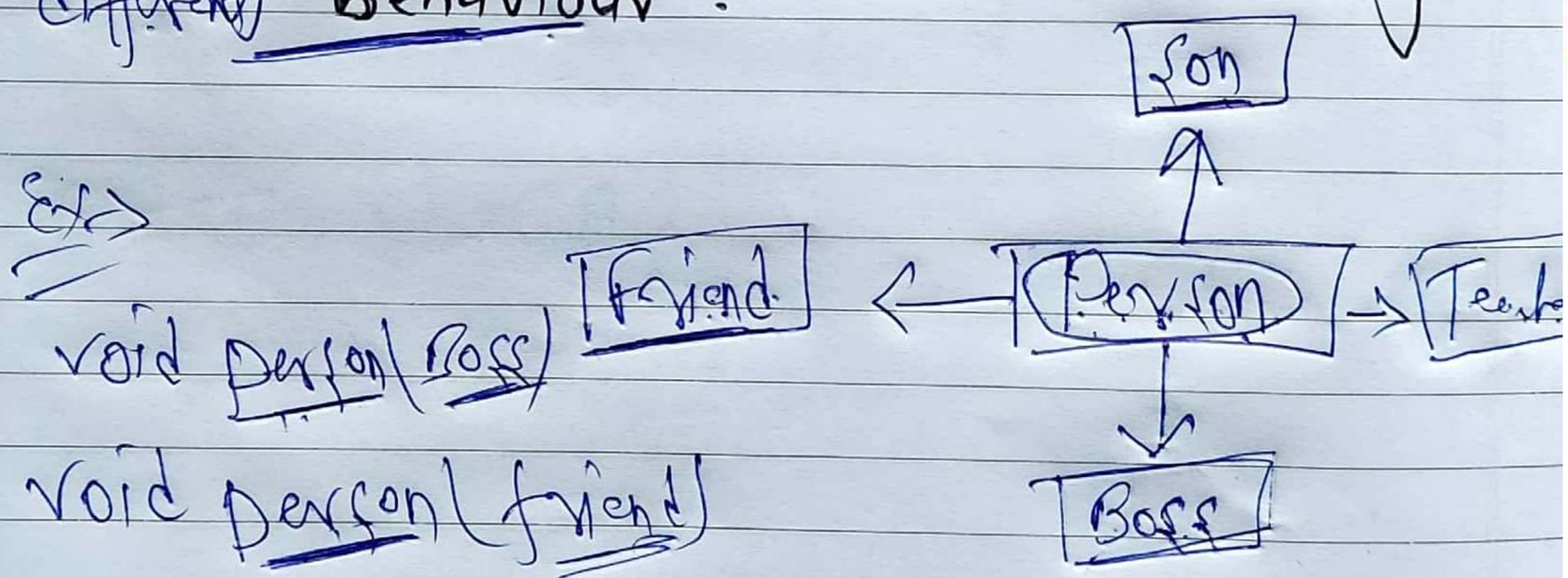
Ans→ Polymorphism = Poly + Morphism

Poly → many

Morphism → Form

many + form → many form

Polymorphism is the greek word whose meaning is "Same object having different behaviour".



Types :-

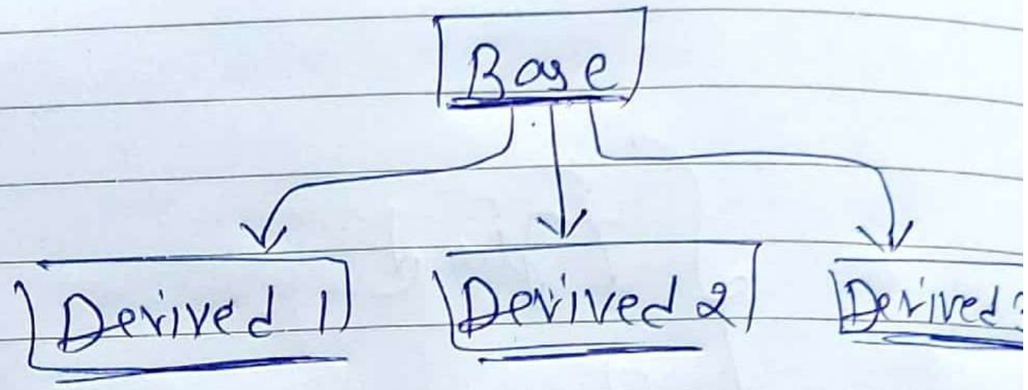
→ Compile time polymorphism (Function overloading)

→ Run time polymorphism (Function overriding)

C++ Full Course

Q. What is hierarchical inheritance?

Ans→



Syntax:-

```
class A
{
    a+b
};
```

```
class B: public A
{
    a+b
    a-b
};
```

```
class C: public A
{
    a+b
    a*b
};
```

```
class D: public A
{
    a+b
    a/b
};
```

C++ Full Course

Q. What is function overloading?

Ans-> Whenever a class contains more than one method with same name different types of parameter called function overloading.

⊙ Note :- i) This polymorphism exists at the time of compilation.

ii) Compiletime polymorphism is also known as early binding or static polymorphism.

Syntax :-
```
class A
{
    public:
        void add();
        {

        }
        void add(int a)
        {

        }
        void add(int a, float b)
        {

        }
};
```

Q. W.A.P. to show the example of function overloading?

C++ Full Course

Q. What is function overriding?

Ans→ Whenever we writing method in base and derived classes in such a way that function name parameter must be same called function overriding.

Note :- i) This polymorphism exists at the time of execution of program is called runtime polymorphism.

ii) Runtime polymorphism is also known as late binding or dynamic polymorphism.

function overriding problem :-

In this case we can't call the base class function using the derived class object is known as function overriding problem.

Syntax :-

```
class A
{
    void add()
    {
    }
};
class B public A
{
    void add()
    {
    }
};
Obj A::add();
```

Q. W.A.P. to show the example of function overloading.

C++ Full course

Q. What is abstract class? full explaination.

Ans→ Abstract classes are such classes that you are defined to inherit only by other classes. The purpose of abstract classes is to provide a structure to other classes which you can inherit.

Note:- i) We can't create object for abstract class.

ii) A class which contain at least one pure virtual function-0 called abstract class.

Syntax:-

```
virtual return_type function_name() = 0;
```

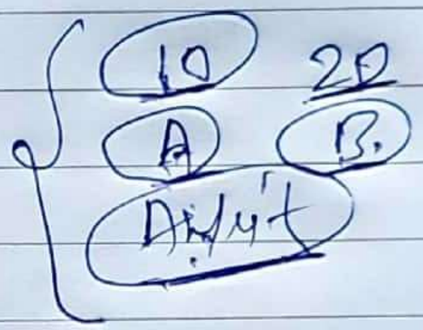
C++ Full Course

Q. What is template ? full explaination.

Ans → Template is the frame which defines its actual meaning in a C++ programming. The main purpose of template is to "it accept any type of value" at the time of program execution.

We can use template in C++ by two ways:-

1) Function template.
2) Class template.



1) Function template :- Function template is also known as generic function. A normal function works only one type of value at a time. but "function template" works with different - different type at a time.

Syntax:- template < class (type) >

return-type function-name (parameters-list)
{
// Code;
}

Q. W.A.P. to show the example of function template ?

C++ Full Course

2) ~~2) Func~~ class template :- class template is also known as generic class. We use class template when user doesn't know what kind of value to pass from the parameters.

Syntax :-
```
template < class type >
class class-name
{
    // body.
};
```

Q. W.A.P. to show the example of class template ?

full course

youtube.com/LearnCodingEasily

Like

Share

Subscribe