**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 printNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

printNatural(n);

return 0;

}

void printNatural(int x)

{

if(x>0)

{

printNatural(x-1);

printf("%d ",x);

}

}

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

#include<stdio.h>

void printNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

printNatural(n);

return 0;

}

void printNatural(int x)

{

if(x>0)

{

printf("%d ",x);

printNatural(x-1);

}

}

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

#include<stdio.h>

void oddNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

oddNatural(n);

return 0;

}

void oddNatural(int x)

{

if(x>0)

{

printNatural(x-1);

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

}

}

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

#include<stdio.h>

void oddNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

oddNatural(n);

return 0;

}

void oddNatural(int x)

{

if(x>0)

{

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

printNatural(x-1);

}

}

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

#include<stdio.h>

void printEvenNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

printEvenNatural(n);

return 0;

}

void printEvenNatural(int x)

{

if(x>0)

{

printEvenNatural(x-1);

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

}

}

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

#include<stdio.h>

void printEvenNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

printEvenNatural(n);

return 0;

}

void printEvenNatural(int x)

{

if(x>0)

{

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

printEvenNatural(x-1);

}

}

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

#include<stdio.h>

void printEvenNatural(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

printEvenNatural(n);

return 0;

}

void printEvenNatural(int x)

{

if(x>0)

{

printEvenNatural(x-1);

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

}

}

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

#include<stdio.h>

void dtob(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

dtob(n);

return 0;

}

void dtob(int x)

{

if(x>0)

{

dtob(x/2);

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

}

return;

}

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

#include<stdio.h>

void dtoOct(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

dtoOct(n);

return 0;

}

void dtoOct(int x)

{

if(x>0)

{

dtoOct(x/8);

printf("%d",x%8);

}

return;

}

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

#include<stdio.h>

void reverse(int);

int main()

{

int n;

printf("Enter a number:");

scanf("%d",&n);

reverse(n);

return 0;

}

void reverse(int num)

{

int rem,rev=0;

if(num)

{

rem=num%10;

rev=rev\*10+rem;

printf("%d",rev);

reverse(num/10);

}

return;

}