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**Experiment: 1**

**Aim:** Write a program to find sum of  $1! + 2! + 3! + 4! + 5!$  Up to n terms

**Software:** Dev C++

**Code:**

```
1) #include<stdio.h>

int main()
{
    int n, sum=0, fact;
    scanf("%d", &n);

    for(int i=1; i<=n; i++)
    {
        fact=1;
        for(int j=1; j<=i; j++)
        {
            fact=fact*j;
        }
        sum=sum+fact;
    }
    printf("Addition of Factorial is %d", sum);
    return 0;
}
```

**Output:**

```
D:\Aryan\Sem-1\ICP\Assignment\Programming Assignment\Programming Assignment
Enter The Value of N:-7
Addition of Factorial Till 7 number Is 5913
-----
Process exited after 0.9029 seconds with return value 0
Press any key to continue . . .
```

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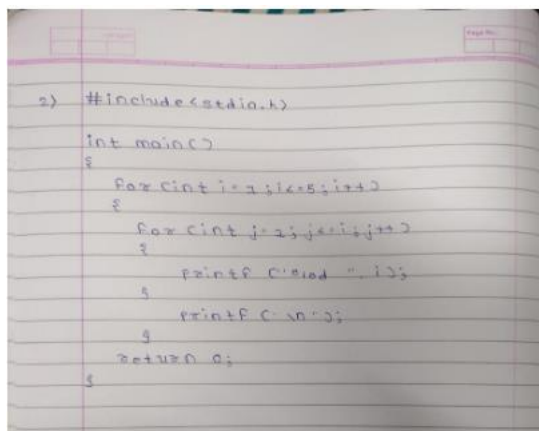


**Experiment: 2**

**Aim:** Print pattern like follow.

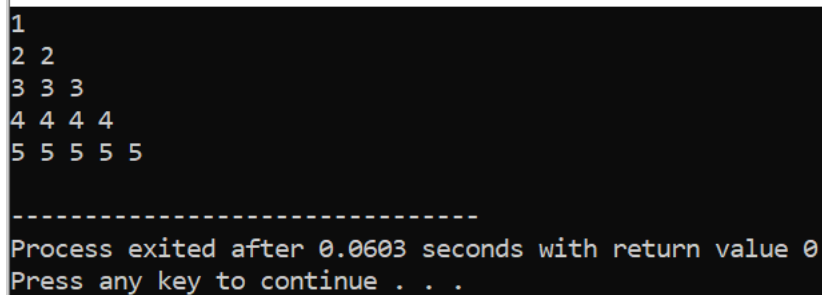
**Software:** Dev C++

**Code:**



```
2) #include<stdio.h>
int main()
{
    for(int i=1;i<=5;i++)
    {
        for(int j=1;j<=i;j++)
        {
            printf(" ");
        }
        printf("%d\n",i);
    }
    return 0;
}
```

**Output:**



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

-----
Process exited after 0.0603 seconds with return value 0
Press any key to continue . . .
```



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**Experiment: 3**

**Aim:** Print pattern like follow.

**Software:** Dev C++

**Code:-**

```
3) #include <stdio.h>
int main()
{
    for (int i=5; i>=1; i--)
    {
        for (int j=5; j>=i; j--)
        {
            printf(" ");
        }
        printf("%d\n", i);
    }
    return 0;
}
```

**Output:**

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

-----
Process exited after 0.07466 seconds with return value 0
Press any key to continue . . .
```

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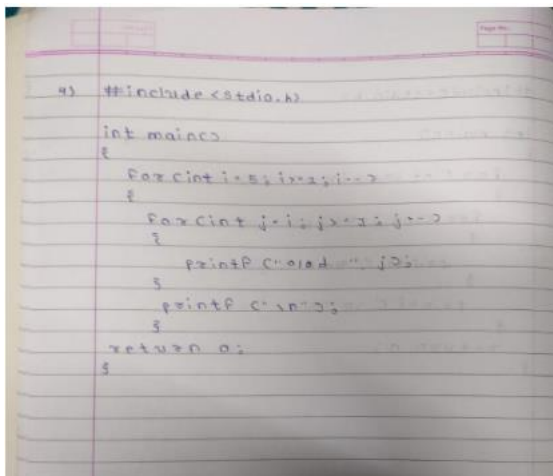
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**Experiment: 4**

**Aim:** Print pattern like follow.

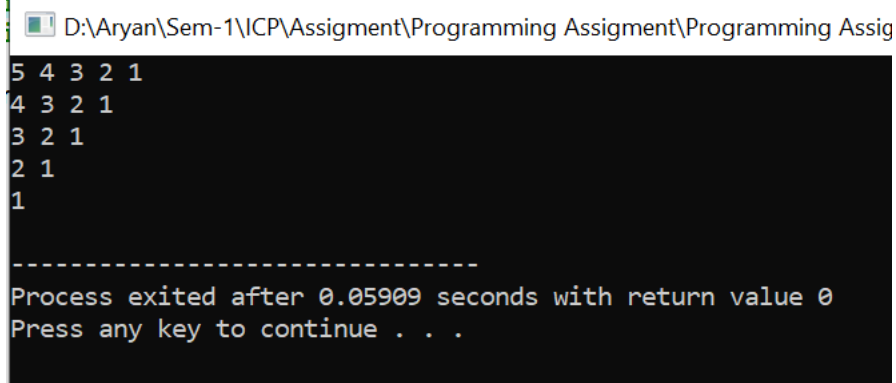
**Software:** Dev C++

**Code:-**



```
4) #include <stdio.h>
int main()
{
    for(int i=5; i>=1; i--)
    {
        for(int j=i; j>=1; j--)
        {
            printf(" ");
        }
        printf("%d\n", i);
    }
    return 0;
}
```

**Output:-**



```
D:\Aryan\Sem-1\ICP\Assignment\Programming Assignment\Programming Assig
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
-----
Process exited after 0.05909 seconds with return value 0
Press any key to continue . . .
```

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**Experiment: 5**

**Aim:-** Write a program that perform the following output for n rows

**Software:-** Dev C++

**Code:-**

```
#include <stdio.h>

int main()
{
    for (int i = 1; i <= 5; i++)
    {
        for (int j = 1; j <= i; j++)
        {
            printf("%d", j);
        }
        printf("\n");
    }

    return 0;
}
```

**Output:-**

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

-----
Process exited after 0.07075 seconds with return value 0
Press any key to continue . . .
```

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**Experiment: 6**

**Aim :-** A company has introduced a policy of recruiting employees based on their sex and The policy is as follows:

- For a female category the eligibility criterion is that the age of a person should be more than 24.
- For a male category the age of a person should be more than 28.

Write a program to find out whether a person can be employed if the age and sex of the person is entered through the keyboard.

**Software:-** Dev C++

**Code:-**

```
6) #include <stdio.h>

int main()
{
    char gender;
    int age;

    printf("Enter Your Gender: ");
    scanf("%c", &gender);

    fflush(stdin);

    printf("Enter Your Age: ");
    scanf("%d", &age);

    if (age > 24 && gender == 'F' || gender == 'f')
    {
        printf("Person Is Employed");
    }
    else if (age > 28 && gender == 'M' || gender == 'm')
    {
        printf("Person Is Employed");
    }
    else
    {
        printf("Person Is Not Employed");
    }

    return 0;
}
```

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**Output:-**

```
D:\Aryan\Sem-1\ICP\Assigment\Programming Assigment\Programming Assigment-2\
Enter Your Gender:-male
Enter Your Age:-29
Person Is Employed
-----
Process exited after 6.251 seconds with return value 0
Press any key to continue . . .
```

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**Experiment: 7**

**Aim:-** Write a program to check whether a number is an Armstrong number or not.  
(Armstrong number: the addition of the cube of the digit of a number = the number  
For example 153,  $1^3 + 5^3 + 3^3 = 153$ .)

**Software:-** Dev C++

**Code:-**

```
1) #include<stdio.h>

int main()
{
    int num, temp, i, a, j, new_num=0, a2=0;
    float rev_num=0;

    printf("Enter A Number: ");
    scanf("%d", &num);

    temp = num;
    new_num = num;

    while (num != 0)
    {
        a = num % 10;
        new_num = new_num * 10;
        i++;
    }

    for (j=1; j<=i; j++)
    {
        a2 = 0;
        a2 = temp % 10;
        temp = temp / 10;
        a22 = pow(a2, i);
        rev_num = rev_num + a22;
    }
}
```

```
if (new_num == rev_num)
{
    printf("It is an Armstrong Number");
    new_num;
}
else
{
    printf("It is not an Armstrong Number");
    new_num;
}

return 0;
}
```

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**Output:-**

```
D:\Aryan\Sem-1\ICP\Assigment\Programming Assigment\Programming As
Enter A Number:-153
153 Is An Armstrong Number
-----
Process exited after 1.821 seconds with return value 0
Press any key to continue . . .
```

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**Experiment: 8**

6. **Aim:-** Write a program to count the number of even numbers in a range provided by the user

**Software:-** Dev C++

**Code:-**

```
8) #include <stdio.h>

int main()
{
    int a, b, i = 0;

    printf("Enter the first value: ");
    scanf("%d", &a);

    printf("Enter the second value: ");
    scanf("%d", &b);

    if (a < b)
    {
        for (int j = a; j <= b; j++)
        {
            if (j % 2 == 0)
            {
                i++;
            }
        }

        printf("There are %d even numbers in Range of %d to %d.", i, a, b);
    }
    else
    {
        printf("There are %d even numbers in Range of %d to %d.", i, b, a);
    }

    return 0;
}
```

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**Output:-**

```
D:\Aryan\Sem-1\ICP\Assignment\Programming Assignment\Programming Assign
Enter The First Value:-2
Enter The Second Value:-9
There are 4 Even Numbers in Range of [2,9]
-----
Process exited after 3.608 seconds with return value 0
Press any key to continue . . .
```

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**Experiment: 9**

**Aim:-** Calculate the commission for a sales representative as per the sales amount:

if sales  $\leq$  Rs 500, commission is 5%.

- if sales  $> 500$  and  $\leq 5000$ , commission is Rs 35 plus 10% above Rs 500.
- if sales  $> 2000$  and  $\leq 5000$ , commission is Rs 185 plus 12% above Rs 2000.
- if sales  $> 5000$ , commission is 12.5%

**Software:-** Dev C++

**Code:-**

```
1) #include <stdio.h>

int main()
{
    int sales;
    float commission;

    printf("Enter The Amount of Sales:- ");
    scanf("%d", &sales);

    if (sales <= 500)
    {
        commission = 0.05 * sales;
    }

    else if (sales > 500 && sales <= 2000)
    {
        commission = 35 + 0.1 * (sales - 500);
    }

    else if (sales > 2000 && sales <= 5000)
    {
        commission = 185 + 0.12 * (sales - 2000);
    }

    else
    {
        commission = 185 + (sales - 2000) * 0.125;
    }

    printf("The commission is %.2f", commission);
    return 0;
}
```

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**Output:-**

```
D:\Aryan\Sem-1\ICP\Assigment\Programming Assigment\Programming As
Enter The Amount of Sales:-6000
The Commision Is 1417.50
-----
Process exited after 2.481 seconds with return value 0
Press any key to continue . . .
```

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**Experiment: 10**

**Aim:-** Write a program to count the digits of a number

**Software:-** Dev C++

**Code:-**

```
1> #include <stdio.h>
2
3 int main()
4 {
5     int num, new_num, ans, i;
6
7     printf("Enter A Number:-");
8     scanf("%d", &num);
9
10    new_num = num;
11
12    while (num != 0)
13    {
14        ans = num % 10;
15        num = num / 10;
16        i++;
17    }
18
19    printf("There are %d Digits Present in %d", i, new_num);
20
21    return 0;
22 }
```

**Output:-**

```
D:\Aryan\Sem-1\ICP\Assignment\Programming Assignment\Programming Assignment-
Enter A Number:-123456789
There are 9 Digits Present in 123456789
-----
Process exited after 3.823 seconds with return value 0
Press any key to continue . . .
```

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