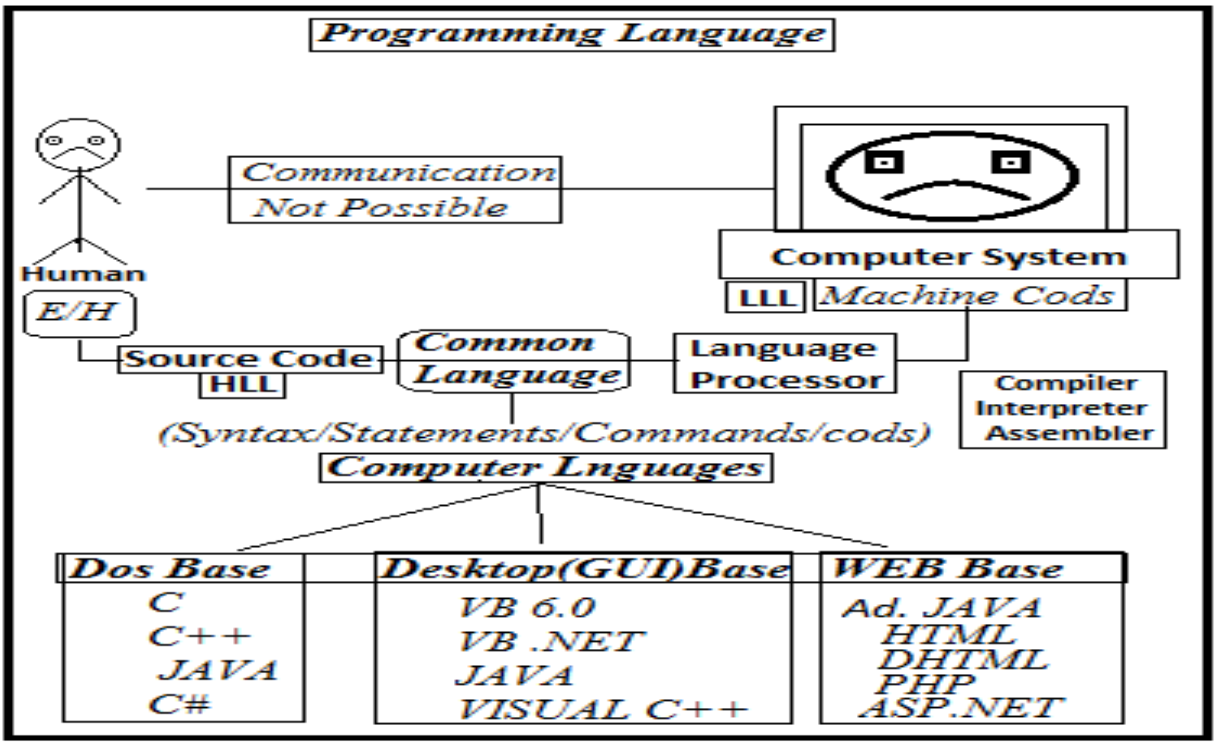
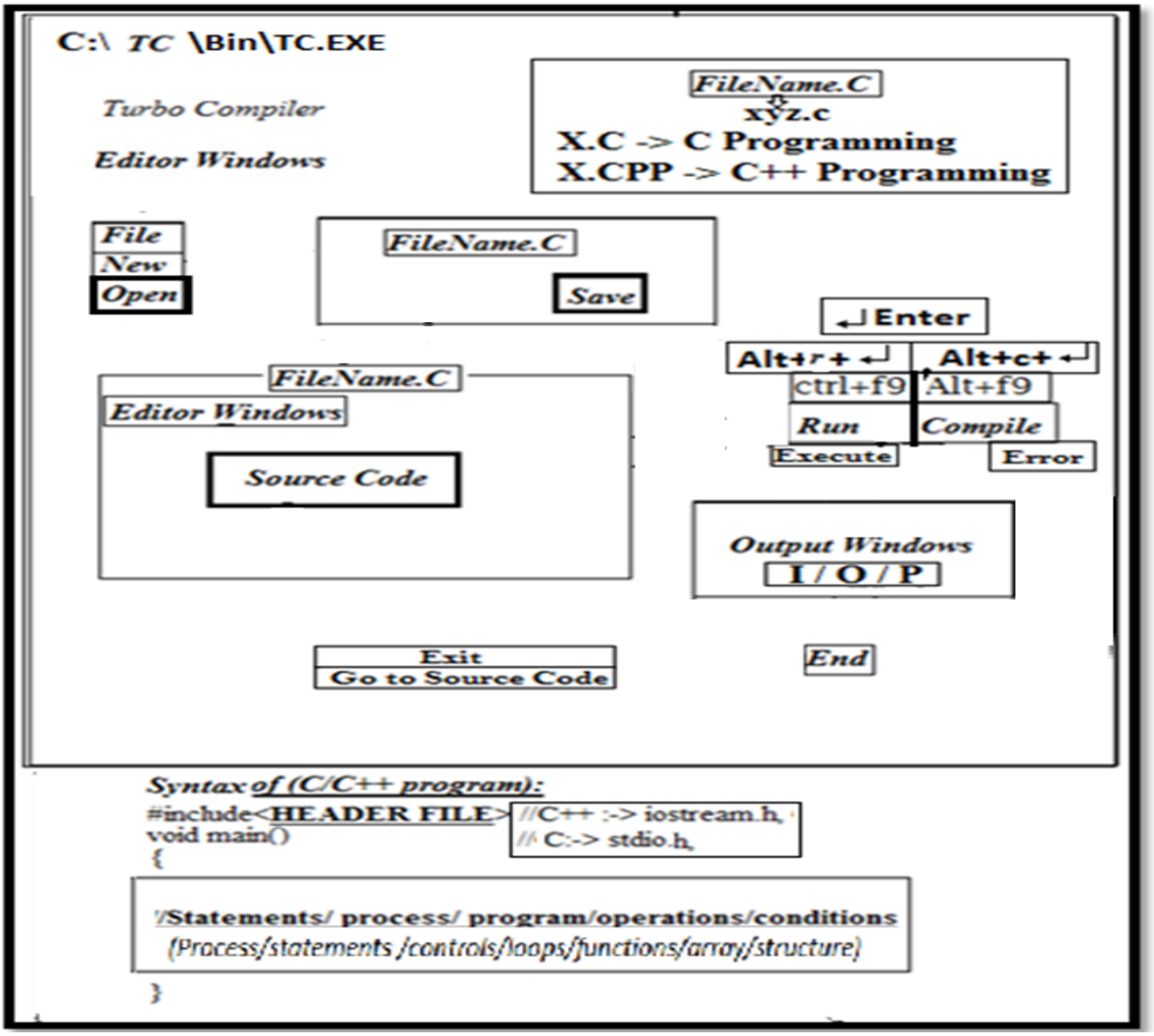

Programming Language
Communication
Not Possible
Human
E/H
Computer System
LLL
Machine Cods
Source Code
HLL
Common Language
Language Processor
Compiler
Interpreter
Assembler
(Syntax/Statements/Commands/cods)
Computer Lnguages
Dos Base
C
C++
JAVA
C#
Desktop(GUI)Base
VB 6.0
VB .NET
JAVA
VISUAL C++
WEB Base
Ad. JAVA
HTML
DHTML
PHP
ASP.NET


C:\ TC \Bin\TC.EXE
Turbo Compiler
Editor Windows
FileName.C
xyz.c
X.C -> C Programming
X.CPP -> C++ Programming
File
New
Open
FileName.C
Save
Enter
Alt+r+
Alt+c+
ctrl+f9
Alt+f9
Run
Compile
Execute
Error
FileName.C
Editor Windows
Source Code
Output Windows
I / O / P
Exit
Go to Source Code
End
Syntax of (C/C++ program):
#include<HEADER FILE>
//C++ :-> iostream.h
//C:-> stdio.h
void main()
{
'/Statements/ process/ program/operations/conditions
(Process/statements /controls/loops/functions/array/structure)
}

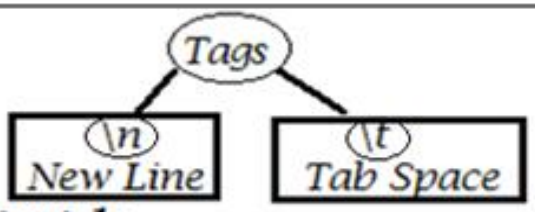
1 Input a=5,b=6;
2 Process c=a+b;
3 Output print c;

Output/Display:

printf("..... xyz ....."); cout<<" ";

(text,data,value,**RV**,information)

Example:
Display: Rajeev Kumar Singh
printf ("Rajeev Kumar Singh");



Output 1:
Rajeev \n
Kumar \n
Singh \n
printf ("Rajeev\n Kumar\n Singh");

cout<<" " <<endl;

Output 2:
Rajeev \t Kumar \n
Singh
printf ("Rajeev\t Kumar\n Singh");

Calling / Use

for Display: cout<<VN<<VN<<VN.....;
Example:
int a=5,b=7,c=3;
cout<<a<<b<<c;
Output: 5,7,3
if output is like :
a=5,b=7,c=3
The printf statement is like:
cout<<"a="<<a<<",b="<<b<<",c="<<c;

\n Next Line
\t Tab Space

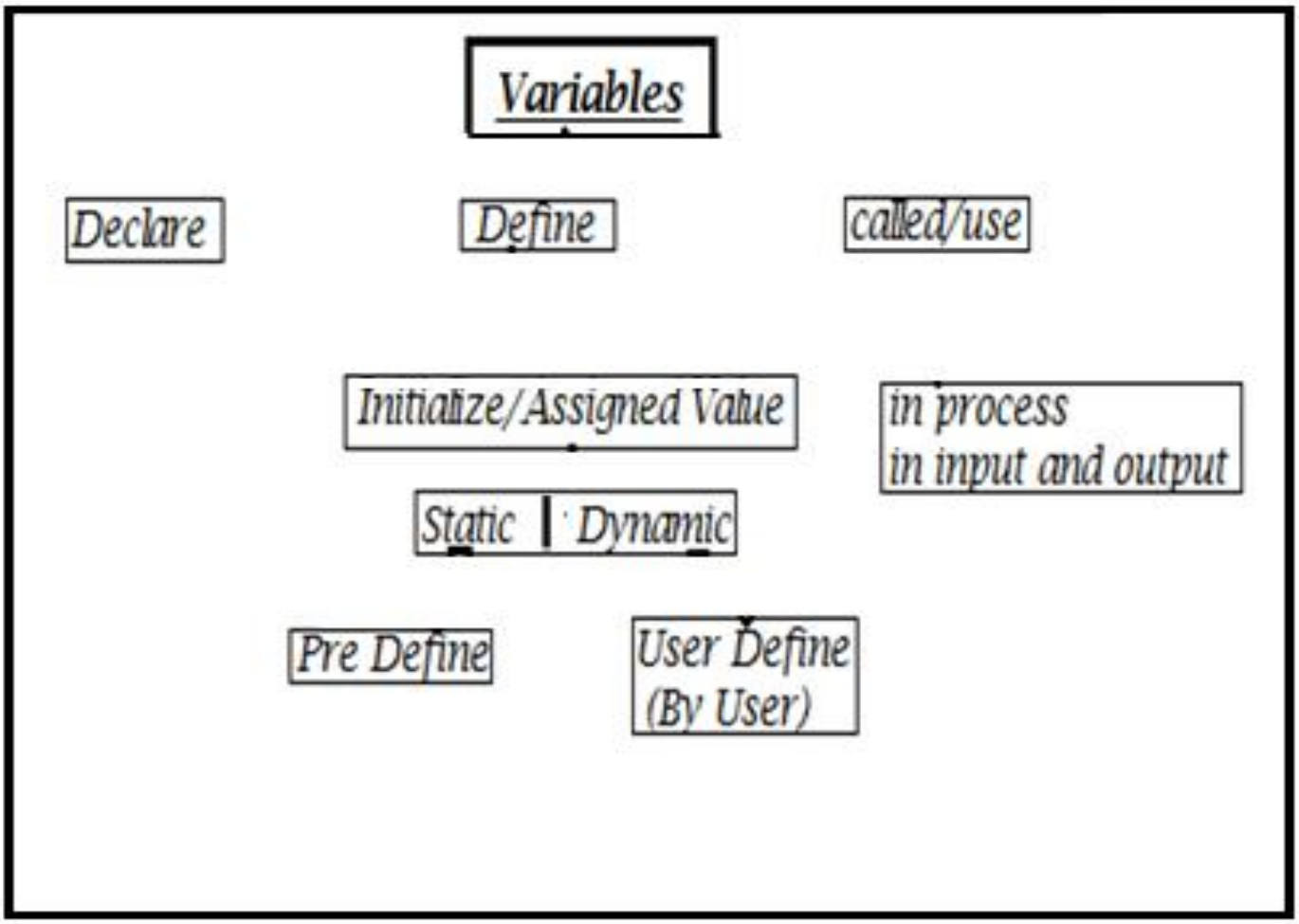
Rajeev Sharma
cout<<"Rajeev Sharma";
Rajeev
Sharma
cout<<"Rajeev \nSharma";
Rajeev Sharma
cout<<"Rajeev\t Sharma";

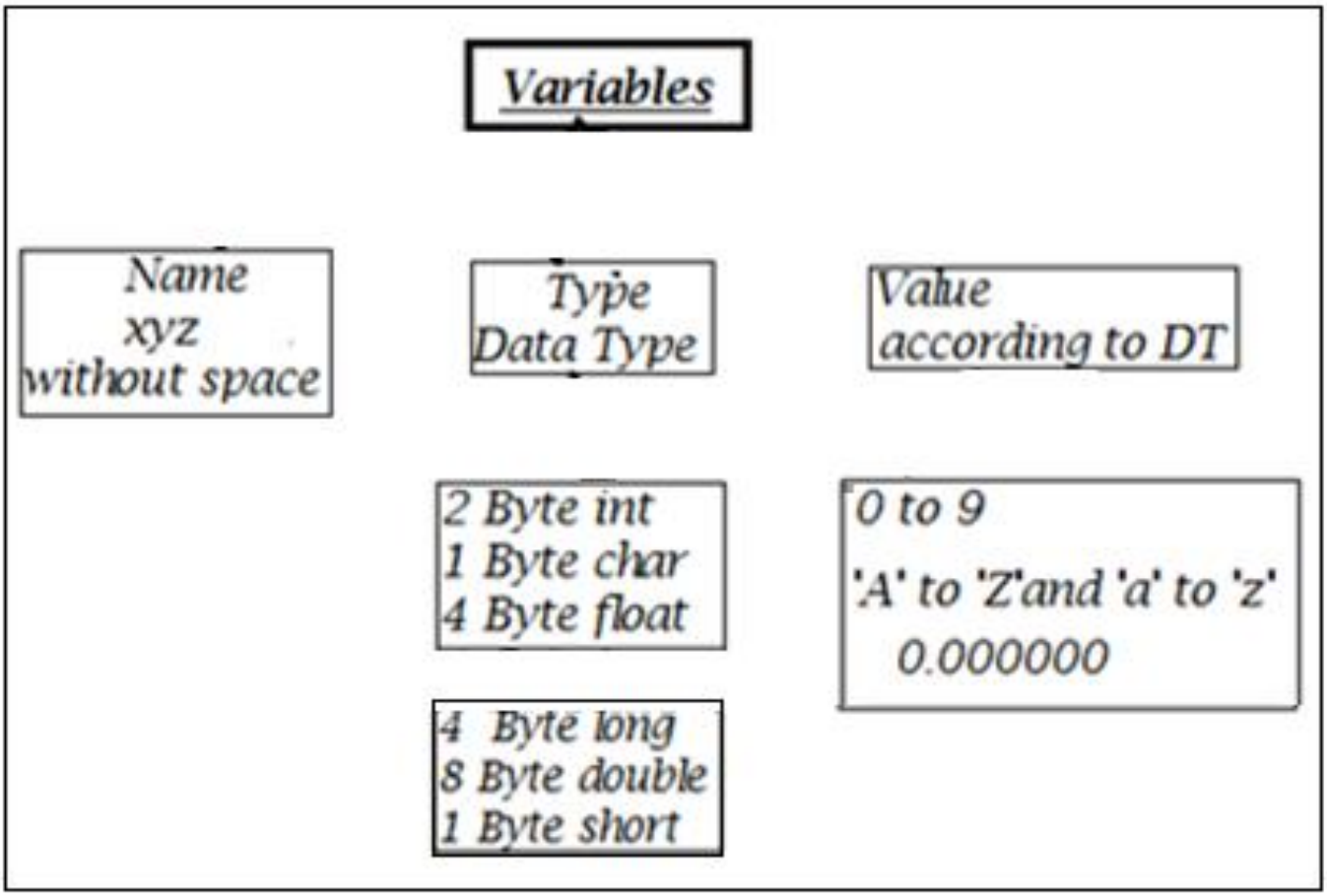
input: cin>>VN >>VN>>VN.....onl
ouput: cout<<"text,data,info";
cout<<VN<<VN<<VN.....;

Declare:
Data Type VN,VN,VN,.....;
// VN :-**Variable Name**
int a,b,c;

Define:

Ist:	IInd:	IIIrd:
int a,b,c;	int a,b,c;	int a=5,b=9,c=7;
a=5;	a=5,b=9,c=7;	
b=9;		
c=7;		


Variables
Declare
Define
called/use
Initialize/Assigned Value
in process
in input and output
Static | Dynamic
Pre Define
User Define
(By User)

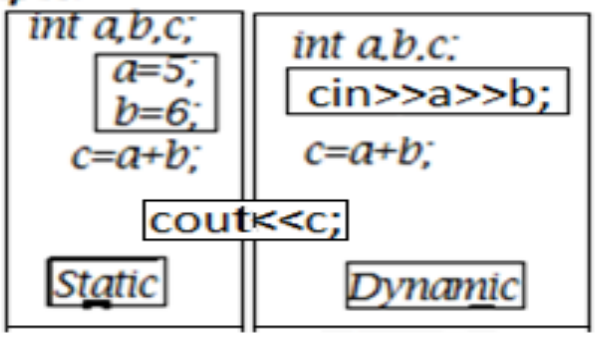

Variables
Name
xyz
without space
Type
Data Type
Value
according to DT
2 Byte int
1 Byte char
4 Byte float
0 to 9
'A' to 'Z'and 'a' to 'z'
0.000000
4 Byte long
8 Byte double
1 Byte short

Input from User:

Syntax:

```
cin>>VN>>VN>>VN;
```

Example:



Difference between C and C++

	C	C++
	Output:	**Output:**
Syntax 1.:	printf(" Text/value/information.....");	cout<<"Text/value/information.....";
Example:	printf("Ravi Kumar");	cout<<"Ravi Kumar";
Syntax 2. :	printf("RV....",VN.....);	cout<<VN<<VN.....;
Example:	int a=5,b=7; printf("%d,%d",a,b);	int a=5,b=7; cout<<a<b;
	Input:	**Input:**
Syntax 1.:	scanf("RV",&VN.....);	cin>>VN>>VN.....;
Example:	int a,b; scanf("%d %d",&a,&b);	int a,b; cin>>a>>b;

Same in Both Languages

(Process/statements /controls/loops/functions/array/structure)

Extra in C++:

Polymorphism, Class and object, Inheritance, Constructor destructor , etc....

Basic *Input Output and Process*

1. WAP to print *Computer Programming* on screen.
2. WAP to add 2 numbers**[R=a+b]**
3. WAP to add 4 numbers**[R=a+b+c+d]**
4. WAP to multiply 3 numbers**[R=a*b*c]**
5. WAP to find average 5 numbers**[R=(a+b+c+d+e)/5]**
6. WAP to display age after 15 years.**[nage =age+15]**
7. WAP to display a^3 numbers **[R=a*a*a]**
8. WAP to find the area of circle **[A=3.14*r*r]**
9. WAP to find the area of squire .**[A=a*a]**
10. WAP to find the area of rectangle **[A=a*b]**
11. WAP to find the perimeter of rectangle**[A=2*(l+ b)]**
12.WAP to find the circumference of circle **[C=2*3.14*r]**
13. WAP to swap the values of two variables.**[a= a + b; b=a – b; a= a – b;]**
14. WAP to input Hours, Minutes and Seconds and display in seconds.**[TS=H*60*60+M*60+S]**
15. WAP to input cost and display cost after increasing 25% **[cost+(cost*25)/100]**
16. WAP to display squire of a numbers **[a*a]**
17.WAP to find the volume of sphere**.[v=4/3*3.14*r^3]**
18. WAP to find the area of triangle using HEROS formula**[a=$\sqrt{s(s-a)(s-b)(s-c)}$, s= (a + b + c)/2]**
19. WAP to take principal, rate and time and display C.I. (Compound Interest)
CI=p*(1+R/100)^T
20. WAP to calculate sum of 5 subjects & find percentage**[TOT=s1+s2+s3+s4+s5,Per=TOT/5]**
21. WAP which accept temperature in Fahrenheit and print it in centigrade**[c=5/9*(T-32)]**
22. WAP which accept temperature in centigrade and print it in Fahrenheit**[F=(1.8*T)+32]**
23. WAP which accepts a character and display its ASCII value like **[A=65,a=97]**
24.WAP to calculate simple interest. **[SI=PRT/100]**
25.WAP to find gross salary **[GS=BASIC+DA-PF+HRA]**

Bytes	Data Type	Data Range	Description
2	int	-32,768 to 32,767	integer value
4	long int	-2,147,483,648 to2,147,483,647	integer value with an extended range
2	short int	-32,768 to 32,767	exactly the same as *int*
2	unsigned int	0 to 65,535	integer value
1	char	0 to 255	character data
4	float	3.4×10-38 to 3.4×10+38	floating point number
8	double	1.7×10-308 to 1.7×10+308	double precision floating-point number

Error Check and Output)

Q1. Check The Error And Rewriter And Output:-

1.
```
#include<stdio.h>
void main()
{
Int count=10;
Printf("%d",Count);
}
```

2.
```
#include<stdio.H>
Void main()
{
intI,j=10;
i=10;
}
```

```
Printf("%d%d",I,J);
}
```

3.
```
#include[stdio.h]
Void main()
{
Int x='a';
Printf("%d",X);
}
```

4.
```
#include<stdio.h>
void Main()
{
const double PI;
int P;
Pi=3.14765;
P=22;
Pi=3.14;
Printf("%d",pi/2);
}
```

5.
```
#include<stdio.h"
void main()
{
ine i=2;
PrintfIi);
i++=2;
Printf("%d"i):
}
```

6.
```
#include<stdio.h>
void main()
{
int i=4;z=12;;;
Printf("C programming"):
```

Q2. Find Out The Output Of The Following Expression

i.
```
#include<stdio.h>
void.main()
{
char x;
int y;
x = 100;
y = 115;
printf ( "%c\n" , x);
printf ( "%c\n" , y);
printf ( "%d\n" , x);
}
```

ii.
```
#include<stdio.h>
voidmain()
{
int x = 100;
printf ( "%d\n" , x );
printf ( "%c\n" , x );
}
```

iii.
```
#include<stdio.h>
voidmain
{
int x = 5, y = 10, z = 10;
x = y = z;
printf ( "%d" , x );
}
```

iv.
```
#include<stdio.h>
voidmain()
{
int x = 100, y = 200;
printf ( "%d" , x ,y );
}
```

v.
```
#include<stdio.h>
main()
{
float a = 5 , b = 2;
int c;
c = a % b;
printf("%d", c);
}
```

Q3. Find The Error And Rewrite And Output:

1.
```
Int a=2,b=6
printf ( "%d\n%d",a,b):
```

2.
```
Chat c='A',b=65;
printf ( "%d\n%d",a,b),
```

3.
```
Float a=2.3,b=6.567;
printF( "%d\n%d",a,b)
```

4.
```
int a=32 ; b=6;
printf( "%d\n%d",a,b)
```

5.
```
float A=2.3,b=6.567;
printf( "%d\n%d",a,b)
```

6.
```
Int a=65 ; b=6;
Printf("%D,%c",b,a);
```

7.
```
int a=32 ; b=6,
Printf( "%d\n%d",a,b);
```

8.
```
float A=2.3,b=6.567;
printf( "%d\n%d",a,b);
```

9.
```
Int a=65 ; b=6;
printF( "%d\n%d",a;b);
```

10.
```
int a=32 ; b=6,
printf( "%d\n%d",a,b);
```

11.
```
float A=2.3,b=6.567;
printf( "%d\n%d",a,b);
```

12.
```
Int a=65 ; b=6;
printf( "%d\n%d",A,b )
```

13.
```
Int a=2.25 : b=6,
printf( "%d\n%d",a,b);
```

14.
```
InT a=65 ; b=6;
printf( "%d\n%d",a,b ):
```

15.
```
int a= 'a' ; b=6,
printf( "%d\n%d",a,b)
```

Q4. Find output

1.
```
#include<stdio.h>
void main()
{
int a=65;
printf("a=%d\t",a);
printf("a=%c\t",a);
printf("a=%f\t",a);
printf("a=%c\ta=%c",a,a);
}
```

2.
```
#include<stdio.h>
void main(void)
{int a=98;
charch='c';
printf("%c,%d\n",a,ch);
printf("%d,%d\n",a,ch);
printf("%c,%c\n",a,ch);
printf("%d,%c\n",a,ch);
}
```

CASCADING OF OPERATOR

When shift operators (<< and >>) are used more than one time in a single statement then it is called as cascading of operators.

e.g cout<< roll<< age<< endl;

Input Output (I/O) In C++

The cout Object: The cout object sends to the standard output device. cout sends all out put to the screen i.e monitor.

The syntax of **cout** is as follows:

cout<< data;.

e.g

cout<< a ; *(here a can be any variable)*

The cin operator :

The cin operator is used to get input from the keyboard. When a program reaches the line with cin, the user at the keyboard can enter values directly into variables.

The syntax of **cin** is as follows:

cin>> variablename

e.g

cin>> ch; *(here ch can be any variable)*

• ***Basic structure of a C++ program:***

Following is the structure of a C++ program tht prints a string on the screen:

```
#include<iostream.h>
void main ()
{
cout<<" Study material for Class XI";
}
```

The program produces following output:

Study material for Class XI

The above program includes the basic elements that every C++ program has. Let us check it line by line

#include<iostream.h> : This line includes the preprocessor directive include which includes the header file iostream in the program.

void main () :this line is the start of compilation for this program. Every C++ programs compilation starts with the **main (). void** is the keyword used when the function has no return values.

{ : this is the start of the compound block of main ().

cout<<" Study material for class XI";: this statement prints the sequence of string **" Study material for class XI"** into this output stream i..e on monitor.

Every statement in the block will be terminated by a semicolon (;) which specifies compiler the end of statement.

COMMENTS in a C++ program

Comments are the line that compiler ignores to compile or execute. There are two types of comments in C++.

1. **Single line comment:** This type of comment deactivates only that line where comment is applied. Single line comments are applied with the help of " //" .

e.g // cout<<tomorrow is holiday

the above line is proceeding with // so compiler wont access this line.

2. **Multi line Comment :** This Type of comment deactivates group of lines when applied. This type of comments are applied with the help of the operators "/*" and "*/ ". These comment mark with /*

and end up with */. This means every thing that falls between /*and */ is considered even though it is spread across many lines.

e.g #include<iostream.h>

```
int main ()
{
cout<< " hello world";
/* this is the program to print hello
world For demonstration of
comments */
}
```

In the above program the statements between **/*** and ***/** will be ignored by the compiler.

ERRORS

There are many types of error that are encountered during the program run. following are some of them:

1. **Compiler error**.: The errors encountered during the compilation process are called Compiler error. Compiler error are of two types

- Syntax error. • Semantic error.

Syntax Error: Syntax error is the one which appears when we commit any grammatical mistakes. These are the common error and can be easily corrected. These are produced when we translate the source code from high level language to machine language.

e.g **cot<<endl;** This line will produce a syntax error as there is a grammatical mistake in the word **cout**

Semantic error: These errors appear when the statement written has no meaning.

e.g **a + b =c** ; this will result a semantically error as an expression should come on the right hand side of and assignment statement.

2. **Linker Errors.** Errors appear during linking process e.g if the word **main** written as **mian** . The program will compile correctly but when link it the linking window will display errors instead of success.

3. **Run Time error:** An abnormal program termination during execution is known as Run time Error.

e.g. If we are writing a statement X = (A + B) /C ;

the above statement is grammatically correct and also produces correct result. But what happen if we gave value 0 to the variable c, this statement will attempt a division by 0 which will result in illegal program termination. Error will not be found until the program will be executed because of that it is termed as run time error.

3. Logical Error.: A logical error is simply an incorrect translation of either the problem statement or the algorithm. e.g : root1 = -b + sqrt(b * b -4*a*c) / (2 *a)

the above statement is syntactically correct but will not produce the correct answer because the division have a higher priority than the addition, so in the above statement division is performed first, then addition is performed but in actual practice to do addition performed then divide the resultant value by (2* a).

Error Check and output c++

Check the Error and Rewriter :-

0. #include[iostream.h]
void main()
{
Int count=10;
}
cout<<T<<'has'<<count<<'characters"<<end;
}

1. #include "iostream.h"
voidMain()
{
intI,j=10;
i=10;
cout>>i>>j;endl}

2. #include<iostream.h]
main(void)
{
Int x='a';
Cout<< "x=">>x;
}

3. cout<< " "Enter x:";
cin>>x;
cout>> "Neg. Value";
Cout<< "Pos. Value";<<x<<end;

4. void main();
{
double PI;
int P;
Pi=3.14765;
P=22;
Pi=3.14;
Cout<<(P/7);
}

5. int i=2;
cout<<I;
i++=2;
cout<< "\n Thanks":

6. int i=4,z=12;;;
cout<<"\n Student 1"
cout<<"\n Student 2";

Q2. Find the error and rewrite and output:

1. Int a=2,b=6,a=8;
cout<<a,>>B;

2. Chat c='A',b=65;
cout<<c,b;

3. Float a=2.3,b=6.567;
cout<<a>>b;

4. int a=32 ; b=6;
cout<<a;b;

5. float A=2.3,b=6.567;
cou<<a<<b;

6. Int a=65 ; b=6;
Cout<<a;b;

7. int a=32 ; b=6,
cout>>a>>b

8. #include "iostream.h)))
voidMain()
{
intI,j=10;
i=10;
cout>>i>>j;endl;;;
}

9. #include<iostream.h"
main(void)
{
Int x='a"';
Cout<< "x=">>x; }

10. INT a=32 ; b=6,
cout>>a>>B>>endline;

11. intA=32 ; b=6,
cout>>a>>b>>end;

12. inTA=32 ; b=6;
cout>>a>>B>>endline;

13. float A=2.3,b=6.7:
Cout<<a<b:

14. INT a=32, b=6,
cout<<A<<B;

15. foat a=2.0,B=6.567;
cout<<a>>b;

Error Check and output) JAVA

Check the Error and Rewriter :-

1. Public Static void main()
{
Int count=10;
System.out.println(Count);}

2. public Static Void main()
{
intI,j=10;
i=10;
System.out.println(I+ ", '+J);
}

3. Public Static Void main(){
Int x='a';
System.out.paintln(X);
}

4. public static void Main()
{
double PI; int P;
Pi=3.14765;
P=22;
Pi=3.14;
System.out.println(pi/2);
}

5. ine i=2;
System.Out.printlnIi);
i++=2;
System.out.println("hi);

6. int i=4;z=12;;;
System.out.println("JAVA"):

Q2. Find the error and rewrite :

1. Int a=2,b=6
System.out.println(a+ ", "+b);;

2. Chat c='A',b=65;
System.ouT.println(a+ ", "+b),

3. Float a=2.3,b=6.567;
System.ot.printn(a+ ", "+b)

4. int a=32 ; b=6;
System.Out.Println(a+ ", "+b);

5. float A=2.3,b=6.567;
System.out.println(a+ ", "+b);

6. Int a=65 ; b=6;
System.ouT.println(a+ ", "b):

7. int a=32 ; b=6,
system.out.print(a+ ", "+c);

8. float A=2.3,b=6.567;
System.out.Println(a- ",' +b);

9. Int a=65 ; b=6;
System.out.println(A+ ", "+b);

10. int a=32 ; b=6,
System.out.Println(a+ ", "+b);

11. float A=2.3,b=6.567;
system.Out.println(+a ", "+b);

12. Int a=65 ; b=6;
System.out.Println(a++ ", "+b):

13. Int a=2.25 : b=6,
System.Out.Println(a- ", "b):

14. InT a=65 ; b=6;
System.out.Printan(a+ ", "+b):

15. int a=32 , b=6;
System.Out.Print(A+ ", "+B);

Error Check and output c++

Check the Error and Rewriter :-

1. #include[iostream.h]
void main()
{
Int count=10;
}
cout<<T<<'has'<<count<<'characters"<<end;
}

7. #include "iostream.h"
voidMain()
{
intI,j=10;
i=10;
cout>>i>>j;endl}

8. #include<iostream.h]
main(void)
{
Int x='a';
Cout<< "x=">>x;
}

9. cout<< " "Enter x:";
cin>>x;
cout>> "Neg. Value";
Cout<< "Pos. Value";<<x<<end;

10.void main();
{
double PI;
int P;
Pi=3.14765;
P=22;
Pi=3.14;
Cout<<(P/7);
}

11.int i=2;
cout<<I;
i++=2;
cout<< "\n Thanks":

12.int i=4,z=12;;;
cout<<"\n Student 1"
cout<<"\n Student 2";

Q2. Find the error and rewrite and output:

1. Int a=2,b=6,a=8;
cout<<a,>>B;

2. Chat c='A',b=65;
cout<<c,b;

3. Float a=2.3,b=6.567;
cout<<a>>b;

4. int a=32 ; b=6;
cout<<a;b;

5. float A=2.3,b=6.567;
cou<<a<<b;

6. Int a=65 ; b=6;
Cout<<a;b;

7. int a=32 ; b=6,
cout>>a>>b

8. #include "iostream.h)))
voidMain()
{
intI,j=10;
i=10;
cout>>i>>j;endl;;;
}

9. #include<iostream.h"
main(void)
{
Int x='a"';
Cout<< "x=">>x; }

10. INT a=32 ; b=6,
cout>>a>>B>>endline;

11. intA=32 ; b=6,
cout>>a>>b>>end;

12. inTA=32 ; b=6;
cout>>a>>B>>endline;

13. float A=2.3,b=6.7:
Cout<<a<b:

14. INT a=32, b=6,
cout<<A<<B;

15. foat a=2.0,B=6.567;
cout<<a>>b;