EE4013 Assignment-1

Devarapalli Lakshmi Sivani - EE18BTECH11012

Download all python codes from

https://github.com/Sivanidevarapalli26/EE4013−C−DS/tree/main/Assignment−1/codes

and latex-tikz codes from

https://github.com/Sivanidevarapalli26/EE4013−C−DS/tree/main/Assignment−1

1 Problem

Consider the following ANSI C function:

```
#include<stdio.h>
int main(){
    int arr[4][5] ;
    int i,j;
    for(i=0;i<4;i++){
        for(j=0;j<5;j++){
            arr[i][j]=10*i+j;
        }
    }
printf("%d",*(arr[1]+9));
return 0;
}
```

What is the output of the above program?

2 Solution

2.1 Answer

Given that the elements of the two-dimensional array are as folows:

$$arr[i][j] = 10i + j \tag{2.1.1}$$

From question,the output it should print is $*(arr[1]+9)$,which is the pointer pointing on 9th element from the start of second row and first column in that 2D array(i.e.,9th element from $arr[1][0]$).
$\therefore$ The required element to be printed as output is $arr[2][4]$.
From eq-(2.1.1),we get

$$arr[2][4] = 10 \times 2 + 4 = 24 \tag{2.1.2}$$

2.2 Matrix representation of this 2D array:

$$\text{arr}=\begin{bmatrix} 0 & 1 & 2 & 3 & 4 \\ 10 & 11 & 12 & 13 & 14 \\ 20 & 21 & 22 & 23 & 24 \\ 30 & 31 & 32 & 33 & 34 \end{bmatrix}$$

2.3 Codes of the given program:

codes/assignment1.py
codes/assignment1.c