# Arrays and Pointers Assignment

**Mandatory**

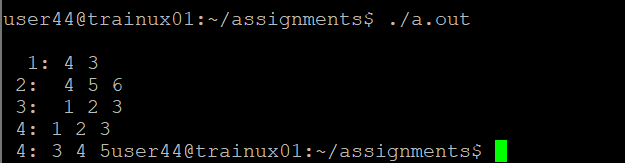
1. What does the code below refer to? Extend the code and demonstrate the use of ptr to access the contents of a 2D array.

int (\*ptr)[4];

[Refer the sample code in “array\_ptr\_simple.c”]

Ans)

* In 1, it is Direct Access Using Array Indexing which is Directly accesses the elements arr[1][0] (second row, first column) and arr[0][2] (first row, third column) using array indexing.
* In 2, ptr is a pointer to the first element of the second row (arr[1]), and the pointer arithmetic is used to access the elements of the second row.
* In 3, This defines an array of 3 pointers (ptr2), where each pointer points to an element in the first row. Each pointer is dereferenced to print the elements 1, 2, and 3.
* In 4, This uses a pointer ptr3 that points to an array of two integers (int (\*ptr3)[2]). The pointer is first initialized to the first row (arr[0]), and then it is incremented to point to the second row (arr[1]).



1. Refer the code in “array\_ptr\_simple\_char.c”. Implement the missing functionality in the code marked with TBD1, TBD2…..
2. Refer the code snippet below. Implement the function search\_insert() as mentioned in the code.

#define MAX 80

//search for the given char and if found, then create space for 1 character and insert ‘\_’ after the searched character. Let the remaining characters in the input be placed after ‘\_’.

int search\_insert(char name[], char search\_char);

int main()

{

char name[MAX]=”ABC”;

char \*ptr = name;

int ret = search\_insert(name, search\_char);

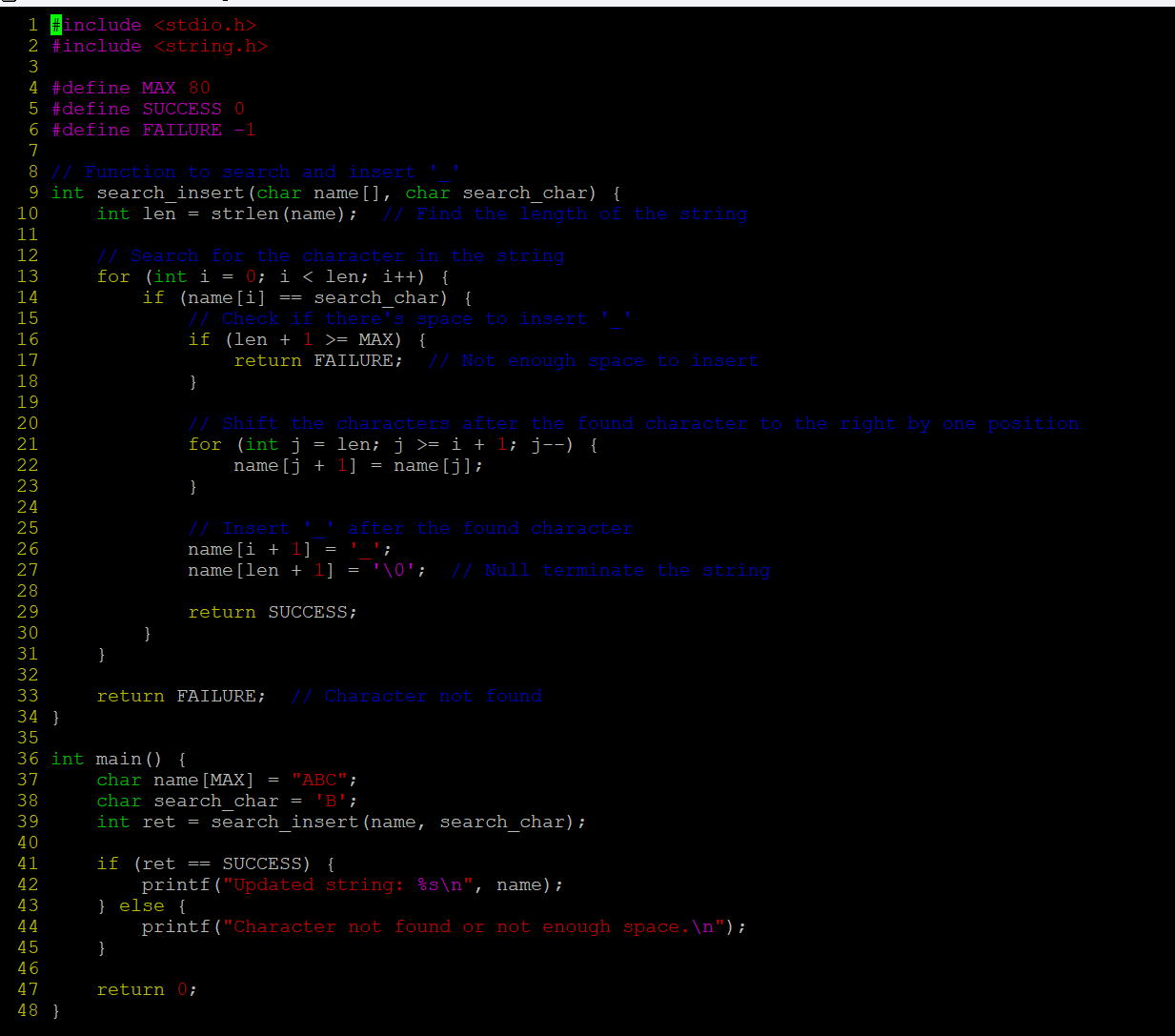
if (ret == SUCCESS)

{

//display updated string

}

}



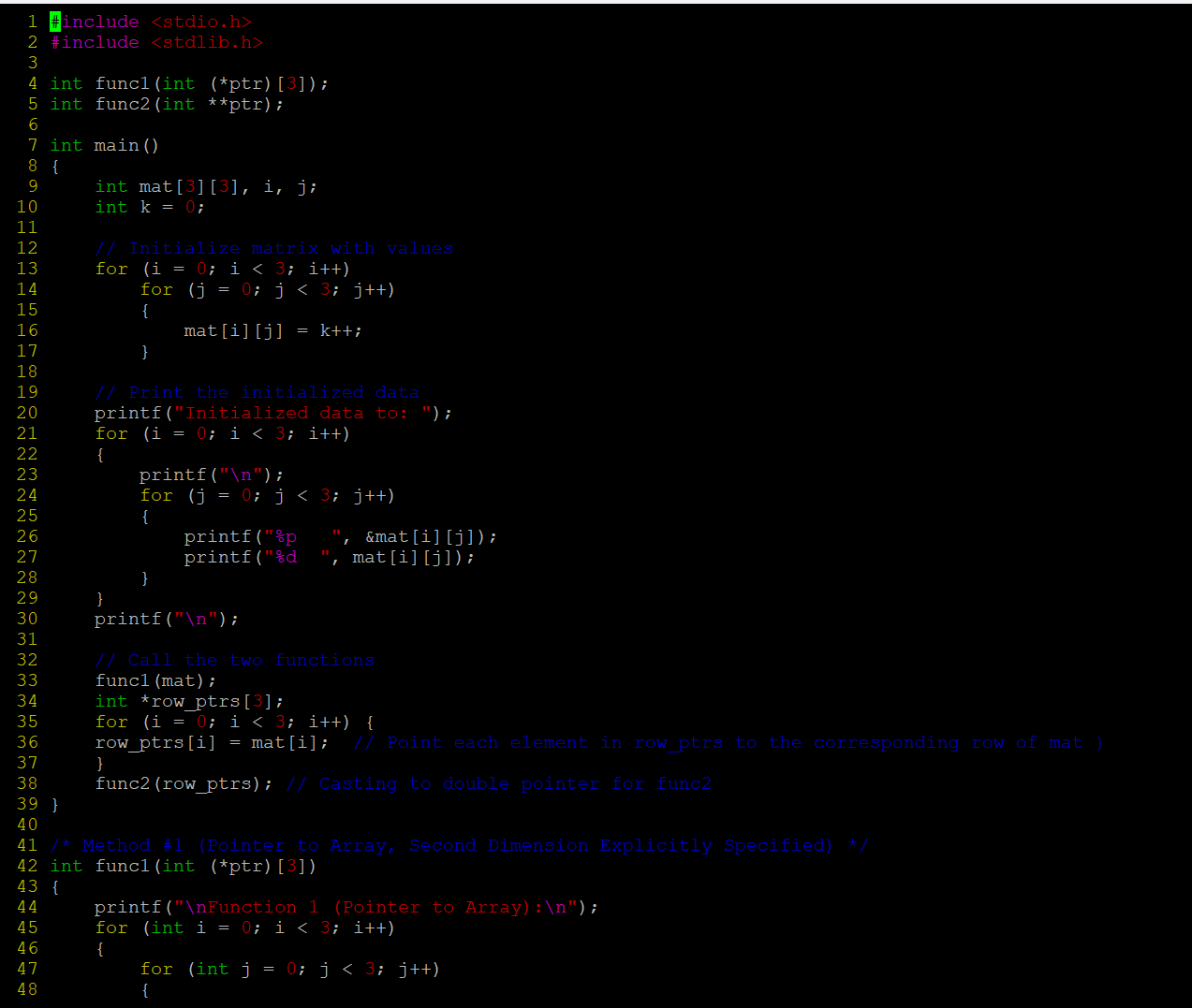
Output:



1. Refer the program “array\_ptr\_repr\_partial.c”. Implement the functions below which are yet to be implemented in code.

int func1(int (\*ptr)[3]); // pointer to array, second dimension is explicitly specified

int func2(int \*\*ptr); // double pointer, using an auxiliary array of pointers



A computer screen shot of a program code

Description automatically generated

Output:

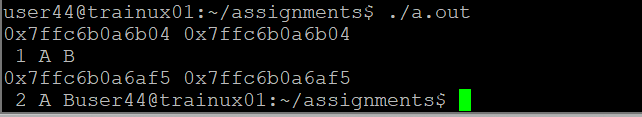
A screenshot of a computer program

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1. Refer the program “array\_dbl\_pointers\_function\_partial.c”. Implement the missing functionality in the code marked with TBD1, TBD2…..
2. Refer the program "pointer\_example.c". Fix the warning issue.

A computer screen shot of a program code

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1. Consider an array of strings as below.

char arr[][10]={"Word", "Excel", "PowerPoint", "Pdf", "Paint"};

* 1. Implement a function read\_displaystring() to read a row index from the user, access the string, store in a char \* variable and using this, traverse every alternate character in the string and display in console.

void read\_displaystring(char \*arr[][10], int row);

* 1. Reverse the string read at the index in a) using a function of prototype as below. Caller to read the returned string and display the reversed string. [Ensure that the input source array is not corrupted and remaining elements are intact]

char \*reverse(char \*arr[][10], int row);

A screen shot of a computer program

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