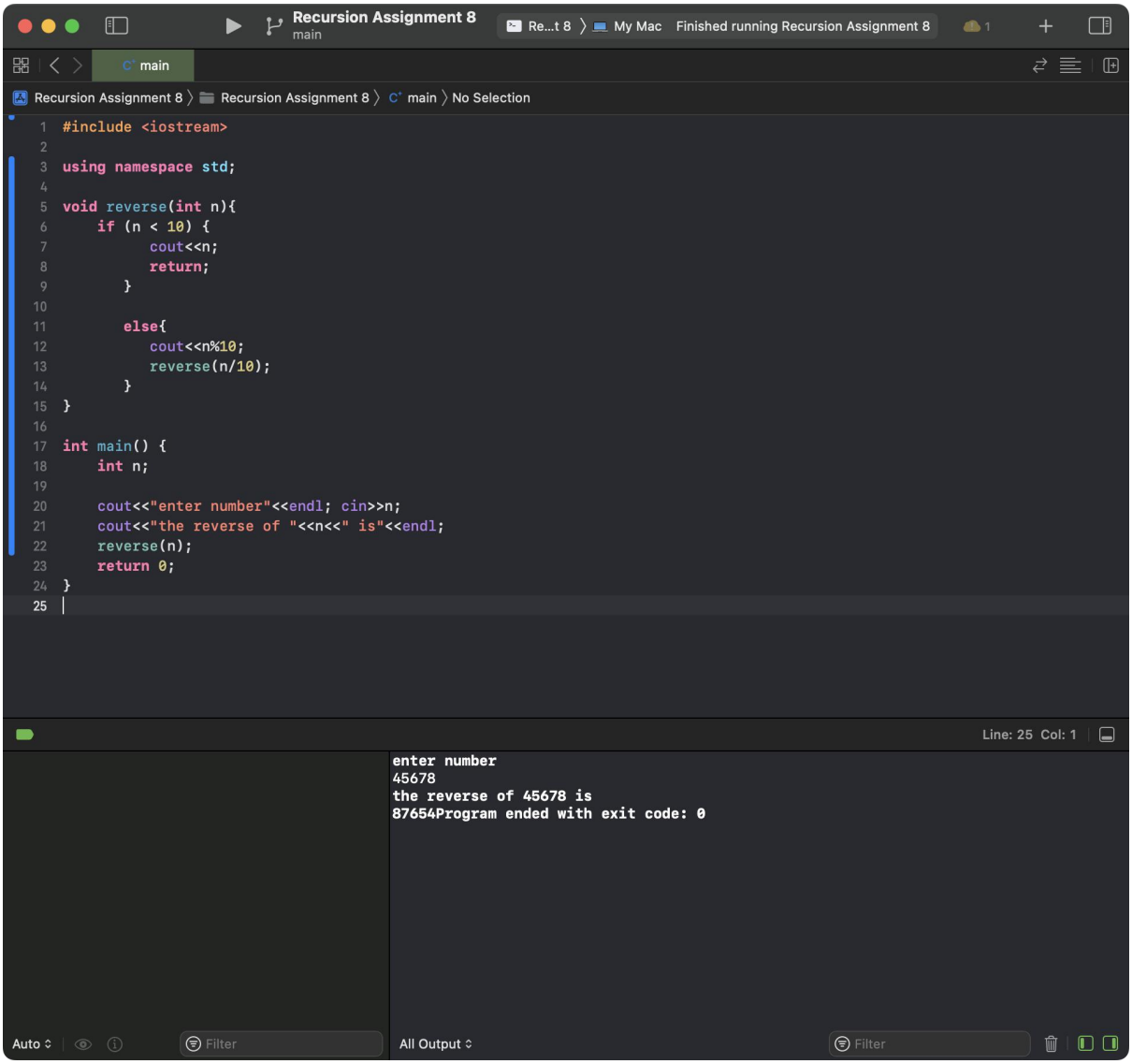
HOMEWORK 8

RECURSIVE FUNCTION

1. Create a program to reverse a number recursively.

   For example, the number 7895 is reversed to 5987.



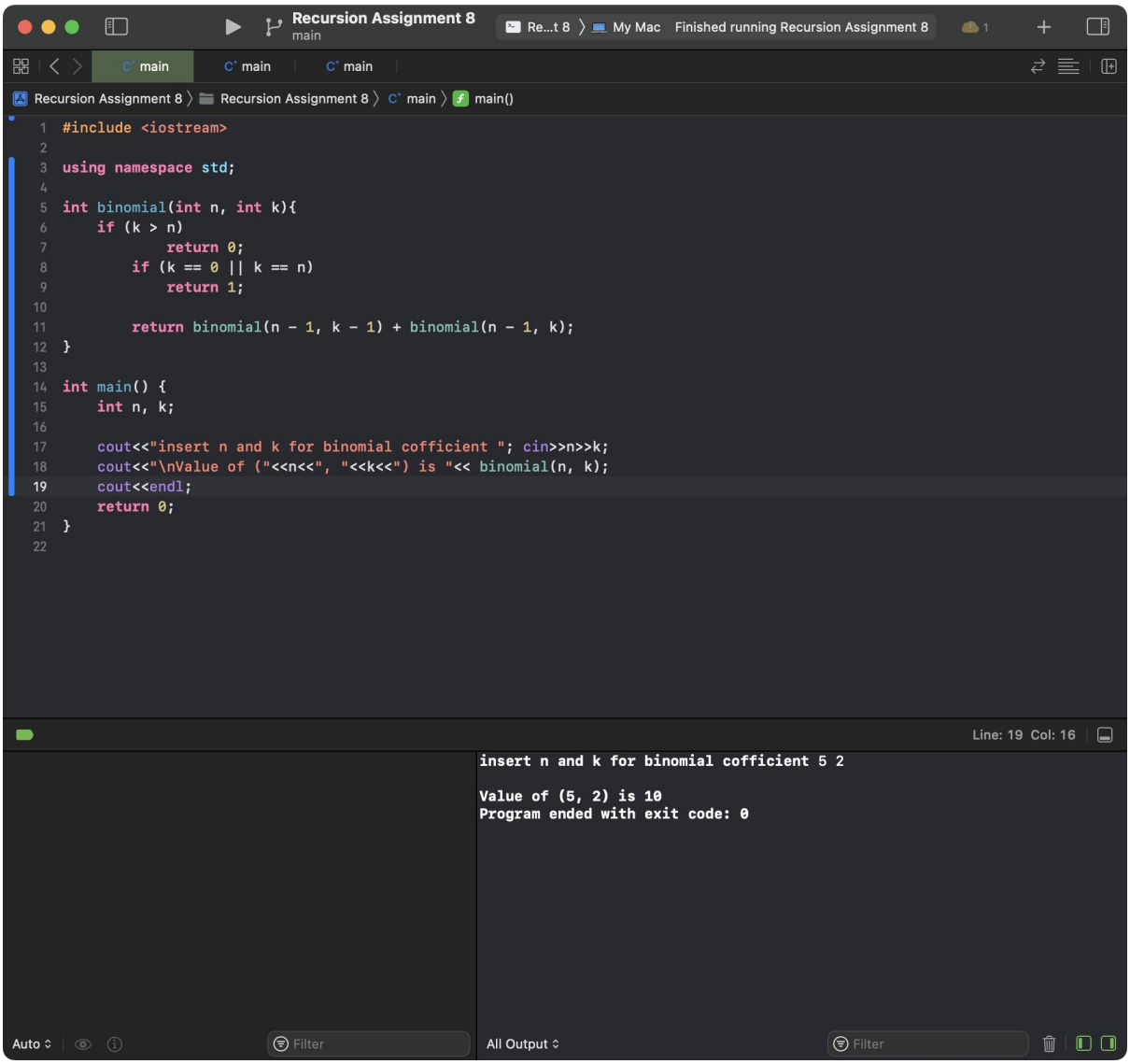
2. Binomial coefficient can be defined recursively as follows

$$\binom{n}{0} = 1$$

$$\binom{n}{n} = 1$$

$$\binom{n}{k} = \binom{n-1}{k-1} + \binom{n-1}{k}$$

Create a program to calculate the binomial coefficient using a recursive function where n and k are user defined.



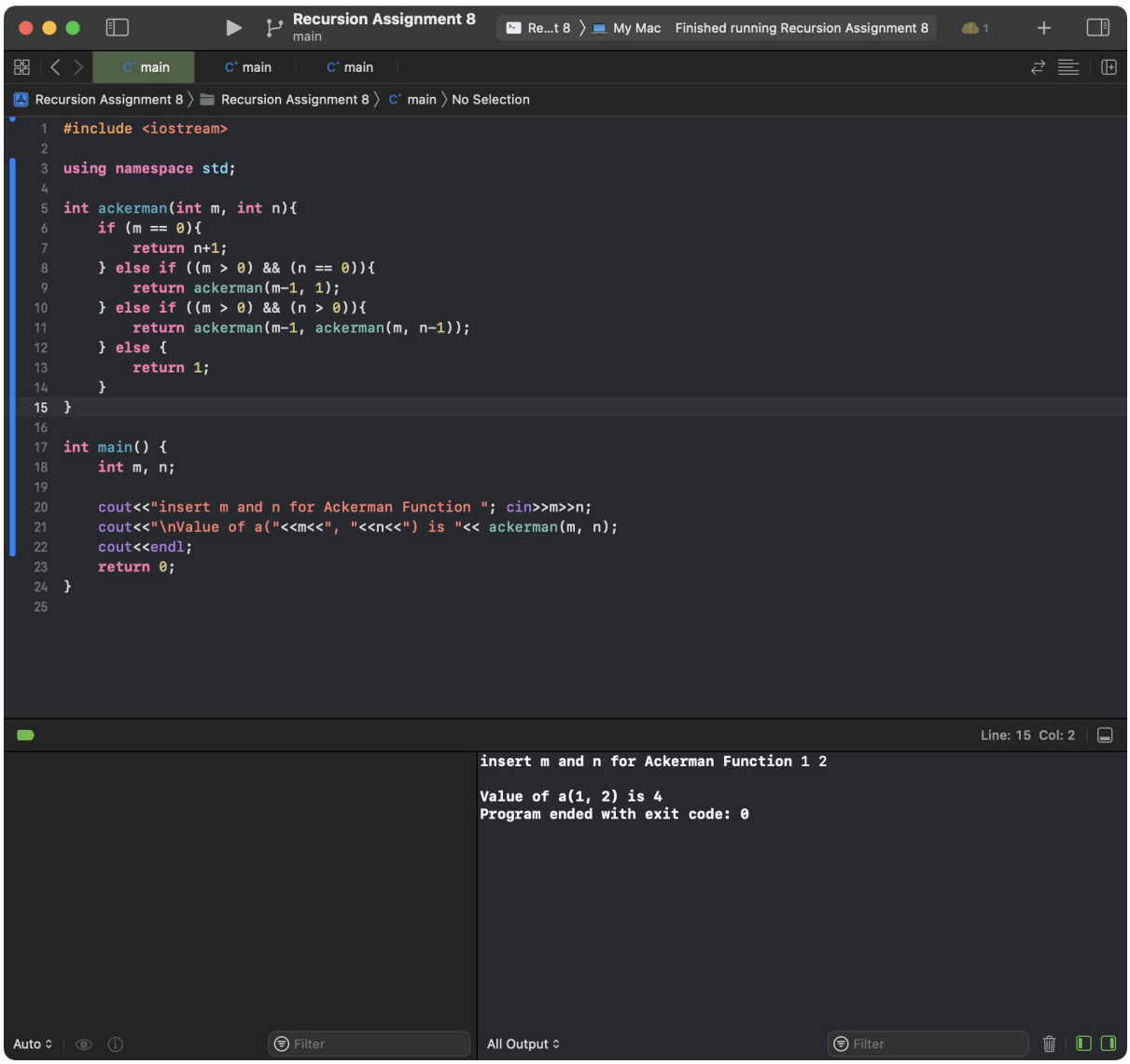
3. The Ackerman function is recursively defined as follows.

$a(m,n) = n+1$ if $m=0$

$a(m,n) = a(m-1,1)$ if $m \neq 0$ and $n=0$

$a(m,n) = a(m-1, a(m, n-1))$ if $m \neq 0$ and $n \neq 0$

Create a program to calculate the Ackerman function.



4. A word is *palindrome* if the word read the same backward as forward. For example, the words “a”, “refer”, and “noon” are palindrome, but the words “divided” and “winning” are not.

Create a program to determine if a word from user's input is palindrome using **recursive** function.