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// CPS411 Recur.Factorial.c
// Expanded with printf stmts to provide operation sequencing visibility

#include <stdio.h>

int fact_rec(int);

main() {
    int n, ret;

    printf(" Input a number less than 17: ");
    scanf("%d", &n);

    printf(" About to call fact_rec(%d) \n", n);
    ret = fact_rec(n);
    printf(" What is returned from fact_rec(%d): %d \n", n, ret);

    return 0;
}

int fact_rec(int n)
{
    int ret;
    printf("Have just called fact_rec(%d) \n", n);

    if (n == 1)
    {
        printf("\nAbout to return the value 1 from fact_rec(1)\n");
        return 1;
    }
    ret = fact_rec(n-1);
    printf("About to return the value %d from fact_rec(%d)\n", n * ret, n);

    return n * ret;
}

```

Input a number less than 17: 4

About to call fact_rec(4)
 Have just called fact_rec(4)
 Have just called fact_rec(3)
 Have just called fact_rec(2)
 Have just called fact_rec(1)

 About to return the value 1 from fact_rec(1)
 About to return the value 2 from fact_rec(2)
 About to return the value 6 from fact_rec(3)
 About to return the value 24 from fact_rec(4)
 What is returned from fact_rec(4): 24