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แบบฝึกหัดท้ายบทที่ 6

ข้อ 6-1

```cpp
#include <iostream>
#include <string.h>
#include <iomanip>
using namespace std;

bool ispalindrome(string p)
{
    bool val;
for(int i = 0; i < p.size()/2;i++)
  {
    if (p[i] != p[p.size()-1-i])
    {
        cout << p[i] << " = " << p[p.length()-1-i] << endl ;
        val +=  true;
        break;
    }
    else
    {
        cout << p[i] << " = " << p[p.length()-1-i] << endl;
        val += false;

    }
  }
}
```

```cpp
int main()
{
    string palin;
    cout << "Enter Text : ";
    cin >> palin;
    cout << "\n";

    if (ispalindrome(palin))
    {
        cout << "Your Text is Not Palindrome.";
    }
    else
    {
       cout << "Your Text is Palindrome.";
    }
    return(0);
}
```

ผล run programe

```
PS M:\c-\lab6> cd "m:\c-\lab6\" ; if ($?) { g++ 1-1.cpp -o 1-1 } ; if ($?) { .\1-1 }
Enter Text : xcdssdcx

x = x
c = c
d = d
s = s
Your Text is Not Palindrome.
PS M:\c-\lab6> cd "m:\c-\lab6\" ; if ($?) { g++ 1-1.cpp -o 1-1 } ; if ($?) { .\1-1 }
Enter Text : Natcha

N = a
Your Text is Not Palindrome.
PS M:\c-\lab6>
```

ข้อ 6-2

```cpp
#include<iostream>
#include <stdlib.h>
#include <iomanip>
#include <ctime>
using namespace std;
void print_first(int size, int randArray[],float percent[],float totalper);
int rand_num(int size, int randArray[],float percent[]);
int print_chairman(int size, int randArray[],float percent[],float totalper);

int main(int argc, char *argv[])
{
    int size;
    cout << "Enter number student chairman : ";
    cin >> size;
    int randArray[size],total;
    float percent[size];
    float totalper;
    srand (time (NULL));
    rand_num(size,randArray,percent);
    print_first(size,randArray,percent,totalper);
    print_chairman(size,randArray,percent,totalper);

}
```

```cpp
int print_chairman(int size, int randArray[],float percent[],float totalper)
{
    int total = 0;
    cout << "Result of eletion chairman" << endl;
    cout << "----------------------------"<< endl;
    cout << setw(4) <<"|" << "No." << setw(4) <<"|" << "Votes" <<"|" << setw(4) << "Percent(%)" <<"|"<< endl;
    cout << "----------------------------"<< endl;
    for(int i=0;i<size;i++)
    {
    total += randArray[i];
    totalper = totalper+percent[i];
    cout << setw(4) <<"|" << i+1 << setw(4)  <<"|" << randArray[i] << setw(8) <<"|" << percent[i] <<"|" <<endl ;
    }
    cout << "----------------------------"<< endl;
    cout << "Total "<< total << setw(10) << "|" << totalper <<endl;
}

int rand_num(int size, int randArray[],float percent[])
{
    int s = 500;
    int total;
    float totalper;
    for(int i=0;i<size;i++)
    {
      randArray[i] = rand() % (s + 1);
      s = s-randArray[i];
      total = total+randArray[i];
    }
    for(int i=0;i<size;i++)
    {
       percent[i] = (randArray[i]*100)/total;
       totalper = totalper+percent[i];
    }
}
```

```
void print_first(int size, int randArray[],float percent[],float totalper)
{
    int total = 0;
    cout << "Number of rigth student : 500 "<< endl;
    for(int i=0;i<size;i++)
    {
        total += randArray[i];
    }
    cout << "Number of Votes : " << total << " = " << (total*100)/500 << " %"<<endl;
    cout << "Number of not Votes : " << 500-total << " = " << (500-total)*100/500 << " %" <<endl;
}
```

ผล Run Program

```
Enter number student chairman : 5
Number of rigth student : 500
Number of Votes : 499 = 99 %
Number of not Votes : 1 = 0 %
Result of eletion chairman
---------------------------
   |No.   |Votes|Percent(%)|
---------------------------
    |1    |405        |75|
    |2    |58        |10|
    |3    |23        |4|
    |4    |11        |2|
    |5    |2        |0|
---------------------------
Total 499           |91
PS M:\c-\lab6>
```

ข้อ 6-3

```
#include<iostream>
#include<string.h>
#include <time.h>
#include<algorithm>
using namespace std;

struct  Student {
    string id;
    string name;
    float test[3], total,avg; // test [4];
};
void inputData(Student stu[]);
void sumTest(Student stu[]);
void sortdata(Student a[], int n);
void displayData(Student stu[]);

void inputData(Student stu[])
{
    float j[20][3];
    srand(time(0));
    for(int n = 0; n < 20; n++) {
        cout << "Enter Id : ";
        cin >> stu[n].id;
        cout << "Enter Name : ";
        cin >> stu[n].name;
    }
    for(int n = 0; n < 20; n++){
        for(int m = 0; m < 3 ; m++){
            j[n][m] = rand() % 100 + 1;
        }
    }
    for(int i = 0; i < 20; i++){
        for(int v = 0; v < 3 ; v++){
            if (v < 2)
            {
                stu[i].test[v] =j[i][v] * 0.25;
            }
```

```
            }
            else
            {
                stu[i].test[v] = j[i][v] * 0.50;
            }
        }
    }
}
void sumTest(Student stu[])
{
    for(int n = 0; n < 20; n++)
    {
        stu[n].total = 0.0f;
        for(int m = 0; m < 3; m++)
        {
            stu[n].total += stu[n].test[m];
        }
    }
}
bool compareTwoStudents(Student a, Student b)
{
    // If total marks are not same then
    // returns true for higher total
    if (a.total != b.total)
        return a.total > b.total;
}
void sortdata(Student a[], int n)
{
    sort(a, a + 20, compareTwoStudents);
}
```

```
void displayData(Student stu[])
{
    float w;
    for(int i=0;i<20;i++){
        w += stu[i].total;
        stu[i].avg = 0.0f;
        for(int j=0;j<3;j++)
            stu[j].avg += stu[i].test[j];
    }
    cout << " ---------------------------------------------------------------------------------------" << endl;
    cout << "  NO.    ID       NAME          Test1(25%)    Test2(25%)    Test3(50%)       Total(100%)" << endl;
    cout << " ---------------------------------------------------------------------------------------" << endl;
    for(int n = 0; n < 20; n++) {
        cout <<"  " << n+1 << ". \t " << stu[n].id << "  \t   " << stu[n].name << " \t\t";
        for(int m = 0; m < 3; m++) {   (const char [3])"        "
            cout << stu[n].test[m] << "\t\t";
        }
        cout << stu[n].total  << endl;
    }
    cout << " ---------------------------------------------------------------------------------------" << endl;
    cout << "Average of mark \t\t" <<  stu[0].avg/20 <<"\t\t" << stu[1].avg/20 <<"\t\t" << stu[2].avg/20  <<"\t\t" << w/20 <<"\t\t";
}

int main() {
    int n = 20;
    struct Student s[20];
    struct Student stu[20];
    inputData(stu);
    sumTest(stu);
    sortdata(stu,n);
    displayData(stu);
    return(0);
}
```

ผล Run Program

```
Enter Id : 15
Enter Name : yy
Enter Id : 16
Enter Name : uu
Enter Id : 17
Enter Name : ii
Enter Id : 18
Enter Name : oo
Enter Id : 19
Enter Name : pp
Enter Id : 20
Enter Name : zz
 ---------------------------------------------------------------------------------------
  NO.    ID       NAME         Test1(25%)    Test2(25%)    Test3(50%)       Total(100%)
 ---------------------------------------------------------------------------------------
  1.     11       ww           19            14.75         33               66.75
  2.     2        ss           15.25         6.25          44.5             66
  3.     14       tt           4.75          21.75         35.5             62
  4.     5        gg           18.5          20.25         20.5             59.25
  5.     18       oo           16.25         9.25          33.5             59
  6.     17       ii           24.25         13.25         20.5             58
  7.     9        ll           22.5          1.25          33               56.75
  8.     20       zz           3.5           6.5           44               54
  9.     1        aa           23.75         12.25         16               52
  10.    3        dd           14.75         18            16               48.75
  11.    16       uu           20.5          15.75         8                44.25
  12.    13       rr           10            0.25          32               42.25
  13.    19       pp           6             18.25         17               41.25
  14.    6        hh           22.75         2.75          14.5             40
  15.    4        ff           11.5          13.25         8.5              33.25
  16.    10       qq           10.75         5             16.5             32.25
  17.    8        kk           11.25         19.75         1                32
  18.    15       yy           1.5           13.25         13               27.75
  19.    7        jj           9.5           8.75          5.5              23.75
  20.    12       ee           5.75          0.25          2                8
 ---------------------------------------------------------------------------------------
Average of mark                 13.6          10.3          16.85            45.3625
PS M:\c-\lab6>
```