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

Recursion in C Language

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

```
#include<stdio.h>
void firstN(int n)
{
   if(n>0)
   {
      firstN(n-1);
      printf("%d ",n);
   }
}
int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);
   firstN(x);

   return 0;
}
```

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

```
#include<stdio.h>
void firstNrev(int n)
{
   if(n>0)
   {
      printf("%d ",n);
      firstNrev(n-1);
   }
}

int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);
   firstNrev(x);

   return 0;
}
```

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

```
#include<stdio.h>
void firstNodd(int n)
{
   if(n>0)
   {
      firstNodd(n-1);
      printf("%d ",2*n-1);
   }
}
int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);
   firstNodd(x);

   return 0;
}
```

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

```
#include<stdio.h>
void firstNoddrev(int n)
{
   if(n>0)
   {
      printf("%d ",2*n-1);
      firstNoddrev(n-1);
   }
}
int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);
   firstNoddrev(x);

   return 0;
}
```

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

```
#include<stdio.h>
void firstNeven(int n)
```

```
{
   if(n>0)
   {
      firstNeven(n-1);
      printf("%d ",2*n);
   }
}
int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);
   firstNeven(x);

   return 0;
}
```

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

```
 #include<stdio.h>
void firstNEvenrev(int n)
{
   if(n>0)
   {
      printf("%d ",2*n);
      firstNEvenrev(n-1);
   }
}
int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);
   firstNEvenrev(x);

   return 0;
}
```

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

```
#include<stdio.h>
void firstNsquare(int n)
{
   if(n==0)
      return;
   firstNsquare(n-1);
```

```
    printf("%d ",n*n);
}
int main()
{
    int x;
    printf("Enter a number ");
    scanf("%d",&x);
    firstNsquare(x);

    return 0;
}
```

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

```
#include<stdio.h>
void printfBinary(int n)
{
    int rem=0;
    rem=n%2;
    n=n/2;
    if(n==1)
    {
        printf("%d ",n);
        printf("%d ",rem);
        return;
    }
    printfBinary(n);
    printf("%d ",rem);
}
int main()
{
    int x;
    printf("Enter a number ");
    scanf("%d",&x);
    printfBinary(x);

    return 0;
}
```

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

```
include<stdio.h>
void printfOctal(int n)
{
    int rem=0;
    rem=n%8;
```

```
    n=n/8;
    if(n==0 || n==1 )
    {
       printf("%d ",n);
       printf("%d ",rem);
       return;
    }
    printfOctal(n);
    printf("%d ",rem);
}
int main()
{
    int x;
    printf("Enter a number ");
    scanf("%d",&x);
    printfOctal(x);

    return 0;
}
```

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

```
#include<stdio.h>
void ReverseNum(int n)
{
    int rem;
    rem=n%10;
    n=n/10;
    if(n==0 || n==1)
    {
       printf("%d ",rem);
       return;
    }
    printf("%d ",rem);
    ReverseNum(n);
}
int main()
{
    int x;
    printf("Enter a number ");
    scanf("%d",&x);
    ReverseNum(x);

    return 0;
}
```