세계 속의 빛
이공계 대학

Computer Programming

Quiz2

Dec. 9, 2022

Problem 1

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

  a) create a function int add4(int x) that takes in an integer x, adds 4 to it and returns the result,

  b) create a function void modify(int *a, int *b, int c, int d)

  that implements the following:

  a <- c

  b <- d

  c) in your main() function, create four integer variables a, b, c and d,

  d) print "Please enter a, b, c and d : ",

  e) read in the values a, b, c, and d,

  f) call add4() on variable d // d = add4(d);

  and then call modify() on all the four variables,

  g) print out the values of all the variables.

Problem 1

- **Program output**

```
[ohyong@cse Quiz2_s456]$ vi pr1.c
[ohyong@cse Quiz2_s456]$ gcc pr1.c -o pr1
[ohyong@cse Quiz2_s456]$ ./pr1
Please enter a, b, c and d : 1 2 3 4
The variables are a = 3, b = 8, c = 3, d = 8
```

Problem 2

- Write a program pr2.c to do the following.
  - Declare a 3×5 real two-dimensional array and receive values.
  - Displays the value through the display() function.
  - The mean() function obtains the average value of a 2D array and prints it.
  - The largest() function obtains the maximum value of a 2D array and prints it.

  - The function prototypes are:

```
#define ROWS 3
#define COLS 5

double mean(int rows, int cols, double ar[ROWS][COLS]);
double largest(int rows, int cols, double ar[ROWS][COLS]);
void display(int rows, int cols, double ar[ROWS][COLS]);
// printf("%5.2f ",double_variable);
```

Problem 2

- **Program output**

```
[ohyong@cse Quiz2_s456]$ vi pr2.c
[ohyong@cse Quiz2_s456]$ gcc pr2.c -o pr2
[ohyong@cse Quiz2_s456]$ ./pr2
Enter 15 double values : 1 2 3 4 5 11 12 13 14 15 6 7 8 9 10
Array contents:
 1.00  2.00  3.00  4.00  5.00
11.00 12.00 13.00 14.00 15.00
 6.00  7.00  8.00  9.00 10.00

Average value of all values = 8.00

Largest value = 15.00
```

Problem 3

- Write a program pr3.c to do the following.
  - Write a grade processing program using dynamic memory allocation.
  - Ask how many students are in your class, and do dynamic memory allocation.
  - Outputs the maximum, minimum, and average values of the input scores.
  - The prototype is:

    void grade(double* list, int std_num, double* mx, double* mn, double* av);

```
int main()
{
        double* list;
        double max=0, min=0, ave=0;
        ...
        return 0;
}
```

Problem 3

- **Program output**

```
[ohyong@cse Quiz2_s456]$ vi pr3.c
[ohyong@cse Quiz2_s456]$ gcc pr3.c -o pr3
[ohyong@cse Quiz2_s456]$ ./pr3
Please enter the number of students in your class: 3
Student #1 score: 80
Student #2 score: 100
Student #3 score: 90

max : 100.00, min : 80.00, ave : 90.00
```

```
[ohyong@cse Quiz2_s456]$ ./pr3
Please enter the number of students in your class: 5
Student #1 score: 78
Student #2 score: 89
Student #3 score: 75
Student #4 score: 88
Student #5 score: 95

max : 95.00, min : 75.00, ave : 85.00
```

Submission

- **Submit to CSE server**

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

~gs1401/bin/submit Quiz2_s456 pr1.c pr2.c pr3.c // due : 4:00 pm

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

~gs1401/bin/submit -check