3 Exercises

1. Write a program that will display the calculator menu. The program will prompt the user to choose the operation choice(from 1 to 5). Then it asks the user to input two integer values for the calculation. See the sample below.

```
================================================
                MENU
================================================
      1.Add
      2.Subtract
      3.Multiply
      4.Divide
      5.Modulus
Enter your choice(1~5):1
Enter your integer numbers:4 -20

Result:-16
Press y or Y to continue:y
Enter your choice(1~5):3
Enter your integer numbers:3 7

Result:21
Press y or Y to continue:Y
Enter your choice(1~5):5
Enter your integer numbers:22 3

Result:1
Press y or Y to continue:n
Done.
```

The program also asks the user to decide whether he/she wants to continue the operation. If he/she inputs 'y'('Y'), the program will prompt the user to choose the operation gain. Otherwise, the program will show "Done" and terminate.

```cpp
#include <iostream>
using namespace std;

void Displaymenu()
{
    // complete code here
}

int Add(int a, int b)
{
    // complete code here
}

int Substract(int a, int b)
{
    // complete code here
}

int Multiply(int a, int b)
{
    // complete code here
}

int Divide(int a, int b)
{
    //complete code here
}

int Modulus(int a, int b)
{
    // complete code here
}
```

```cpp
int main()
{
    //show menu
    Displaymenu();
    int yourChoice;
    int a, b;
    char confirm;
    do
    {
        cout << "Enter your choice(1~5):";
        cin >> yourChoice;
        cout << "Enter your integer numbers:";
        cin >> a >> b;
        cout << "\n";
        switch(yourChoice)
        {
            // complete code here
        }
        cout << "Press y or Y to continue:";
        cin >> confirm;
    }while(confirm == 'y' || confirm == 'Y');

    cout << "Done." << endl;

    return 0;
}
```

2. Write a program that uses the following functions:

- **int fill_array(double arr[], int size)** prompts the user to enter double values to the array. It ceases taking input when the array is full or when the user enters non-numeric input, and it returns the actual number of entries.

- **void show_array(double *arr, int size)** displays the contents of the array.

- **void reverse_array(double *arr, int size)** is a **recursive function**, it reverses the values stored in the array.

The program should use these functions to fill an array, show the array, reverse the array. Hint: use the dynamic array to store the data.

```
Enter the size of an array:6
Enter value #1: 1
Enter value #2: 2
Enter value #3: 3
Enter value #4: 4
Enter value #5: 5
Enter value #6: 6
The original array is:1 2 3 4 5 6
The reversed array is:6 5 4 3 2 1
```

```
Enter the size of an array:6
Enter value #1: 1
Enter value #2: 2
Enter value #3: 3
Enter value #4: t
The original array is:1 2 3
The reversed array is:3 2 1
```