

Iteration:

```
#include <stdio.h>
#include <stdlib.h>

int fac2(int n)
{
    int val = 1 ;
    if (n == 0)
    {
        val = 1;
        return val;
    }
    while (n > 0)
    {
        val *= n; n --;
    }
    return val;
}

int main(int argc, char * argv[])
{
    int x = 5;
    int f = fac2(x);
    printf("%d", f); // RL1
    printf("\n");
    printf("Address of number: %p\n", &x);
    printf("Address of factorial: %p\n", &f);
}
```

Outputs:

```

C:\Users\srivk\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>gcc iterFact.c -o test5
C:\Users\srivk\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>test5
120
Address of number: 0061FF1C
Address of factorial: 0061FF18

C:\Users\srivk\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>gcc iterFact.c -o test10
C:\Users\srivk\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>test10
3628800
Address of number: 0061FF1C
Address of factorial: 0061FF18

C:\Users\srivk\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>gcc iterFact.c -o test15
C:\Users\srivk\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>test15
2004310016
Address of number: 0061FF1C
Address of factorial: 0061FF18

```

Recursion:

```

#include <stdio.h>
#include <stdlib.h>

int fac(int n)
{
    int val;
    if (n == 0)
    {
        val = 1;
        return val;
    }
    val = n * fac(n-1); return val; // RL2
}

int main(int argc, char* argv[])
{
    int x = 15;
    int f = fac(x);
    printf("%d\n", f); // RL1
    printf("\n");
    printf("Address of number: %p\n", &x);
    printf("Address of factorial: %p\n", &f);
}

```

Outputs:

```
C:\Users\sri\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>gcc recurFact.c -o testR5

C:\Users\sri\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>testR5
120

Address of number: 0061FF1C
Address of factorial: 0061FF18

C:\Users\sri\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>gcc recurFact.c -o testR10

C:\Users\sri\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>testR10
3628800

Address of number: 0061FF1C
Address of factorial: 0061FF18

C:\Users\sri\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>gcc recurFact.c -o testR15

C:\Users\sri\OneDrive\Desktop\UNB\Summer2020\CS2263\Lectures\Week4\Day14_May27>testR15
2004310016

Address of number: 0061FF1C
Address of factorial: 0061FF18
```