LOGIC TRACE TABLE FOR PROBLEM 0:

Problem 0) Write the program to reverse the string "programming" 2 dimensionally as the following;

P R O G R A M M I N G

R N

O I

G M

R M

A A

M R

M G

I O

N R

G N I M M A R G O R P

HERE WE STORE THE STRING OF THE WORD PROGRAMMING AND IMPLEMENT A printString() FUNCTION IN ORDER TO REACH THE RESULT.

IT HAS TWO ARGUMENTS,

1. THE STRING
2. LENGTH OF THE STRING

WE FIND THE LENGTH OF THE STRING BY USING lengthof(string) FUNCTION IN ORDER TO FIND THE LENGTH OF THE STRING.

NOTE: LENGTH ALSO INCLUDES THE NULL CHARACTER ‘\0’

WE HAVE CREATED TWO MORE STRINGS, NAMELY, LINE1 AND LINE

LINE1 STRING IS SAME AS THE ORIGNAL STRING. IT IS USED TO PRINT THE FIRST AND LAST LINE.

WHILE THE LINE FUNCTION IS USED TO PRINT THE REST OF THE LINES.

ITS FIRST AND LAST INDEX STORES A CHARACTER WHICH GETS INCREMENTED AT THE START AND DECREMENTED AT THE END

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| STRING | P | R | O | G | R | A | M | M | I | N | G |
| LINE2 | R |  |  |  |  |  |  |  |  |  | N |
| LINE3 | O |  |  |  |  |  |  |  |  |  | I |
| LINE | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| LINE | 0 | LENGTH-11 | LENGTH-10 | LENGTH-9 | LENGTH-8 | LENGTH-7 | LENGTH-6 | LENGTH-5 | LENGTH-4 | LENGTH-3 | LENGTH-2 |

THUS WE SET

INDEX1 = 1

INDEX2 = LENGTH -3

WE SET LINE[0] = INDEX1

LINE[LENGTH-2] = INDEX2

THEN WE JUST INCREMENT INDEX1 AND DECREMENT INDEX 2 AND PRINT THE REQUIRED VALUES ON THE SCREEN.

THIS IS THE LOGIC USED IN THE FIRST PROGRAM.