**Assignment – 13**

A Job Ready Bootcamp in C++, DSA and IOT

**More on Recursion in C Language**

1. Write a recursive function to calculate sum of first N natural numbers

**#include<stdio.h>**

**int sum(int);**

**int main()**

**{**

**int s,n;**

**printf("Enter value of N ");**

**scanf("%d",&n);**

**s=sum(n);**

**printf("Sum of first %d natural number is %d",n,s);**

**}**

**int sum(int a)**

**{**

**int s;**

**if(a==1)**

**return 1;**

**s=a+sum(a-1);**

**return s;**

**}**

**Output:Enter value of N 5**

**Sum of 5 natural number is 15**

1. Write a recursive function to calculate sum of first N odd natural numbers

#include<stdio.h>

int sum(int);

int main()

{

int s,n;

printf("Enter value of N ");

scanf("%d",&n);

s=sum(n);

printf("Sum of first %d odd natural number is %d",n,s);

}

int sum(int a)

{

int s;

if(a==1)

return 1;

s=2\*a-1+sum(a-1);

return s;

}

Output:Enter value of N 5

Sum of first 5 odd number is 25

1. Write a recursive function to calculate sum of first N odd natural numbers
2. recursive function to calculate sum of first N odd natural numbers

#include<stdio.h>

int sum(int);

int main()

{

int s,n;

printf("Enter value of N ");

scanf("%d",&n);

s=sum(n);

printf("Sum of first %d even natural number is %d",n,s);

}

int sum(int a)

{

int s;

if(a==1)

return 1;

s=2\*a+sum(a-1);

return s;

}

Output:Enter value of N 3

Sum of first 3 even number is 12

1. Write a recursive function to calculate sum of squares of first n natural numbers

**#include<stdio.h>**

**int sum(int);**

**int main()**

**{**

**int s,n;**

**printf("Enter value of N ");**

**scanf("%d",&n);**

**s=sum(n);**

**printf("Sum of %d square number is %d",n,s);**

**}**

**int sum(int a)**

**{**

**int s;**

**if(a==1)**

**return 1;**

**s=a\*a+sum(a-1);**

**return s;**

**}**

**Output:Enter value of N 3**

**Sum of first 3 square number is 13**

1. Write a recursive function to calculate factorial of a given number

**#include<stdio.h>**

**int sum(int);**

**int main()**

**{**

**int s,n;**

**printf("Enter value of N ");**

**scanf("%d",&n);**

**s=sum(n);**

**printf("Factorial of %d is %d",n,s);**

**}**

**int sum(int a)**

**{**

**int s;**

**if(a==1)**

**return 1;**

**s=a\*sum(a-1);**

**return s;**

**}**

**Output:Enter value of N 5**

**Factorial of 5 is 120**