6406021420174 ณัฐชา มิตรมานะ SEC-1

ข้อที่ 6-1

```cpp
#include <iostream>
#include <iomanip>
using namespace std;
int main()
{
    int X[10]; // declare and allocate array
    int Y[ ] = {10,20,30,40,50,60,70,80,90,100};
    const int Array_Size = 10; //ค่าคงที่
    int Z[Array_Size];
// Initial value in array
    for(int i = 0 ; i < 10 ; i++)
        X[i] = 0;
    for(int i = 0 ; i < Array_Size ; i++)
        Z[i] = 2 + 2 * i;
// Display output of array
    cout << ": Subscript : Array X : Array Y : Array Z :\n";
    cout << setfill('=') << setw(43) << "=" << endl;
    cout << setfill(' ');
    for(int i = 0 ; i < Array_Size ; i++)
     {
    cout << ": " << setw(6) << i << " : ";
    cout << setw(6) << X[i] << " : ";
    cout << setw(6) << Y[i] << " : ";
    cout << setw(6) << Z[i] << " :";
    cout << endl;
    }
    cout << setfill('=') << setw(43) << "=" << endl;
    return(0);
}
```

```
: Subscript : Array X : Array Y : Array Z :
===========================================
:      0 :       0 :      10 :       2 :
:      1 :       0 :      20 :       4 :
:      2 :       0 :      30 :       6 :
:      3 :       0 :      40 :       8 :
:      4 :       0 :      50 :      10 :
:      5 :       0 :      60 :      12 :
:      6 :       0 :      70 :      14 :
:      7 :       0 :      80 :      16 :
:      8 :       0 :      90 :      18 :
:      9 :       0 :     100 :      20 :
===========================================
```

ข้อที่ 6-2

```
                                                > cd "c
Total of array elements : 55
PS C:\Users\natch\OneDrive\เดสก์ท็อป\c++ M\lab6>
```

```cpp
#include <iostream>
using namespace std;
int main()
{
    // declare and initial array
    int A[ ] = {1,2,3,4,5,6,7,8,9,10};
    const int Array_Size = 10;
    int Sum = 0;
    // Compute sum value in array
    for(int i = 0 ; i < Array_Size ; i++)
        Sum = Sum + A[i];
    // Display result
    cout << "Total of array elements : " << Sum << endl;
    return(0);
}
```

ข้อที่ 6-3

```
Element Value Histogram

    0   25 *************************
    1   13 *************
    2   12 ************
    3    1 *
    4    9 *********
    5   25 *************************
    6   20 ********************
    7   25 *************************
    8   26 **************************
    9    8 ********
PS C:\Users\natch\OneDrive\เดสก์ท็อป\c++ M\lab6>
```

```cpp
#include <iostream>
#include <iomanip>
#include <time.h>
using namespace std;
int main()
{
    int Data[10];
    srand((unsigned int) time(0));
    // Initial value in array
    for(int i = 0 ; i < 10 ; i++)
        Data[i] = rand() % 30 + 1;
    // Display histogram
    cout << "Element Value Histogram " << endl << endl;
    for(int i = 0 ; i < 10 ; i++) {
        cout << setw(5) << i << " " << setw(4) << Data[i] << " ";
    for(int k = 1 ; k <= Data[i]; k++)
        cout << "*";
        cout << endl;
    }
    return(0);
}
```

ข้อที่ 6-4

```
Effects of passing array element pass-by-value.
Data[3] before modify element : 8
Data[3] after modify element : 8

PS C:\Users\natch\OneDrive\เดสก์ท็อป\c++ M\lab6>
```

```cpp
#include <iostream>
using namespace std;
void ModifyArray(int Temp[]);
void ModifyElement(int Temp);
int main()
{
    int Data[] = { 1, 2, 3, 4, 5 };
    cout << "Effects of passing entrie array pass-by-reference.\n";
    cout << "Original array's value : ";
    for(int i = 0 ; i < 5 ; i++)
    cout << Data[i] << " ";
    cout << endl;
    ModifyArray(Data); // array is passed pass-by-reference
    cout << "Modified array's value : ";
    for(int i = 0 ; i < 5 ; i++)
    cout << Data[i] << " ";
    cout << endl << endl;
    cout << "Effects of passing array element pass-by-value.\n";
    cout << "Data[3] before modify element : ";
    cout << Data[3] << endl;
    ModifyElement(Data[3]); // array element is passed pass-by-value
    cout << "Data[3] after modify element : ";
    cout << Data[3] << endl << endl;
return(0);
}

void ModifyArray(int Temp[ ])
    {
        for(int j = 0 ; j < 5 ; j++)
        Temp[j] *= 2;
    }

void ModifyElement(int Temp)
    {
        Temp *= 2;
    }
```

ข้อที่ 6-5

```
Enter 5 numbers separated by blanks or <enter> :
> 10
20
25
15
30

The mean is   20.00
The standrad deviation is    7.91
Table of difference between data values and mean
Index Item Difference
------------------------------------
  0      10.00     -10.00
  1      20.00       0.00
  2      25.00       5.00
  3      15.00      -5.00
  4      30.00      10.00
```

```cpp
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void ReadData(float Temp[]);
void CalculateData(const float Temp[],float &Mean,float &St_Dev);
const int MAX_ITEM = 5; /* maximum number of items in list of data */
int main()
{
    float X[MAX_ITEM], Mean, St_Dev;
    int i;
    /* gets the data in array */
    ReadData(X);
    /* Computes the mean and standard deviation */
    CalculateData( X, Mean, St_Dev);
    /* Displays the mean and standard deviation */
    cout << "The mean is ";
    cout << setw(7) << fixed << setprecision(2) << Mean << endl;
    cout << "The standrad deviation is " << setw(7) << St_Dev << endl;
    /* Displays the difference between each item and the mean */
    cout << "Table of difference between data values and mean\n";
    cout << "Index Item Difference\n";
    cout << "------------------------------------\n";
    for( i = 0; i < MAX_ITEM ; i++) {
        cout << setw(3) << i << " ";
        cout << setw(10) << X[i] << " ";
        cout << setw(10) << X[i]-Mean << endl;
    }
return(0);
}
//function
void ReadData(float Temp[])
    {
        cout << "Enter " << MAX_ITEM;
        cout << " numbers separated by blanks or <enter> :\n> ";
        for(int i = 0; i < MAX_ITEM ; i++)
        cin >> Temp[i];
        cout << endl;
    }
```

```cpp
//function
void ReadData(float Temp[])
    {
        cout << "Enter " << MAX_ITEM;
        cout << " numbers separated by blanks or <enter> :\n> ";
        for(int i = 0; i < MAX_ITEM ; i++)
        cin >> Temp[i];
        cout << endl;
    }
//function
void CalculateData(const float Temp[],float &Mean,float &St_Dev)
    {
        float Sum, Sum_Sqr;
        Sum = Sum_Sqr = 0;
        /* Computes the sum of all data */
        for(int i = 0; i < MAX_ITEM ; i++)
            Sum += Temp[i];
        /* computes the mean and standard deviation */
            Mean = Sum / MAX_ITEM;
        for(int i = 0; i < MAX_ITEM ; i++)
            Sum_Sqr += pow(Temp[i] - Mean, 2);
            St_Dev = sqrt(Sum_Sqr/(MAX_ITEM - 1));
    }
```

ข้อที่ 6-6

```
Data before sort in array ...
   50    0   44    7    3  100   12   36   72   23

Start Sort ...

1 :     0   50   44    7    3  100   12   36   72   23
2 :     0    3   44    7   50  100   12   36   72   23
3 :     0    3    7   44   50  100   12   36   72   23
4 :     0    3    7   12   50  100   44   36   72   23
5 :     0    3    7   12   23  100   44   36   72   50
6 :     0    3    7   12   23   36   44  100   72   50
7 :     0    3    7   12   23   36   44  100   72   50
8 :     0    3    7   12   23   36   44   50   72  100
9 :     0    3    7   12   23   36   44   50   72  100

End Sort ...

Data after sort finish.
    0    3    7   12   23   36   44   50   72  100
```

```cpp
#include <iostream>
#include <iomanip>
using namespace std;
void Sort(int temp[ ],const int max);
void Swap(int &n1, int &n2);
int main()
{
    const int Max = 10;
    int Data[Max] = {50,0,44,7,3,100,12,36,72,23};
    cout << "\nData before sort in array ...\n";
    for(int n = 0; n < Max ; n++) cout << setw(5) << Data[n];
    cout << "\n\nStart Sort ...\n";
    Sort(Data, Max);
    cout << "\n\nEnd Sort ...\n";
    cout << "\nData after sort finish.\n";
    for(int n = 0; n < Max ; n++) cout << setw(5) << Data[n];
    cout << "\n";
    return(0);
}
//function
void Sort(int temp[],const int Max)
    {
        int i,j,n;
        for( i = 0 ; i < Max-1 ; i++)
    {
        n = i;
        for (j = i; j < Max ; j++)
        if (temp[n] > temp[j]) n = j;
        if (n != i) swap(temp[i],temp[n]);
    /* display for result of sorting */
        cout << "\n" << i+1 << " : ";
        for( j = 0; j < Max ; j++) cout << setw(5) << temp[j];
    }
}
void Swap(int &n1, int &n2)
    {
        int temp;
        temp = n1; n1 = n2; n2 = temp;
    }
```