1 assin 6.cpp

```c
#include <stdio.h>

int main() {
    int n, i;
    int fib[100];

    // take input for number of terms
    printf("Enter the number of terms: ");
    scanf("%d", &n);

    // first two terms
    fib[0] = 0;
    fib[1] = 1;

    // loop through the remaining terms and calculate
    for (i = 2; i < n; i++) {
        fib[i] = fib[i-1] + fib[i-2];
    }

    // print the sequence
    printf("Fibonacci sequence: ");
    for (i = 0; i < n; i++) {
        printf("%d ", fib[i]);
    }

    return 0;
}
```

```
C:\Users\91961\Documents\1 a
Enter the number of terms: 10
Fibonacci sequence: 0 1 1 2 3 5 8 13 21 34
--------------------------------
Process exited after 41.53 seconds with return value 0
Press any key to continue . . .
```

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```
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\91961\Documents\1 assin 6.exe
- Output Size: 374.673828125 KiB
- Compilation Time: 0.31s
```

2 ASSIGN 6.cpp

```c
#include <stdio.h>

int fibonacci(int n);

int main()
{
    int n;
    printf("Enter the value of n: ");
    scanf("%d", &n);
    printf("The %dth Fibonacci number is: %d", n, fibonacci(n));
    return 0;
}

int fibonacci(int n)
{
    if (n == 0)
        return 0;
    else if (n == 1)
        return 1;
    else
        return (fibonacci(n-1) + fibonacci(n-2));
}
```

```
C:\Users\91961\Documents\2
Enter the value of n: 1 1 2 3 5 8
The 1th Fibonacci number is: 1
--------------------------------
Process exited after 33.45 seconds with return value 0
Press any key to continue . . .
```

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- Errors: 0

3 ASSIGN 6.cpp

```cpp
#include <stdio.h>

int main() {
    int number, i;
    long long factorial = 1;

    printf("Enter a positive integer: ");
    scanf("%d", &number);

    if (number < 0) {
        printf("Factorial of a negative number is not defined.\n");
    } else {
        for (i = 1; i <= number; ++i) {
            factorial *= i;
        }
        printf("Factorial of %d = %lld\n", number, factorial);
    }

    return 0;
}
```

```
C:\Users\91961\Documents\3
Enter a positive integer: 3
Factorial of 3 = 6

--------------------------------
Process exited after 21.35 seconds with return value
 0
Press any key to continue . . .
```

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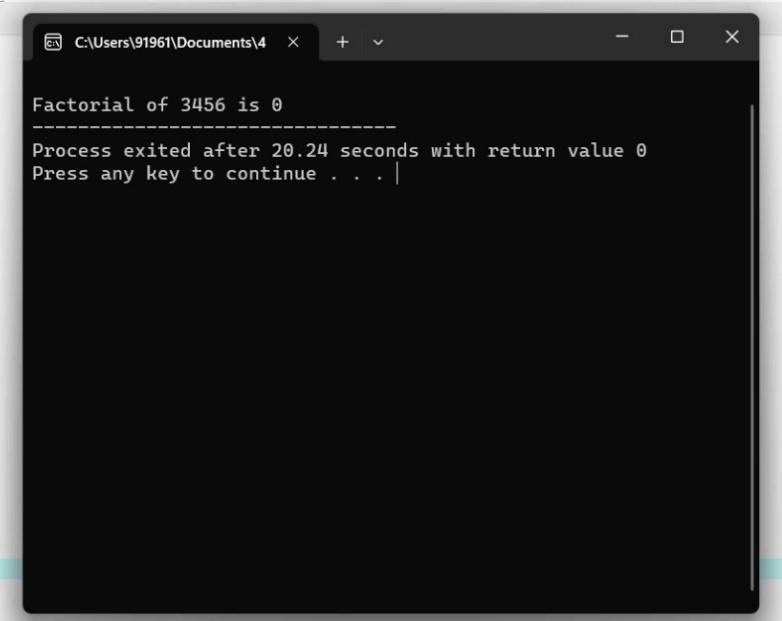
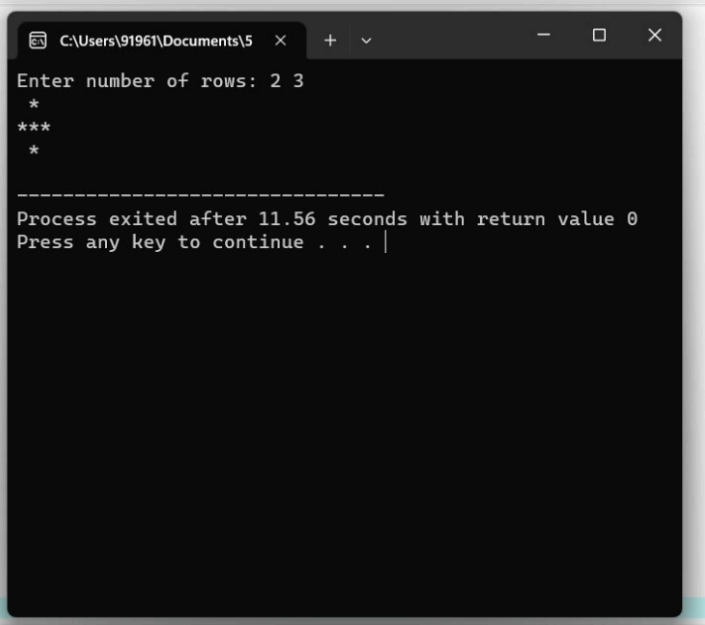
4 ASSIGN 6.cpp

```c
#include <stdio.h>

int factorial(int n);

int main() {
    int num;
    printf("Enter a non-negative integer to calculate its factorial: ");
    scanf("%d", &num);

    if (num < 0) {
        printf("Error: factorial of a negative number is undefined.");
    }
    else {
        printf("Factorial of %d is %d", num, factorial(num));
    }
    return 0;
}

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



5 ASSIGN 6.cpp

```
12      for (space = 1; space <= rows - i; space++) {
13          printf(" ");
14      }
15
16      // Print asterisks
17      for (j = 1; j <= 2 * i - 1; j++) {
18          printf("*");
19      }
20
21      printf("\n");
22  }
23
24  // Print lower half of the diamond
25  for (i = rows - 1; i >= 1; i--) {
26      // Print spaces
27      for (space = 1; space <= rows - i; space++) {
28          printf(" ");
29      }
30
31      // Print asterisks
32      for (j = 1; j <= 2 * i - 1; j++) {
33          printf("*");
34      }
35
36      printf("\n");
37  }
38
39  return 0;
40 }
```



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6 ASSIGN 6.cpp

```c
#include <stdio.h>

int main() {
    int rows, number = 1, i, j;
    printf("Enter the number of rows: ");
    scanf("%d", &rows);

    for(i = 1; i <= rows; i++) {
        for(j = 1; j <= i; j++) {
            printf("%d ", number);
            number++;
        }
        printf("\n");
    }

    return 0;
}
```