MULTIPLE CATCH BLOCK :

```
int main()
{
  int a=20 ; b=0, c;
 try { if (b==0)
       throw (c);
     else
      { c = a/b ;
      }
      Catch (char ()
 { cout << "Caught expectation : char type";
 }
  Catch (int i)
 {
 Cout << " Caught expectation : int type";
 }
 cout << " \ Hello ";
}
```

```
void test (int x){
 try
 { if (x>0)
  throw "x";
 else
  throw "x";
}
Catch (int x)
{ Cout << " Catch integer" << x << endl;
}
catch (char x)
{
Cout << " Catch Character
}
}
voidmain()
{Cout << " testing multiple Cat
 test (1);
 test (0);
 getch ();
```

POORNIMA

Date	Unit No.	Lecture No.	Faculty	Subject Name	Subject Code	Main Topics:-
	Can we have	a toy	block inside a toy block.			

8. Write a program for inline function without class using C++ programming.
9. Write a program for constructor overloading in C++.
10. Write a program for copy constructor to find factorial in C++.

TEMPLATE IN C++ :

It is define a blue print of formula for creating a generic class or a function.
To simply Put, you can create a single function or a class with different data type using template.

template
- function
- class

1. Function template :

We can define for a function (X), we have add ( ) function we can crea the version of the add function, fla int, double type.

Syntax

```
Template < classtype> return type fun. name
{ // body
}
```

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~~Template~~

T type : It is a placeholder name for a data type use
the function. It is used within the function definitio

```
Template <Class T> Tadd (T &a, T &b)
```

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FUNCTION TEMPLATE : It is a single function template that work with multiple datatype simultaneously

SYNTEX:

```
template < class Type> return type function -name
{   // body
}
```

Program:

```
Template < class X >
  X func (Xa, Xb)
{
   return a;
}
 int main ( )
{
 Cout << function func (15,8);     // { Cout << func('P','Q');
 Cout << function func (7.3, 8.2);
   return 0;
   getch ( );
}
```

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ate	Unit No.	Lecture No.	Faculty	Subject Name	Subject Code	Main Topics:-

Stream Class : Stream in C++ means stream of Character that gets transferred b/w the program thread an input or output these are no. of C++ stream classes. eligible & define which is related to the files & stream for providi input & output operation.

Stream is a sequence of byte. it acts either source from which the input data can be obtained or as a destination to which the output data can be send.

the source stream that provide data to the progra is called input stream. and the destination stre that received output from the program is calle output stream.

The various stream classes in C++ are as follows.

1. Ios class : this class is the base class for a stream classes.
2. isstream class : It handle the input stream in C++ programming language.
   {cin use get, getline, read}
3. Ostream Class : It handle the output stream in programming language.
   {Cout & Put use for write data}

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Isstream →

```
#  - - - -
int main ( )
{  char a;
   cin get (a);
   Caut << a;
   return 0;
}
```

Ostream →

```
#  - - - - -
int main ( )
{  char b;
   Cin. get (b);
Caut. Put (b);
   return 0;
}
```

② OUTSTREAM :

1. Puts ( ) : Puts function is similiar to a Printf fun
It is use to print the ~~string~~ on the Consale which is previously read by using ge and scanf function.

```
#  - - - -
 int main ( )
{
 Puts ("this output is printing using puts");
}
```

gets ( ) :

```
#  - -
   int main ( )
   {
     Char ch[10]
 Puts ("Enter character");
  gets (ch);
 Puts ("character array using gets");
    Puts (ch);
}
```

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FILE HANDLING : File handling in C++ is a mechanism to store the output of a program and help perform various operation on it.

→ Files are used to store data in storage device permenantly

→ In C++ we have a set of file handling methods. These include ifstream, ofstream and fstream.

→ These classes ~~designed~~ designed to manage disc file, are declared in fstream and therefore we must include this file in any program uses files

→ Stream is an operation that represent device on which operation of input and output are performed.

A STREAM CAN Be represented as a source or destination of a character of indefinite length depending on its usages.

~~OFSTREAM~~ Three classes ~~of~~ ofstream, ifstream, fstream are -

OFSTREAM : This stream class signify the output file stream and is applied to create file for writing information to file

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IFSTREAM : This stream class signify the input is applied reading information from

FSTREAM : This stream class use for both read and write from/to file.

C++ provide following operation in file Handling.

1. open() : it is use to create a file and also use open an existing file.
2. Read() : it is use for reading data from a file
3. write() : it is use to write new data in file
4. close() : it is use to close the file.

~~OPEN A FILE~~ To Read or enter data to a file we need to open it first. This can be performed with the help of ifstream for reading and fstream for writing or appending to the file

SYNTAX OF OPEN :

open (filename mode);

Here filename - name of the file which has open.

Mode - different mode to open a file.

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MODE	DESCRIPTION
in	open the file to read (default for ifstream)
out	open the file to write (default for ofstream)
app	open the file and appends the output at the end.
ate	open the file and move the control to end of the file
trunc	Remove the data in the existing fi

Default open mode → ifstream - in
ofstream - out
fstream - in or out

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PROGRAM FOR OPEN FILE :

```
# include <fstream.h>
int main ()
{
 fstream filename;
 filename. open ("filename", "out");
 if (! filename)
 {
  Cout "Error while creating
        a file" ;
    }
else
{
Cout << " file sucessfully created";
 File name. close ( );
  }
return 0;
```

```
# include <fstream.h>
 int main ()
{fstream filename;
filename.open ("filename.txt"
 if (! filename)
{
Cout << " Error while creating a
                    file" ;
}
else
{
Cout << "file created & write data
          on file" ;
Filename << " First file ";
 Filename. close ();
 }
   return 0;
}
```

WRITING A FILE : we will learn how to write data to file which he created before. we will use fstream or ofstream object to write data into file ;

we use stream insertion operation.

operation → (i) insertion operation (<<) (ii) extraction operation (>>)

i) insertion operation along with the text in flow with in the double 'quates'.

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Reading a File : Getting the data from the file is an essential thing to perform because without data we can not perform any task.

We can perform the reading of the data from a file with the CIN get the data from a user, but we use CIN to take inputs from the user. Standard Consale.

```
# include <fstream.h>
int main ()
{ fstream new_file;
new_file.open("new_file_write.txt", ios::in);
if (!new_file)
Cout << "no such file";
else
{ char ch;
while(!new_file.eof())
{ new_file >> ch;
Cout << ch;
}
new_file.close()
return 0;
}
```

other Method for writing

```
# int main()
{
afstream filestream("A.txt");
if (filestream.open())
{ filestream << "welcome file
filestream << "writing";
filestream.close();
}
else
{
Cout << "file does not open";
return 0;
}
```

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other method for Reading

```
# include< fstream.h>
  int main ()
  {
  string str;
ifstream filestream ("A.txt");
 if ( filestream.open() )
{ while (getline (filestream, str))
{
 Cout << str <<endl;
 }
filestream.close
 }
else
 {
  Cout<<"file does not open";
 }
 return 0;
}
```

Close a file : It simply done by close() function

```
# include <fstream.h>
   int main()
   {
    fstream new_file;
   new_file.open("A.txt, ios::out);
  new_file.close();
   return 0;
   }
```