

## Chapter : 3 Overview of C++

### Examples:

**1. Program to demonstrate if statement:**  
[if a is even then print "The number 'a' is even" ] [Pg-61]

```
# include <iostream.h>
# include <conio.h>
void main()
{
int a;
clrscr();
cout << "\n Enter the number...";
cin >> a;
if(a%2==0)
cout << "\n The given number
    "<<a<<" is even.";
getch();
}
```

### Output:

If a is 16 then the output is,

```
Enter the number...16
The given number 16 is even.
```

**2. Program to using if...else statement ;**  
[if a is odd then the output is "The number a is odd" otherwise the output is "The number a is even"] [Pg-62]

```
# include <iostream.h>
# include <conio.h>
void main()
{
int a;
clrscr();
cout << "\n Enter the number...";
cin >> a;
if(a%2==0)
cout << "\n The given number
    "<<a<<" is even.";
else
cout << "The given number"<<a<<"
    is odd.";
getch();
}
```

### Output:

If the number is 7,

```
Enter the number...7
The given number 7 is odd.
```

If the number is 6,

```
Enter the number...6
The given number 6 is even.
```

**3. Program to demonstreat if...else statement : [Pg-64]**

```
# include <iostream.h>
# include <conio.h>
void main()
{
clrscr();
int count=1;
if (count>0)
{
cout << "\n Negating count...";
count*=-1;
}
else
{
cout << "\n Rsetting count...";
count*=1;
}
getch();
}
```

### Output:

```
Negating count...
```

**4. Program to using switch statement:**  
[According to the remainder the output "Remainder is 'r' in words"] [Pg-68]

```
# include <iostream.h>
# include <conio.h>
void main()
{
int a,rem;
cout << "\n Enter a number...";
cin >> a;
rem=a% 3;
switch(rem)
{
case 1: cout << "\n Remainder is
    one.";
    break;
case 2: cout << "\n Remainder is
    two.";
    break;
default: cout << "\n The given
```

```

    number is divisible by 3.";
}
getch();
}

```

**Output:**

If a=5 the the output is,

```

Enter a number...5
Remainder is two.

```

If a=9 the output is,

```

Enter a number...9
The number is divisible by 3.

```

**5. Program to demonstrate use of switch statement:[without break statement][Pg-69]**

```

#include <iostream.h>
#include <conio.h>
void main()
{
clrscr();
int rank = 1;
char name[] = "Shiv";
switch(rank)
{
case 1: cout << '\n' << name
        << "secured 1st rank.";
case 2: cout << '\n' << name
        << "secured 2nd rank.";
}
getch();
}

```

**Output:**

```

Shiv secured 1st rank.
Shiv secured 2nd rank.

```

**6. Program to explain loops: [Pg-72]**

```

#include <iostream.h>
#include <iostream.h>
void main()
{
int i=6;
loop_start:
{
cout << i << '\t';
i++;
if(i<6)
goto loop_start;
}
}

```

```

cout << i;
getch();
}

```

**Output:**

```

6

```

**7. Program to print the square of two numbers : [Pg-74]**

```

#include <iostream.h>
#include <conio.h>
void main()
{
clrscr();
int num = 2;
do
{
cout << num * num << '\t';
num +=1;
}
while (num<6);
getch();
}

```

**A. Identify**

i)control variable  
num

ii)Statements that refers body of the loop:

```

cout << num*num << '\t
num+=1;

```

iii)Test expression:

```

while(num<6)

```

**B. How many times the loop will be executed ?**

4 times

**C. What is the output of the program ?**

```

4    9    16    25

```

**D. What type of loop is this ?**

Exit-check loop.

**8. Programs to demonstrate do ...while loop : [Pg-75]**

```

a). # include <iostream.h>
#include <conio.h>
void main()
{
int ctr = 1,s=0, check=1;
do
{
cout << ctr << '\t';
}
}

```

```
s = s+ctr;
ctr +=2;
check = (ctr<11);
}
while(check);
```

**Output:**

1	3	5	7	9
---	---	---	---	---

[Pg-75]

```
b).# include <iostream.h>
# include <conio.h>
void main()
{
int ctr = 5,s=0;
do
{
cout << ctr ;
s = s+ctr;
ctr -=2;
}
while(ctr);
```

**Output:**

5
---

[Pg-76]

```
c). # include <iostream.h>
# include <conio.h>
void main()
{
int ctr = 5,s=0,c=1;
do
{
cout << ctr << '\t' ;
s +=ctr;
ctr -=2;
}
while(ctr>=1);
```

**Output:**

5	3	1
---	---	---

[Pg-76]

```
d). # include <iostream.h>
# include <conio.h>
void main()
{
int i = 0;
do
{
cout << i;
i-
```

```
-;
}
while (i<=10);
getch();
}
```

**Output:**

Finite loop which generates numbers from 10 to -32768 .

[Pg-76]

```
e). # include <iostream.h>
# include <conio.h>
void main()
{
int i = 10 ; choice = 1;
do
{
cout << i;
i++;
}
while (choice);
getch();
}
```

**Output:**

Infinite loop.

**9. Program to print the square of two numbers using while loop: [Pg-77]**

```
# include <iostream.h>
# include <conio.h>
void main()
{
clrscr();
int num = 2;
while (num<6)
{
cout << num*num << '\t' ;
num += 1;
}
getch();
}
```

**Output:**

4	9	16	25
---	---	----	----

**10. Program to demonstrate while loop: [Pg-78]**

```
# include <iostream.h>
# include <conio.h>
void main()
```

```

{
clrscr();
int x=3 , y=4 , ctr=2 , res=x ;
while(ctr<=y)
{
res *= x;
ctr += 1;
}
cout << "x to power y is:" << res;
getch();
}

```

A). Identify the

i) Control variable  
ctr

ii) Statements that form the body of the loop:

```

res *= x;
ctr += 1;

```

iii) Test expression:

```
ctr <= y
```

B). How many times the loop will be executed?

3 times.

C). What is the output of the program ?

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D). What type of loop is this ?

Entry-check (or)

Entry-controlled loop.

**11. Program using while loop and choice [If the values are y,y,y,y,n] [Pg-79]**

```

# include <iostream.h>
# include <conio.h>
void main()
{
clrscr();
int counter = 0;
char choice = 'y';
while (choice=='y')
{
cout << "continue <y/n>...";
cin >> choice;
counter = counter + 1;
}
cout << "\n The loop is executed..."
<< counter << "times";
getch();
}

```

**Output:**

```

Continue <y/n>...y
Continue <y/n>...y
Continue <y/n>...y
Continue <y/n>...y
Continue <y/n>...n
The loop is executed 4 times.

```

**12. The following snippets are invalid. Reason why it is invalid :**

a). To print nos. between 5 & 10: [Pg-80]

```

# include <iostream.h>
# include <iostream.h>
void main()
{
int start=5,end=10;
while(start>=end)
cout<<start++;
getch();
}

```

**Error:**

Since the start value is less than the end value the loop will not be executed.

**Corrected program:**

```

# include<iostream.h>
# include <conio.h>
void main()
{
int start=5,end=10;
while(start<=end)
{
cout<<start++;
}
getch();
}

```

**Output:**

5678910

b). To print numbers between 10&5: [Pg-80]

```

# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int start = 5, end = 10 ;
while(start<=end)
cout << start--;
}

```

```
getch();
}
```

**Error:**

start value is less than the end value. But the start value is decremented further. Hence the program generates infinite Values.

**Correction:**

```
# include<iostream.h>
# include <conio.h>
void main()
{
start = 5, end = 10 ;
clrscr();
int
while(start<=end)
cout << end--;
getch();}
```

**Output:**

```
1098765
```

**c). To print the nos. between 1&5: [Pg-80]**

```
# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int start = 1 ;
while(start<=5)
cout << start++;
getch();
}
```

**Output:**

```
12345
```

**d). To print the nos. between 1 & 5:[Pg-80]**

```
# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int start = 1 ;
while(1)
cout << start++;
getch();
}
```

**Error:**

Since the test expression is 1 and the value is incremented further the

program while running will generate infinite values. So the test expression should be changed.

**13. Program to illustrate the for loop:**

**[Pg-82]**

```
# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
for(int i=2,fact=1;i<6;fact*=i;i++);
cout << "\n The factorial of the "
number is..." << fact;
getch();
}
```

**Output:**

```
The factorial of the number is..120
```

**b) # include<iostream.h> [Pg-82]**

```
# include <conio.h>
void main()
{
clrscr();
int ctr=10;
for(;ctr>=6;ctr--)
cout<<ctr<<'\n';
getch();
}
```

```
10
9
8
7
6
```

**Output:**

**14. Program to analyse the working of the comma(,) operator: [Pg-82]**

```
# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
for(int i=1,j=0;i<8,j<3;i++,j++)
cout << i << '\t';
cout << '\n';
for(int i=1,j=0;j<3,i<8;i++,j++)
cout << i << '\t';
getch();
}
```

**Output:**

```
1 2 3
1 2 3 4 5 6 7
```

**15. Programs to demonstrate the for loop:**

**a). # include<iostream.h> [Pg-83]**

```
# include <conio.h>
void main()
{
clrscr();
int s=0,ctr=1;
for(;ctr <= 5;)
{
sum += ctr;
ctr++;
}
cout << "\n Sum: " << sum;
getch();
}
```

**Output:**

```
Sum : 15
```

**Significance:**

Initialization and incrimination statements are not included in the for(...) construct.

**b).[If the values are y,y,y,n] [Pg-83]**

```
# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int sum=0,ctr=1;
char='y';
for(;ch=='y');
{
sum +=ctr;
ctr++;
cout << "\n Continue <y/n>?....";
cin >> ch;
}
cout << "\n Sum: " << sum;
cout << "\n Choice: " << ch;
getch();
}
```

```
Continue <y/n>?...Y
Continue <y/n>?...Y
Continue <y/n>?...Y
Continue <y/n>?...n
Sum: 10
Choice: n
```

**Output:**

**Significance:**

for loop is used as dynamic loop, where the iterations are determined during the running time.

**c).# include<iostream.h> [Pg-83]**

```
# include <conio.h>
void main()
{
clrscr();
int sum=0;
for(ctr=1;ctr<5;ctr++);
sum += ctr;
cout << sum;
getch();
}
```

**Output:**

```
5
```

**Reason:**

A semicolon is placed after the for statement. Hence the statement sum += ctr; is not treated as the body of the loop.

**16.Program to demonstrate the working of the continue statement: [Pg-84]**

```
# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int i=1,sum=0;
for(;i<10;i++)
{
if(i%2==0)
{
sum += i;
continue;
}
cout << i;
}
cout << "\n Sum of even nos.." << sum;
getch();
}
```

**Output:**

```
13579
Sum of even nos..20
```

**Significance:**

continue statement transfers the control to the incrementation segment of the loop.

**17.Predict the output: [Pg-85]**

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

```

void main()
{
clrscr();
int ctr=1;
for(;ctr<10;ctr++)
{
cout<<ctr;
ctr=1;
}
getch();
}

```

**Output:**

Since ctr is initialized outside the loop, the loop is infinite loop.  
The output will be 1.

```

b)# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int ctr=1;
for(ctr=1;;ctr++)
{
cout<<ctr;
}
getch();
}

```

**Output:**

Since the test expression is missing, the loop will be executed until it reaches 32767.

**18. Program to demonstrate the working of break statement: [Pg-85]**

```

# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int a[]={1,2,3,4,5,6,7,8,9};
int search_item = 7;
for(int x=0;x<9;x++)
{
if(a[x]==search_item)
{
cout<<"\n Item found at position.."
<< x;
break;
}
}

```

```

}
cout<<'\n'<<"Value of index position
is.." << x;
getch();
}

```

**Output:**

```

Item found at position..6
Value of index position is..6

```

**19. Program with nested loops: [Pg-86]**

```

# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
for(int i=1;i<=3;i++)
{
int j=1;
while(j<=i)
{
cout<<"*";
j++;
}
cout<<'\n';
}
getch();
}

```

**Output:**

```

*
**
***

```

**20. Predict the output: [Pg-87]**

```

# include<iostream.h>
# include <conio.h>
void main()
{
clrscr();
int i=1,j=1;
while(i<=3)
{
cout<<'\n';
for(i=1;i<=j;i++)
cout<<'*';
i++;
j++;
}
getch();
}

```

**Output:**



**21. Construct if statements for the following Patterns: [Pg-66]**

**a) Set Grade to 'A' if the marks are above 90.**

```
if(marks>90)
{
cout<<"\n Grade='A'";
}
```

**b) Set Grade to 'A' if the marks are above 90, otherwise set Grade to 'B'.**

```
if(marks>90)
{
cout<<"\n Grade='A'";
}
else
{
cout<<"\n Grade='B' ";
}
```

**c) Print the following message:**

- "Accelerate-traffic to flow" if the speed is less than 30 kmph.

- "Moderate-accelerate by 10 kmph" if the speed is between 31-40 kmph.
- Otherwise "Good-be careful.."

```
if(speed<30)
{
cout<<"\n Accelerate-traffic to flow";
}
else if(speed<=40)
{
cout<<"\n Moderate-accelerate by 10 kmph";
}
else
{
cout<<"\n Good-be careful..";
}
```

**Exercises:**

**1. Categorise the following declarations as valid/invalid. If invalid, specify the reasons: [Pg-89]**

Declarations	Valid/invalid	Reasons
int A;a;	invalid	comma(,) should be placed instead of (;)
char name(10);	invalid	Square brackets are not allowed.
float f,int;	invalid	Different type declarations

		should be separated by Semi colon
double d,float f;	invalid	Different type of Declaration Should be separated by semi colon
int 1choice,_2choice	invalid	Variable must not begin with a number.

**2. Debug the following program. Rewrite the corrected program : [Pg-89]**

```
# include<iostream.h>          ..1
# include <conio.h>            ..2
void main()                    ..3
{
    ..4
    int N1,n1;                 ..5
    cin<<"\n Enter two numbers.."; ..6
```



```
result :N1*n1;           ..7
cout<<'\n'<<Result;    ..8
}                          ..9
```

**Error:**

Line:6 Wrong structure.[cin should be replaced with cout]

Double quotes should be used to enclose a message to be printed.

Line:7 Wrong use of colon(:).

Undefined symbol result.

Line:8 Undefined symbol Result.

**Corrected program:**

```
# include <iostream.h>
# include <conio.h>
void main()
{
int N1,n1,result;
cout<<"\n Enter two numbers..";
result = N1*n1;
cout<< '\n' << result;
}
```

**3. Write appropriate declaration statements for the following: [Pg-89]**

a) To store the result of the expression 8/3 :

```
float f = 8/3;
```

b) To initialize Emp\_Name with the value 'Kalam' :

```
char emp_name[]="Kalam";
```

c) To accept choice from user indicating Y-yes and N-no :

```
char choice;
```

**Corrected program:**

```
char option = 'Y';
while(option == 'y')
{
cout<<'*';
}
```

(OR)

```
char option = 'Y';
do
{
cout<<'*';
}
while(option == 'y');
```

```
cout << "\n Enter choice <y/n>";
cin >> choice ;
```

**4. Point out the errors in the following snippets:**

a) int a = 10, b=5; ..1  
if a>b ..2  
cout<<a; ..3

**Error:**

Line:2 Parenthesis is missing.

**Corrected program:**

```
int a = 10, b=5;
if(a>b)
cout<<a;
```

b) if(a<b)&&(a<0) ..1  
cout<<"a is negative and.." ..2

**Error:**

Line:1 Parenthesis for if statement is missing.

Line:2 Semicolon is missing at the end of cout statement.

**Corrected program:**

```
if((a<b)&&(a<0))
cout<<"a is negative and..";
```

c) char option = 'Y'; ..1  
do while option == 'y' ..2  
{ ..3  
cout<<'\*'; ..4  
} ..5

**Error:**

Line:2 Any one among the do and while can be used.

Line:2 Parenthesis is missing for the condition.

d) `for(int i ; i<10 ; i++)  
cout<<i*2;`

**Error:**

There is no error in the snippet.

e) `do` ..1  
`{` ..2  
`Cout<<'*';` ..3  
`}` ..4

`While(cout<<"\nContinue<y/n>..."<cin>>ch;ch  
== 'y');` ..5

**Error:**

Line:5 Test condition is not entered correctly.

**Corrected program:**

`do`  
`{`  
`Cout<<'*';`  
`}`

`While(cout<<"\nContinue<y/n>..."<cin>>ch;ch  
== 'y');` **5. Predict the output of the following snippets:**

a) `# include<iostream.h>` [Pg-90]

`# include <conio.h>`  
`void main()`  
`{`  
`int feet;`  
`const int inch_conversion=12;`  
`clrscr();`  
`cout<<"\n Enter feet....";`  
`cin>>feet;`  
`cout<<"\n Converted to inches..."`  
`<<feet*inch_conversion;`  
`getch();`  
`}`

**Output:**

If the input is 7 for feet,

```
Enter feet...7
Converted to inches...84
```

b) `# include<iostream.h>` [Pg-90]

`# include <conio.h>`  
`void main()`  
`{`  
`int i=1,sum=0;`  
`clrscr();`  
`while(i++<=5)`  
`{`  
`cout<<"\n"<<i;`

`s+=1;`  
`}`  
`cout<<"\n Value of the variable i`  
`after executing the while`  
`loop.."<<i<<"\n Sum.."<<s;`  
`getch();`  
`}`

**Output:**

```
2
3
4
5
6
Value of the variable i
after executing the loop..7
Sum..30
```

c) `#include<iostream.h>` [Pg-91]

`# include <conio.h>`  
`void main()`  
`{`  
`int i=1,sum=0;`  
`clrscr();`  
`while(++i<=5)`  
`{`  
`cout<<"\n"<<i;`  
`sum += i;`  
`}`  
`cout<<"\n"<<i<<"\t"<<sum;`  
`getch();`  
`}`

**Output:**

```
2
3
4
5
6 14
```

d) `# include<iostream.h>` [Pg-91]

`# include <conio.h>`  
`void main()`  
`{`  
`int i=1,sum=0;`  
`clrscr();`  
`for(i=1;i<=5;i++)`  
`{`  
`cout<<"\n"<<i;`  
`sum += i;`  
`}`  
`cout<<"\n"<<i<<"\t"<<sum;`  
`for(i=1;i<=5;++i)`  
`{`  
`cout<<"\n"<<i;`  
`sum += i;`  
`}`

```
1
2
3
4
5
6 15
1
2
3
4
5
6 30
```

```
cout<<'\n'<<i<<'\t'<<sum;
getch();
}
```

**Output:**

**e) # include<iostream.h> [Pg-91]**

```
# include <conio.h>
void main()
{
int i=1,j=1 ;
clrscr();
do
{
while(j<=i)
{
cout<<'#';
j++;
}
cout<<'\n';
i++;
j=1;
}
while(i<=5);
getch();
}
```

**Output:**

```
#
##
###
####
#####
```

**f) # include<iostream.h> [Pg-91]**

```
# include <conio.h>
void main()
{
int num=1784,s=0,d=0,x;
x = num;
clrscr();
for(;num>0;)
{
d = num%10;
s += d;
num = num/10;
}
cout<<"\n The sum of digits of"
<<x<<"is:"<<s;
getch();
}
```

**Output:**

```
The sum of digits of 1784 is 20.
```

**g) # include<iostream.h> [Pg-91]**

```
# include <conio.h>
void main()
{
clrscr();
for(int i=1,s=0;;i++)
{
if(i%2==0)
continue;
s += i;
if(i>9)
break;
}
cout<<"\n The sum is.."<< s;
getch();
}
```

**Output:**

```
The sum is..36
```

**h) # include<iostream.h> [Pg-91]**

```
# include <conio.h>
void main()
{
clrscr();
for(int i=1,x=0;i<=5;i++)
x = (x+i%==0) ? i*1 : i*-1;
cout<<x;
getch();
}
```

**Output:**

```
-5
```

**i) # include<iostream.h> [Pg-92]**

```
# include <conio.h>
void main()
{
clrscr();
do
{
cout<<"\n do loop...";
}
while(0);
getch();
}
```

**Output:**

```
do loop...
```

**j) # include<iostream.h> [Pg-92]**

```
# include <conio.h>
void main()
{
clrscr();
int i=0;
for(i=-5;i>=5;i--)
cout<<"\n Bjarne Stroustrup";
cout<<"\n Returning to Edit window.";
getch();
}
```

**Output:**

```
Returning to Edit window.
```

**k) # include<iostream.h> [Pg-92]**

```
# include <conio.h>
void main()
{
clrscr();
int month = 5;
if(month++ == 6)
cout<<"\n May..";
else if(month == 6)
cout<<"\n June..";
else if(-month == 5)
cout<<"\n May again..";
getch();
}
```

**Output:**

```
June..
```

**l) # include<iostream.h> [Pg-92]**

```
# include <conio.h>
void main()
{
clrscr();
int day = 3;
switch(day)
{
case 0 : cout<<"\n Sunday..";
case 1 : cout<<"\n Monday..";
case 2 : cout<<"\n Tuesday..";
case 3 : cout<<"\n Wednesday..";
case 4 : cout<<"\n Thursday..";
case 5 : cout<<"\n Friday..";break;
case 6 : cout<<"\n Saturday..";
}
getch();
}
```

**Output:**

```
Wednesday..
Thursday..
Friday..
```

**m) # include<iostream.h> [Pg-92]**

```
# include <conio.h>
void main()
{
clrscr();
int bool = 2, b=4;
while(bool)
{
cout<<bool<<"\t"<<"+b<<"\n";
bool--;
b--;
}
getch();
}
```

**Output:**

```
2 5
1 5
```

**6. Program Writing:**

a) Write a program to compute  $a^b$  where a and b are of real and integer types.

[use while...loop]

**# include<iostream.h> [Pg-93]**

```
# include <conio.h>
void main()
{
clrscr();
int a,b,i=1;
double prod=1;
cout<<"\n Enter a number:";
cin>>a;
cout<<"\n Enter the power number:";
cin>>b;
while(i<=b)
{
prod *= a;
i++;
}
cout<<"\n"<<a<<" power "<<b<<" is "
<<prod;
getch();
}
```

**Output:**

If a=3 and b=2 then the output is,

```
Enter a number:3
Enter the power number:2
3 power 2 is...9
```

b) Write a program to compute the factorial of a given number. [use for() loop]

**# include<iostream.h> [Pg-93]**

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

```

void main()
{
clrscr();
int fact=1,i=1;
cout<<"\n Enter a number: ";
cin>>n;
for(i=1;i<=n;i++)
{
fact *= i;
}
cout<<"\n Factorial of "<<n<<"is..."
<<fact;
getch();
}

```

**Output:**

If n=5 then the output is,

```

Enter a number:5
Factorial of 5 is...120

```

**c) Write a program to generate Fibonacci series upto n<sup>th</sup> term.**

**[Fibonacci series:0112358132134]**

# include<iostream.h> [Pg-93]

# include <conio.h>

```

void main()
{
clrscr();
int a=-1,b=1,c;
int n;
cout<<"\n Enter the no. of terms:";
cin>>n;
for(int i=1;i<=n;i++)
{
c=a+b;
cout<<c<<"\t";
a=b;
b=c;
}
getch();
}

```

**Output:**

If n=10 then the output is,

```

Enter the no. of terms:10
0112358132134

```

**d) Write a program to print the following patterns:**

**i]**

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

# include<iostream.h> [Pg-93]

```

# include <conio.h>
void main()
{
clrscr();
int i,j;
for(i=1;i<=5;i++)
{
for(j=1;j<=i;j++)
{
cout<<j<<"\t";
}
cout<<"\n";
getch();
}

```

**ii)**

```

4
3 4
2 3 4
1 2 3 4

```

# include<iostream.h> [Pg-93]

# include <conio.h>

```

void main()
{
clrscr();
for(int i=4;i>=1;i--)
{
for(j=i;j<=4;j++)
{
cout<<j<<"\t";
}
cout<<"\n";
}
getch();
}

```

**iii)**

# include<iostream.h> [Pg-93]

# include <conio.h>

```

void main()
{
clrscr();
char ch='A';
for(int i=1;i<=4;i++)
{
for(j=1;j<=i;j++)
{
cout<<ch<<"\t";
ch++;
}
cout<<"\n";
}
getch();
}

```

```

A
B C
D E F
G H I J

```

iv) Using switch, write a program to accept the day in a month, and print the messages as:

If day is 1, = 1<sup>st</sup> day in the month.

If day is 2, 22 = 2<sup>nd</sup> / 22<sup>nd</sup> day in the month.

If day is 3, 23 = 3<sup>rd</sup> / 23<sup>rd</sup> day in the month.

If day is 4, 14, 15, 16 = 4<sup>th</sup> / 14<sup>th</sup> day in the month.

```
# include <iostream.h> [Pg-93]
```

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

```
void main()
```

```
{
```

```
clrscr();
```

```
int d,r;
```

```
cout<<"\n Enter the day: ";
```

```
cin>>d;
```

```
while((d<1)|| (d>31))
```

```
{
```

```
cout<<"\n The day is invalid.";
```

```
break;
```

```
}
```

```
r=d%10;
```

```
switch(d)
```

```
{
```

```
case 1: cout<<"\n"<<d<<" st day in  
the month";
```

```
break;
```

```
case 2: cout<<"\n"<<d<<" nd day in  
the month";
```

```
break;
```

```
case 3: cout<<"\n"<<d<<" rd day in  
the month";
```

```
break;
```

```
default: cout<<"\n"<<d<<" th day in  
the month";
```

```
break;
```

```
}
```

```
getch();
```

```
}
```

**Output:**

```
Enter the day: 41  
The day is invalid.  
  
Enter the day: 2  
2 nd day in the month  
  
Enter the day: 23  
23 rd day in the month  
  
Enter the day: 14  
14 th day in the month  
  
Enter the day: 11  
11 th day in the month
```