**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* print(*int*);

*int* main()

{

*int* n;

    printf("Enter the number : ");

    scanf("%d", &n);

    print(n);

}

*void* print(*int* *n*)

{

    if (n >= 1)

    {

        print(n - 1);

        printf(" %d", n);

    }

}

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

#include <stdio.h>

*void* print(*int*);

*int* main()

{

*int* n;

    printf("Enter the number : ");

    scanf("%d", &n);

    print(n);

    return 0;

}

*void* print(*int* *n*)

{

    if (n >= 1)

    {

        printf("%d ", n);

        print(n - 1);

    }

}

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

#include <stdio.h>

*void* print(*int*);

*int* main()

{

*int* n;

    printf("Enter the number : ");

    scanf("%d", &n);

    print(n);

    printf("%d ", n);

    return 0;

}

*void* print(*int* *n*)

{

    if (n >= 1)

    {

        print(n - 1);

        printf("%d ", 2 \* n - 1);

    }

}

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

#include <stdio.h>

*void* print(*int*);

*int* main()

{

*int* n;

    printf("Enter the number : ");

    scanf("%d", &n);

    print(n);

    return 0;

}

*void* print(*int* *n*)

{

    if (*n* >= 1)

    {

        printf("%d ", 2 \* *n* - 1);

        print(*n* - 1);

    }

}

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

#include <stdio.h>

*void* even(*int*);

*int* main()

{

*int* n;

    printf("Enter the number : ");

    scanf("%d", &n);

    even(n);

}

*void* even(*int* *x*)

{

    if (x >= 1)

    {

        even(x - 1);

        printf("%d ", 2 \* x);

    }

}

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

#include <stdio.h>

*void* even(*int*);

*int* main()

{

*int* n;

    printf("Enter the number : ");

    scanf("%d", &n);

    even(n);

}

*void* even(*int* *x*)

{

    if (x >= 1)

    {

        printf("%d ", 2 \* x);

        even(x - 1);

    }

}

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

#include <stdio.h>

*void* sqr(*int* *n*);

*int* main()

{

*int* n;

    printf("Enter the n value : ");

    scanf("%d", &n);

    printf("The square of first %d natural numbers are: ", n);

    sqr(n);

    return 0;

}

*void* sqr(*int* *x*)

{

    if (x >= 1)

    {

        sqr(x - 1);

        printf("%d ", x \* x);

    }

}

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

#include <stdio.h>

*void* binary(*int*);

*int* main()

{

*int* n;

    printf("Enter a number : ");

    scanf("%d", &n);

    printf("Binary of given decimal number is : ");

    binary(n);

    return 0;

}

*void* binary(*int* *x*)

{

*int* rem;

    if (x > 0)

    {

        binary(x / 2);

        rem = x % 2;

        printf("%d ", rem);

    }

}

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

#include <stdio.h>

*void* oct(*int*);

*int* main()

{

*int* num;

    printf("Enter a number : ");

    scanf("%d", &num);

    printf("Octal form of given number is : ");

    oct(num);

    return 0;

}

*void* oct(*int* *n*)

{

*int* rem;

    if (*n* > 0)

    {

        oct(*n* / 8);

        rem = *n* % 8;

        printf("%d ", rem);

    }

}

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

#include <stdio.h>

*void* rev(*int*);

*int* main()

{

*int* num;

    printf("Enter a number : ");

    scanf("%d", &num);

    rev(num);

    return 0;

}

*void* rev(*int* *a*)

{

*int* c;

    if (*a* > 0)

    {

        rev(*a* % 10);

        c = *a* / 10;

        printf("%d", c);

    }

}