8. Find the factorial of any integer number. The numbers could be at most ten-digit long.

**Constraints:** The digits of the number should be less than 10.

**Input Example**

Enter the number

250

**Output Example**

The factorial of the numnber is-

3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000

**Algorithm**

Step 1:Start

Step 2: Take input integer as num whose factorial has to be calculated.

Step 3: Create two empty strings str1 and str2.

Step 4: Insert the digits of num in str1.

Step 5: Set i🡨num(input integer).

Step 6: Set i🡨i-1.

Step 7: Insert the digits of i after decrement in str2.

Step 8: Call the function multiplication(str1,str2) and set str1🡨multiplication (str1,str2).

Step 9: Follow from step 6 to step 8 until i != 2.

Step 10: Print the string str1 which stores the final result.

Step 11: End.

Step 8: Algorithm of the function in step 8 is as follows.

char\* multiplication(char \*str1, char \*str2)

Step 8.1**:**Find the length of the two strings using strlen() function and assign m🡨strlen(str1),n🡨strlen(str2).

Step 8.2: Initialize a 2D array arr[n,m+n] with all elements zero.

Step 8.3: Take a loop and traverse str1 from last to first character i.e I from m to 0 and inside that loop take another loop and traverse str2 from j from n to 0 i.e from the last character to first character.

Step 8.3.1: While iterating multiply the ith character and jth charcter (after subtracting 48 i.e the ASCII value ‘0’) and store the its last digit starting from the (m+n)th column and the first row of the 2D array and its carry in the previous cell in the second last column. While inserting any digit in any cell at first add the carry in this cell if any.For that initially take carry🡨0. It is done to add the carry if any successively at every iterative step.

Step 8.4: Create a string result of length (m+n).

Step 8.5: Add the digits of 2D array column wise from last i.e (m+n)th to first column and store the last digit of sum converting to its equivalent character in the string result from last to first and add the carry in previous cell converting into its equivalent character.

Step 8.6: Free the memory used by the 2D array.

Step 8.7: End of function,return the result string to main function.