

File Edit Selection View Go Run Terminal Window Help

main.c

EXPLORER

OPEN EDITORS

C main.c M

MAIN.C

.vscode

main.dSYM

C #include <stdio.h>

E a.out

C hello.c

E main

C main.c M

tempCodeRunnerFile

E Untitled-1

C main.c X

C main.c > ...

```
1 #include <stdio.h>
2
3
4 long FACT_recursive(int n) {
5     if (n == 0)
6         return 1;
7     else
8         return n * FACT_recursive(n - 1);
9 }
10
11 long FACT_nonrecursive(int n) {
12     long fact = 1;
13     for (int i = 1; i <= n; i++) {
14         fact *= i;
15     }
16     return fact;
17 }
18
19
20 long BINOMIAL(int n, int r, int method) {
21     long n_fact, r_fact, nr_fact;
22
23     if (method == 1) { // recursive
24         n_fact = FACT_recursive(n);
25         r_fact = FACT_recursive(r);
26         nr_fact = FACT_recursive(n - r);
27     }
}
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
```

1. Recursive  
2. Non-Recursive  
Enter choice: Recursive

C(2, 1) = 2

--- Tabulated Results ---

n	r	C(n,r)
2	0	1
2	1	2
2	2	1

abhaygupta@192 main.c & [ ]

The image shows a Mac OS X desktop environment with a dark-themed Visual Studio Code window open. The window title is "main.c". The left sidebar lists files like ".vscode", "main.dSYM", "#include <stdio.h>", "a.out", "hello.c", "main", and "main.c" (which is currently selected). The main editor area contains C code for calculating factorials and binomial coefficients using recursive and non-recursive methods. Below the editor, a terminal tab displays the output of the code execution, including the recursive calculation of C(2, 1) and a tabulated results table. The Mac OS X dock at the bottom contains icons for various system applications like Mail, Safari, and iTunes.

Experiment 6.1

6.1 #include <stdio.h>

```
long FACT_recursive(int n) {
    if (n == 0)
        return 1;
    else
        return n * FACT_recursive(n-1);
}
```

```
long FACT_nonrecursive(int n) {
```

```
    long fact = 1;
    for (int i = 1; i <= n; i++) {
        fact *= i;
    }
```

```
}
```

```
return fact;
```

```
}
```

```
long BINOMIAL(int n, int r, int method) {
    long n_fact, r_fact, rr_fact;
```

```
if (method == 1) {
```

```
    n_fact = FACT_recursive(n);
```

```
    r_fact = FACT_recursive(r);
```

```
    rr_fact = FACT_recursive(n - r);
```

```
} else {
```

```
    n_fact = FACT_nonrecursive(n);
```

```
    r_fact = FACT_nonrecursive(r);
```

Teacher's Signature \_\_\_\_\_

```
} nn_fact = fact_nonrecursive(n-1);
```

```
} return n_fact / (r_fact * nn_fact);
```

```
int main() {
```

```
    int n, r, choice;
```

```
    long result;
```

```
    printf(" Binomial coefficient calculator \n");
```

```
    printf("Formula: C(n,r) = n! / (r! * (n-r)!)\n");
```

```
    printf(" \nEnter value of n: ");
```

```
    scanf("%d", &n);
```

```
    printf(" Enter value of r: ");
```

```
    scanf("%d", &r);
```

```
    printf(" \nchoose method:\n1. Recursive\n2. NonRecursive\nEnter choice: ");
```

```
    scanf("%d", &choice);
```

```
    result = BINOMIAL(n, r, choice);
```

```
    printf(" \nC(%d, %d) = %ld \n", n, r, result);
```

```
    printf(" \n--- Tabulated Results --- \n");
```

```
    printf(" \n%lt %lt C(n,r) \n");
```

```
    printf(" \n----- \n");
```

Teacher's Signature \_\_\_\_\_

```
for (int i = 0; i <= n; i++) {  
    long res = BINOMIAL(n, i, choice);  
    printf ("%d\n", res);  
}  
return 0;  
}
```