**Assignment - 12 A Job Ready Bootcamp in C++, DSA and IOT MySirG**

**Recursion in C Language**

1. Write a recursive function to print first N natural numbers

#include<stdio.h>

void printN(int n);

int main()

{

printN(50);

return 0;

}

void printN(int n)

{

if(n>0)

{

printN(n-1);

printf(" %d",n);

}

}

1. Write a recursive function to print first N natural numbers in reverse order

#include<stdio.h>

void printN(int n);

int main()

{

printN(10);

return 0;

}

void printN(int n)

{

if(n==0)

return;

printf(" %d",n);

printN(n-1);

}

1. Write a recursive function to print first N odd natural numbers

#include<stdio.h>

void printodd(int n);

int main()

{

printodd(10);

return 0;

}

void printodd(int n)

{

if(n==0)

return;

printodd(n-1);

printf("%d ",2\*n-1);

}

1. Write a recursive function to print first N odd natural numbers in reverse order

#include<stdio.h>

void printodd(int n);

int main()

{

printodd(10);

return 0;

}

void printodd(int n)

{

if(n==0)

return;

printodd(n-1);

printf("%d ",2\*n-1);

}

1. Write a recursive function to print first N even natural numbers

#include<stdio.h>

void printeven(int n);

int main()

{

printeven(10);

return 0;

}

void printeven(int n)

{

if(n==0)

return;

printeven(n-1);

printf(" %d",2\*n-1+1);

}

1. Write a recursive function to print first N even natural numbers in reverse order

#include<stdio.h>

void printeven(int n);

int main()

{

printeven(10);

return 0;

}

void printeven(int n)

{

if(n==0)

return;

printf(" %d",2\*n-1+1);

printeven(n-1);

}

1. Write a recursive function to print squares of first N natural numbers

#include<stdio.h>

void printsquare(int n);

int main()

{

printsquare(10);

return 0;

}

void printsquare(int n)

{

if(n==0)

return;

printsquare(n-1);

printf(" %d",n\*n);

}

1. Write a recursive function to print binary of a given decimal number

void dtob(int);

int main()

{

dtob(25);

return 0;

}

void dtob(int x)

{

if(x>0)

{

dtob(x/2);

printf("%d",x%2);

}

}

1. Write a recursive function to print octal of a given decimal number

#include <stdio.h>

#include <math.h>

int convertDecimalToOctal(int decimalNumber);

int main() {

int decimalNumber;

printf("Enter a decimal number: ");

scanf("%d", &decimalNumber);

printf("%d in decimal = %d in octal", decimalNumber, convertDecimalToOctal(decimalNumber));

return 0;

}

int convertDecimalToOctal(int decimalNumber) {

int octalNumber = 0, i = 1;

while (decimalNumber != 0) {

octalNumber += (decimalNumber % 8) \* i;

decimalNumber /= 8;

i \*= 10;

}

return octalNumber;

}

1. Write a recursive function to print reverse of a given number

#include<stdio.h>

int main()

{

int num,x;

printf("Enter a number: ");

scanf("%d",&num);

x=rev(num);

printf("Reverse of given number is: %d",x);

return 0;

}

int rev(int num)

{

static sum,r;

if(num)

{

r=num%10;

sum=sum\*10+r;

rev(num/10);

}

else

return 0;

return sum;

}