Programming Fundamental – ENSF 337
Lab 5
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EXERCISE C

C: > ENSF337 > lab5 > C lab5exC.c > ...

```c

#include <stdio.h>

#define LARGEST_OF_THREE(x, y, z) ((x) > (y) ? (x) : ((y) > (z) ? (y) : (z)))
int main(void)
{
    double x = 0.300, y = 0.500, z= 0.999;
    double largest = LARGEST_OF_THREE(x, y, z);
    printf("\nTest 1: the largest value is %f", largest);
    printf("\nTEST 2: the lagerst value is %f", LARGEST_OF_THREE(345, 99.8, 10));
    printf("\nTEST 3: the lagerst value is %f", LARGEST_OF_THREE(4, 9.8, 10.0));
    printf("\nTEST 4: the lagerst value is %f", LARGEST_OF_THREE(4.5, 4.5, 4.5));
    printf("\nTEST 5: the lagerst value is %f", LARGEST_OF_THREE(0.0, 0.0, 0.0));
    printf("\nTEST 6: the lagerst value is %f",
                                        LARGEST_OF_THREE(x * 10, y * 2 , z * 3));
    return 0;
}
```

```
jaych@DESKTOP-DILG265 /cygdrive/c/ensf337/lab5
$ gcc -Wall lab5exC.c

jaych@DESKTOP-DILG265 /cygdrive/c/ensf337/lab5
$ ./a.exe

Test 1: the largest value is 0.999000
TEST 2: the lagerst value is 345.000000
TEST 3: the lagerst value is 10.000000
TEST 4: the lagerst value is 4.500000
TEST 5: the lagerst value is 0.000000
TEST 6: the lagerst value is 3.000000
```

Output Ex D

```
jaych@DESKTOP-DILG265 /cygdrive/c/ensf337/lab5
$ gcc -Wall lab5exD.c lab5exD.h

jaych@DESKTOP-DILG265 /cygdrive/c/ensf337/lab5
$ ./a.exe
Display the values in alpha, and beta:
A1 <2.30, 4.50, 56.00>
B1 <25.90, 30.00, 97.00>

Display the values in *stp:
A1 <2.30, 4.50, 56.00>

Display the values in gamma after calling mid_point function.Expected result i
s: M1 <14.10, 17.25, 76.50>

The actual result of calling mid_point function is:
M1 <14.10, 17.25, 76.50>

Display the values in *stp, and beta after calling swap function.Expected to b
e:
B1 <25.90, 30.00, 97.00>
A1 <2.30, 4.50, 56.00>

The actual result of calling swap function is:
B1 <25.90, 30.00, 97.00>
A1 <2.30, 4.50, 56.00>

The distance between alpha and beta is: 53.74. (Expected to be: 53.74)
The distance between gamma and beta is: 26.87. (Expected to be: 26.87)
```

Output Ex E

```
jaych@DESKTOP-DILG265 /cygdrive/c/ensf337/lab5
$ gcc -Wall lab5exE.c lab5exE.h

jaych@DESKTOP-DILG265 /cygdrive/c/ensf337/lab5
$ ./a.exe

Array of Points contains:

struct_array[0]: A9 <700.00, 840.00, 1050.00>

struct_array[1]: z8 <300.00, 360.00, 450.00>

struct_array[2]: B7 <999.00, 1200.00, 1500.00>

struct_array[3]: y6 <599.00, 719.00, 900.00>

struct_array[4]: C5 <198.00, 239.00, 299.00>

struct_array[5]: x4 <898.00, 1079.00, 1349.00>

struct_array[6]: D3 <497.00, 598.00, 749.00>

struct_array[7]: w2 <97.00, 118.00, 149.00>

struct_array[8]: E1 <796.00, 958.00, 1198.00>

struct_array[9]: v0 <396.00, 477.00, 598.00>

Test the search function
Found: struct_array[9] contains v0
Found: struct_array[8] contains E1
Found: struct_array[4] contains C5
Found: struct_array[2] contains B7
Found: struct_array[0] contains A9
struct_array doesn't have label: E11.
struct_array doesn't have label: M1.

Testing the reverse function:
The reversed array is:
struct_array[0]: v0 <396.00, 477.00, 598.00>

struct_array[1]: E1 <796.00, 958.00, 1198.00>

struct_array[2]: w2 <97.00, 118.00, 149.00>

struct_array[3]: D3 <497.00, 598.00, 749.00>

struct_array[4]: x4 <898.00, 1079.00, 1349.00>

struct_array[5]: C5 <198.00, 239.00, 299.00>

struct_array[6]: y6 <599.00, 719.00, 900.00>

struct_array[7]: B7 <999.00, 1200.00, 1500.00>

struct_array[8]: z8 <300.00, 360.00, 450.00>

struct_array[9]: A9 <700.00, 840.00, 1050.00>
```