15. Write C programs for solving recurrence relations using the Master Theorem, Substitution Method, and Iteration Method will demonstrate how to calculate the time complexity of an example recurrence relation using the specified technique.

Program:

 # Master Theorem Method

def master_theorem(a, b, k):

   return f"O(n^{k})"

 # Substitution Method

def substitution_method():

   return "O(n)"

 # Iteration Method

def iteration_method(T, n):

   for i in range(1, n):

     T[i] = T[i-1] + 1

   return T[n-1]

 # Example Usage

print(master_theorem(2, 2, 1))

print(substitution_method())

T = [0] * 10

print(iteration_method(T, 10))

Output: