CIS2107
Computer Systems & Low-Level Programming

Lab06. Array of Pointers to Functions

Format

→ Upload `.c` file (`ArraysofPointers.c`) to Canvas

◆ *As Always! Test on cis-linux2 server !!!!*

→ Comments at top of the file:

◆ Name, Date, Course

◆ Homework number (Lab 5 Arrays of Pointers to Functions...)

◆ Statement of problem

Recommendations

Array of Pointers to Functions

→ Each of the functions MUST have the same parameters and return type, *see following slides for an example*

Hints

➤ Problem 02: **Figure 6.22** mentioned in assignment is in module presentation **02_06_C Arrays.pdf**.

➤ Also, you need to use an array of pointers to functions (similarly as in **Fig. 7.28** (*slide 47 of 02_07_C Pointers.pdf*).

➤ Your array of pointers to functions should have 4 elements
(pointers to functions: `printArray, minimum, maximum, average`). All of those functions should return `void`.

Hints

➤ Example of passing an array to a function: `void printArray(int students, int exams, int grades[students][exams]),` ie. pass `m` and `n` first.

➤ Dimensions and element values of 2-D arrays should be read from the input for both part1 and part2.

```c
 1   // Fig. 7.28: fig07_28.c
 2   // Demonstrating an array of pointers to functions.
 3   #include <stdio.h>
 4
 5   // prototypes
 6   void function1(int a);
 7   void function2(int b);
 8   void function3(int c);
 9
10   int main(void)
11   {
12      // initialize array of 3 pointers to functions that each take an
13      // int argument and return void
14      void (*f[3])(int) = { function1, function2, function3 };
15
16      printf("%s", "Enter a number between 0 and 2, 3 to end: ");
17      size_t choice; // variable to hold user's choice
18      scanf("%u", &choice);
19
```

```c
20      // process user's choice
21      while (choice >= 0 && choice < 3) {
22
23          // invoke function at location choice in array f and pass
24          // choice as an argument
25          (*f[choice])(choice);
26
27          printf("%s", "Enter a number between 0 and 2, 3 to end: ");
28          scanf("%u", &choice);
29      }
30
31      puts("Program execution completed.");
32  }
33
34  void function1(int a)
35  {
36      printf("You entered %d so function1 was called\n\n", a);
37  }
38
39  void function2(int b)
40  {
41      printf("You entered %d so function2 was called\n\n", b);
42  }
43
```

```
44  void function3(int c)
45  {
46      printf("You entered %d so function3 was called\n\n", c);
47  }
```

```
Enter a number between 0 and 2, 3 to end: 0
You entered 0 so function1 was called

Enter a number between 0 and 2, 3 to end: 1
You entered 1 so function2 was called

Enter a number between 0 and 2, 3 to end: 2
You entered 2 so function3 was called

Enter a number between 0 and 2, 3 to end: 3
Program execution completed.
```

Checklist

➢ Is my output readable?

➢ Could a user understand what my program is doing if they did not have the lab document in front of them?

➢ Does my program compile and run on the `cis-linux2 server`?