Computer Programming

Quiz2

Dec. 9, 2022

Problem 1

- Write a program pr1.c to do the following:

    a) create five character variables a, b, c, d and e, and initialize variable a only to 97,

    b) create three pointers to character ptr1, ptr2 and ptr3,

    c) make

       ptr1 point to variable b, ptr2 point to variable c, ptr3 point to variable e,

    d) print "Please enter three characters separated by space : ",

    e) read in the first character to the location pointed to by

      ptr1, the second to ptr2, and the third to ptr3,

    f) now

        make ptr1 point to variable a,

        make ptr2 point to variable d,

        make ptr3 point to variable e,

    g) copy the contents of ptr1 to the location pointed to by ptr2,

    h) print out the values of all five variables a, b, c, d, e with

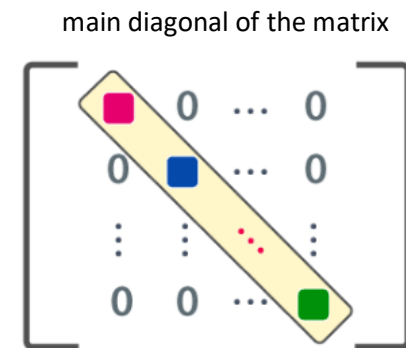   no spaces in between and enclosed by double quotes "".

Problem 1

- **Program output**

```
[ohyong@cse Quiz2_s123]$ vi pr1.c
[ohyong@cse Quiz2_s123]$ gcc pr1.c -o pr1
[ohyong@cse Quiz2_s123]$ ./pr1
Please enter three characters separated by space : t l s
atlas
```

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Problem 2

- Write a program pr2.c to do the following

    a) create a two-dimensional integer array of size 5 x 5,

    b) print "Please enter 5 x 5 integers in row-major order : ",

    c) read in all the values into the array in row-major order.
        You may assume that the user will always enter the correct
        number of values,

    d) add 5 to every element of the main diagonal of the array,

    e) print out the resulting array in row and column format,

    f) print "Please enter a row r : ",

    g) read in a value r,

    h) find the row total of row r and then print out the result.

main diagonal of the matrix

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Problem 2

- **Program output**

```
[ohyong@cse Quiz2_s123]$ ./pr2
Please enter 5 x 5 integers in row-major order : 20 13 1 19 7 17 4 22 15 3 14 5 13 6 24 11 21 14 -3 20 8 17 10 23 6
The resulting array is
25 13 1 19 7
17 9 22 15 3
14 5 18 6 24
11 21 14 2 20
8 17 10 23 11
Please enter a row r : 0
The row total of row 0 is 65
```

```
[ohyong@cse Quiz2_s123]$ ./pr2
Please enter 5 x 5 integers in row-major order : 20 13 1 19 7 17 4 22 15 3 14 5 13 6 24 11 21 14 -3 20 8 17 10 23 6
The resulting array is
25 13 1 19 7
17 9 22 15 3
14 5 18 6 24
11 21 14 2 20
8 17 10 23 11
Please enter a row r : 2
The row total of row 2 is 67
```

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Problem 3

- Write a program pr3.c to do the following
  - Declare a 4x5 array and initialize it with numbers from 1 to 20.
  - The values of the current array are output through the display() function, and the values are tripled through the triple() function. Displays the values of the array through the display() function. The display() function and the triple() function use the array name and the number of rows as arguments.
  - The prototypes are:

    #define ROWS 4
    #define COLS 5

    void triple(int ar[][COLS], int r);
    void display(int ar[][COLS], int r);

Problem 3

- **Program output**

```
[ohyong@cse Quiz2_s123]$ vi pr3.c
[ohyong@cse Quiz2_s123]$ gcc pr3.c -o pr3
[ohyong@cse Quiz2_s123]$ ./pr3
 1  2  3  4  5
 6  7  8  9 10
11 12 13 14 15
16 17 18 19 20

 2  4  6  8 10
12 14 16 18 20
22 24 26 28 30
32 34 36 38 40
```

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Submission

- **Submit to CSE server**

At the end of the Quiz2, submit your C sources file by typing

~gs1401/bin/submit Quiz2_s123 pr1.c pr2.c pr3.c   // due : 12:00 pm

You may check that you have submitted your source code correctly by typing

~gs1401/bin/submit -check

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