HW3

A. Q&A

1. (A) void total(int value1, int value2, int value3)

 void 不會回傳，應改成 int

 (B) average = (value1 + value2 + value3)/3;

 加上 return average;

 (C) void area(int length = 30 , int width)

 應為(int width, int length = 30)

 (D) void getValue 中間要空格 (int& value)

 cin >> value; 不用加&

 (E) int getValue 中間要空格

 int inputValue; 中間要空格

 return inputValue;中間要空格

 double inputValue; 中間要空格

 return inputValue;中間要空格

2. 關鍵詞：static ➔ static int , retain their contents between consecutive function calls.

3. 能夠比較有條有理的清楚分析 code 的過程，更有邏輯且更簡約。

4. 有兩個以上的 function 有同樣的 name

5. argument 會有一個真實的值，parameter 會有一個形式上的參數

6. Function prototype = before function is called we must know name, return type, number of parameters, data type of each parameter

 Function head = consists of the function return type , the function name, the function parameter list

 Ex.int main(parameter list)

 Function definition = includes name, return type, parameter list, body.

 Ex.int main(parameter list)

 { cout << "Hellow World\n";

 return 0;

 }

 Function call = use the function name followed by () and ;

 Ex. void function();

7. 因為他會受到每一個 funtion 的影響，可能不小心就把它原來的值取代掉了

8. local variable 他的 lifetime 會等同於它存在的這個 funtion 裡面，而 global variable 的 lifetime 包含了全部的 funtion。

9. Call by value 的記憶體儲存在不同的地方，call by reference 和 call by address 則是將變數儲存在同一個地方，只是一個分別是透過比較的方式把變數取代掉，另一個則是指定一個儲存的區塊。

EX:像是在執行變數交換的時候(swap)，就需要用到 call by reference 和 call by address 會比較方便，而 call by reference 則是用起來比較方便的。

Ex. int val = 5;

Value(val)

Void value(int&) , you can work with the original data inside the calling function.

Passed by address: not output the value of function's variables but output the value's address in the function.

Ex. void value(int&);

void value(int& num)

{ cout << "enter a numver";

cin   >> num;

}

int localVar = 5'

value(&localVar);

10. If you have to calculate the variables or change them in your function. You have to use call by reference. If you only have to get some variables from user or display them. You can use call by value.

B. True/False

1~5 TFTTF

6~8 TFF

C. Choice 選擇題

1~5 ACBDB

6~10 CADBD

11~15 CCCEA

16~20 DBDDC

21~22 BA

D. Programming

1. Overloaded hospital

```
Whether you are in-patient or out-patient?
If you are in-patient please enter 1 .
If you are out-patient plpease enter 2 .
1
What is the number of days you spent in the hospital? 10

What is the daily rate? 10

What is the charges for hospital services? 10

What is the charges for the hospital medication charges? 10
The total charge you spent was 120$.

Process returned 0 (0x0)   execution time : 8.045 s
Press any key to continue.
```

2. Stock profit

```
What is the number of shares?10

What is the sale price per share?10

What is the sale commission paid?10

What is the purchase price per share?10

What is the purchase commission paid?
10
The number of shares is 10
The sale price per share is 10 $.
The sale commision paid is 10 $.
The purchase price per share is 10 $.
The purchase commission paid is 10 $.
The sale of a stock you get loss!
The loss is: 20$.

Process returned 0 (0x0)   execution time : 12.767 s
Press any key to continue.
```

3. Multiple stock profit

```
What is the number of stock sales?2

Number 1  stock sales is be caculated.
What is the number of shares?10

What is the sale price per share?10

What is the sale commission paid?10

What is the purchase price per share?10

What is the purchase commission paid?10

Number 2  stock sales is be caculated.
What is the number of shares?10

What is the sale price per share?10

What is the sale commission paid?10

What is the purchase price per share?10

What is the purchase commission paid?10

The total sale of  stocks you get loss!
The total loss is: 40$.

Process returned 0 (0x0)   execution time : 17.790 s
Press any key to continue.
```

4. Star search


```
C:\Users\User\Desktop\hw3_code_problem04.cpp.exe                                    —    □    ×

please get five point between 0 and 10 to the talent show!
5.5
The first judge is 5.5 point!
5.5
The second judge is 5.5 point!
5.5
The third judge is 5.5 point!
6.5
The forth judge is 6.5 point!
4.5
The fifth judge is 4.5 point!

The average score expcept the highest and lowest is 5.83333

Process returned 0 (0x0)   execution time : 14.324 s
Press any key to continue.
```

5. Winning division


```
C:\Users\User\Desktop\hw3_code_problem05.cpp.exe                                    —    □    ×

What is the sales for the Northeast quarter? 100

What is the sales for the Southeast quarter? 200

What is the sales for the Northwest quarter? 5

What is the sales for the Southwest quarter? 350

The quarter has the greatest sales is Southwest
The greatest sales is 350 $.
Process returned 0 (0x0)   execution time : 10.227 s
Press any key to continue.
```

6. Celsius Temperature Table

```
 C:\Users\User\Desktop\hw3_code_problem06.cpp.exe                                    —    □    ×
 Celsius || Fahrenheit
  -17.78 ||     0.00
  -17.22 ||     1.00
  -16.67 ||     2.00
  -16.11 ||     3.00
  -15.56 ||     4.00
  -15.00 ||     5.00
  -14.44 ||     6.00
  -13.89 ||     7.00
  -13.33 ||     8.00
  -12.78 ||     9.00
  -12.22 ||    10.00
  -11.67 ||    11.00
  -11.11 ||    12.00
  -10.56 ||    13.00
  -10.00 ||    14.00
   -9.44 ||    15.00
   -8.89 ||    16.00
   -8.33 ||    17.00
   -7.78 ||    18.00
   -7.22 ||    19.00
   -6.67 ||    20.00

Process returned 0 (0x0)   execution time : 0.038 s
Press any key to continue.
```

7. String Compare


```
 C:\Users\User\Desktop\hw3_code_problem07.cpp.exe                                    —    □    ×
Write a name: Jack
Write another name: JACK
They are the same!!!

Process returned 0 (0x0)   execution time : 6.608 s
Press any key to continue.
```

8. Population

9. Transient population

10. Input validation

```
Please enter a integer number between 0 and 100.
7A
You enter the invalid value.
Try again,thanks.

Please enter a integer number between 0 and 100.
7.0
You enter the invalid value.
Try again,thanks.

Please enter a integer number between 0 and 100.
101
You enter the invalid value.
Try again,thanks.
Please enter a integer number between 0 and 100.
70

The number you enter: 70

Process returned 0 (0x0)   execution time : 23.079 s
Press any key to continue.
```