

## Logic Building Assignment: 3

classmate

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1. Write a program which accept number from user and display its multiplication of factors.

```
#include <stdio.h>

int multFact (int iNo)
{
    int iCnt = 0;
    int iMul = 1;
    for (iCnt = 1; iCnt <= (iNo/2); iCnt++)
    {
        if ((iNo % iCnt) == 0)
        {
            iMul = iMul * iCnt;
        }
    }
    return iMul;
}

int main()
{
    int iValue = 0;
    int iRet = 0;
    printf ("Enter a number : \n");
    scanf ("%d", &iValue);
    iRet = multFact (iValue);
    printf ("Multiplication of factors : %d\n", iRet);
    return 0;
}
```

Time complexity :  $O(N/2)$   
where  $n$  is input.

2. Write a program which accept number from user and display its factors in decreasing order.

```
#include <stdio.h>

void FactRev(int iNo)
{
    int iCnt = 0;
    for(iCnt = iNo/2; iCnt >= 1; iCnt--)
    {
        if ((iNo % iCnt) == 0)
        {
            printf("%d\t", iCnt);
        }
    }
}

int main()
{
    int iCnt iValue = 0;
    printf("Enter number: \n");
    scanf("%d", &iValue);
    FactRev(iValue);
    return 0;
}
```

Time complexity:  $O(N/2)$

3. Write a program which accept number from user and display all its non factors.

```
#include <stdio.h>

void NonFact (int iNo)
{
    int iCnt = 0;
    for (iCnt = 1; iCnt <= iNo; iCnt++)
    {
        if ((iNo % iCnt) != 0)
        {
            printf ("%d\t", iCnt);
        }
    }
}

int main()
{
    int iValue = 0;
    printf ("Enter number : \n");
    scanf ("%d", &iValue);
    NonFact (iValue);
    return 0;
}
```

Time complexity =  $O(N)$

4. Write a program which accept number from user and return summation of all its non factors.

```
#include <stdio.h>
int SumNonFact (int iNo)
{
    int iCnt = 0;
    int iSum = 0;
    for (iCnt = 1; iCnt <= iNo; iCnt++)
    {
        if ((iNo % iCnt) != 0)
        {
            iSum = iSum + iCnt;
        }
    }
    return iSum;
}

int main()
{
    int iValue = 0;
    int iRet = 0;
    printf ("Enter number : \n");
    scanf ("%d", &iValue);
    iRet = SumNonFact (iValue);
    printf ("%d", iRet);
    return 0;
}
```

Time complexity =  $O(N)$

5. Write a program which accept number from user and return difference between summation of all its factors & non factors

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

```
int FactDiff (int iNo)
```

```
{
```

```
    int iCnt = 0;
```

```
    int iSumn = 0;
```

```
    int iSum = 0;
```

```
    for (iCnt = 1; iCnt <= iNo; iCnt++)
```

```
{
```

```
    if ((iNo % iCnt) != 0)
```

```
{
```

```
        iSumn = iSumn + iCnt;
```

```
}
```

```
    else if ((iNo % iCnt) == 0 && iCnt != iNo)
```

```
{
```

```
        iSum = iSum + iCnt;
```

```
}
```

```
    return iSum - iSumn;
```

```
}
```

```
}
```

```
int main()
```

```
{
```

```
    int iValue = 0;
```

```
    int iRet = 0;
```

```
printf ("Enter number");  
scanf ("%d", & iValue);  
iRet = FactDiff (iValue);  
printf ("%d", iRet);  
return 0;  
}
```

Time complexity =  $O(N)$ .