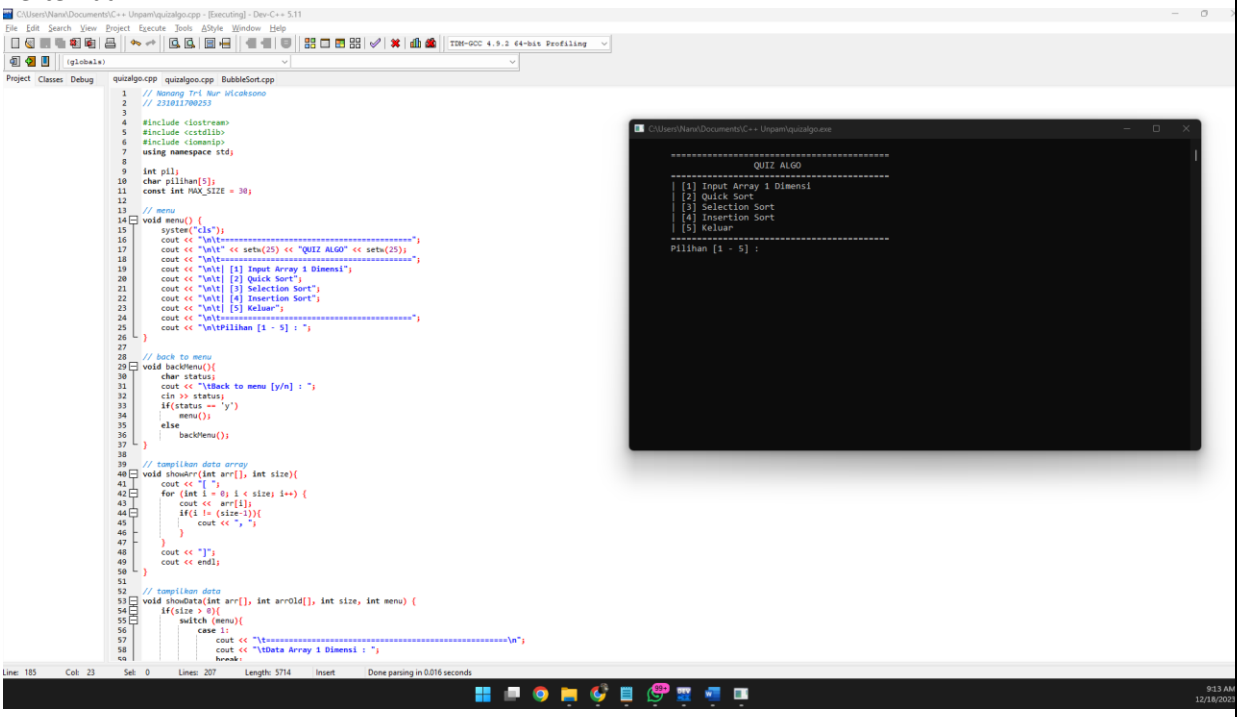
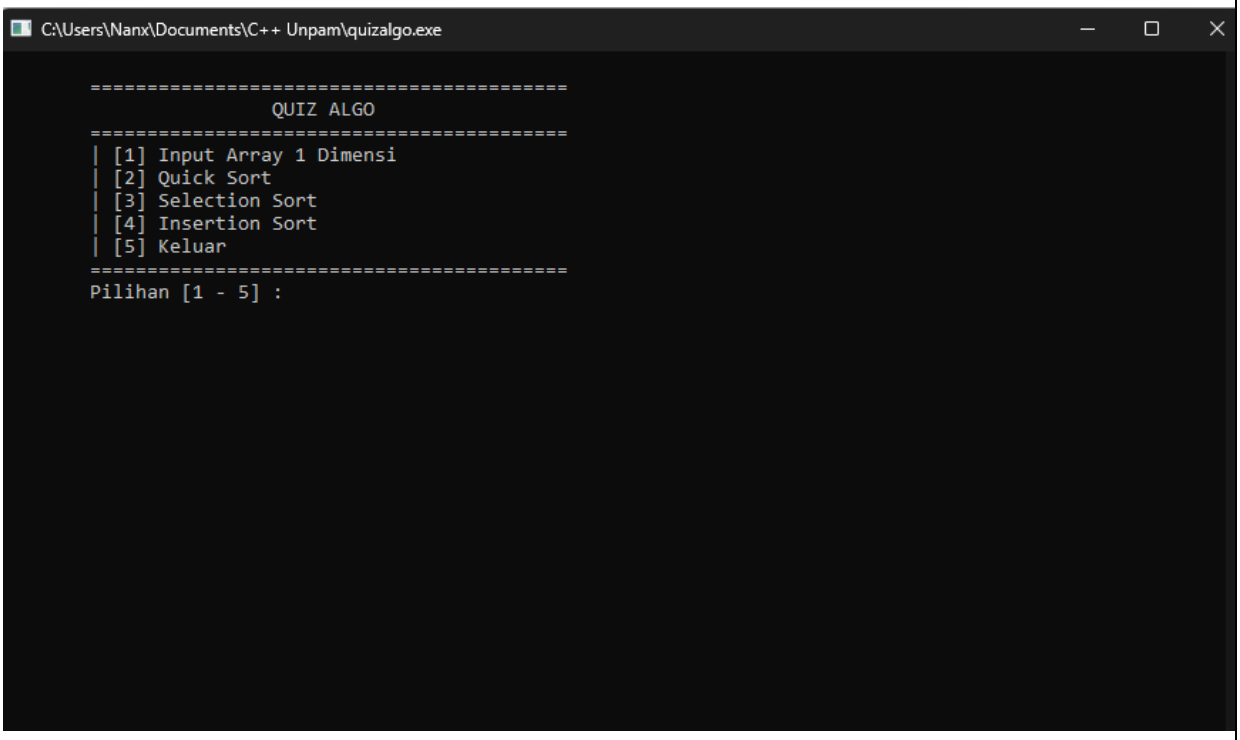
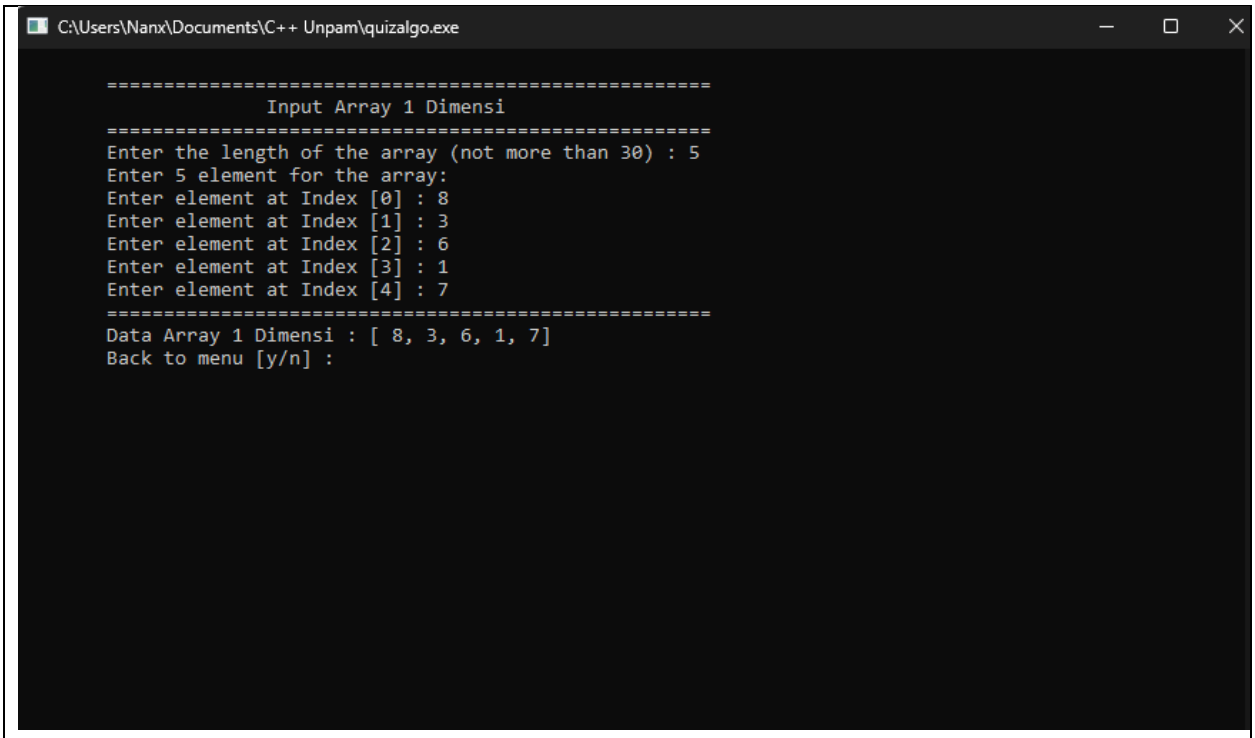
Pertemuan 7



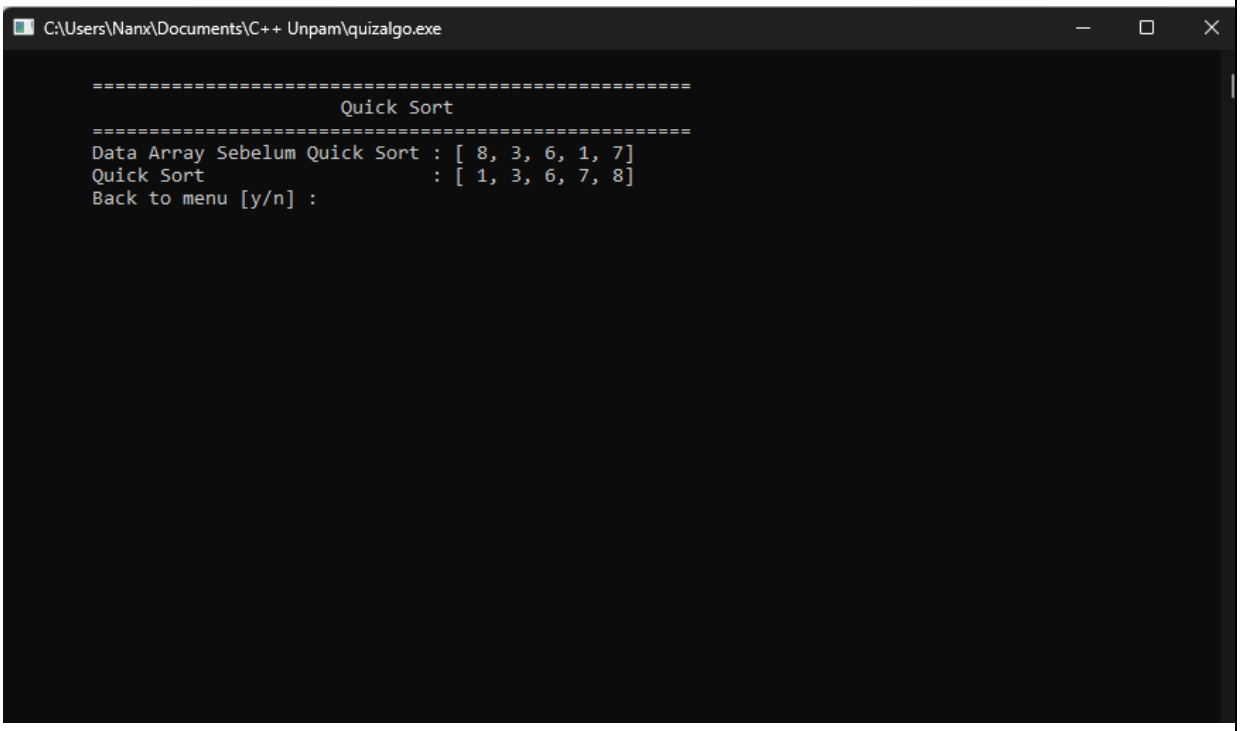
Main Menu



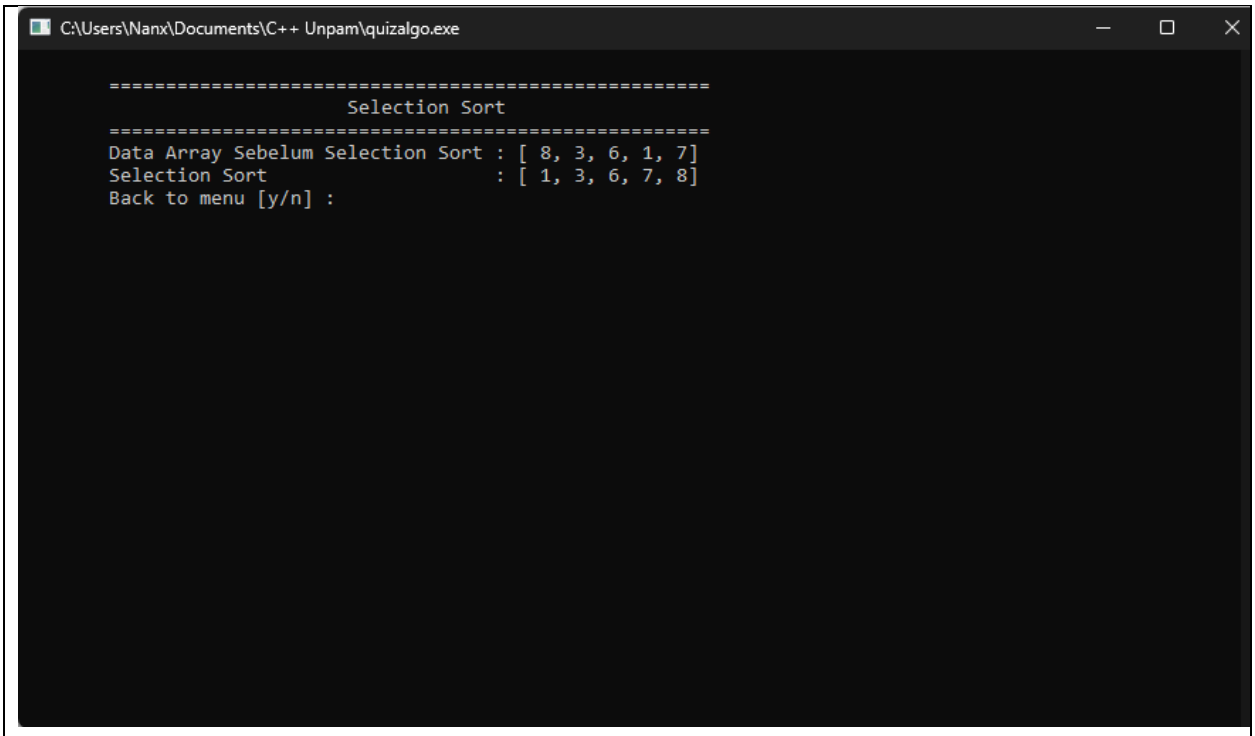
Menu 1


C:\Users\Nanx\Documents\C++ Unpam\quizalgo.exe
==========
Input Array 1 Dimensi
==========
Enter the length of the array (not more than 30) : 5
Enter 5 element for the array:
Enter element at Index [0] : 8
Enter element at Index [1] : 3
Enter element at Index [2] : 6
Enter element at Index [3] : 1
Enter element at Index [4] : 7
==========
Data Array 1 Dimensi : [8, 3, 6, 1, 7]
Back to menu [y/n] :

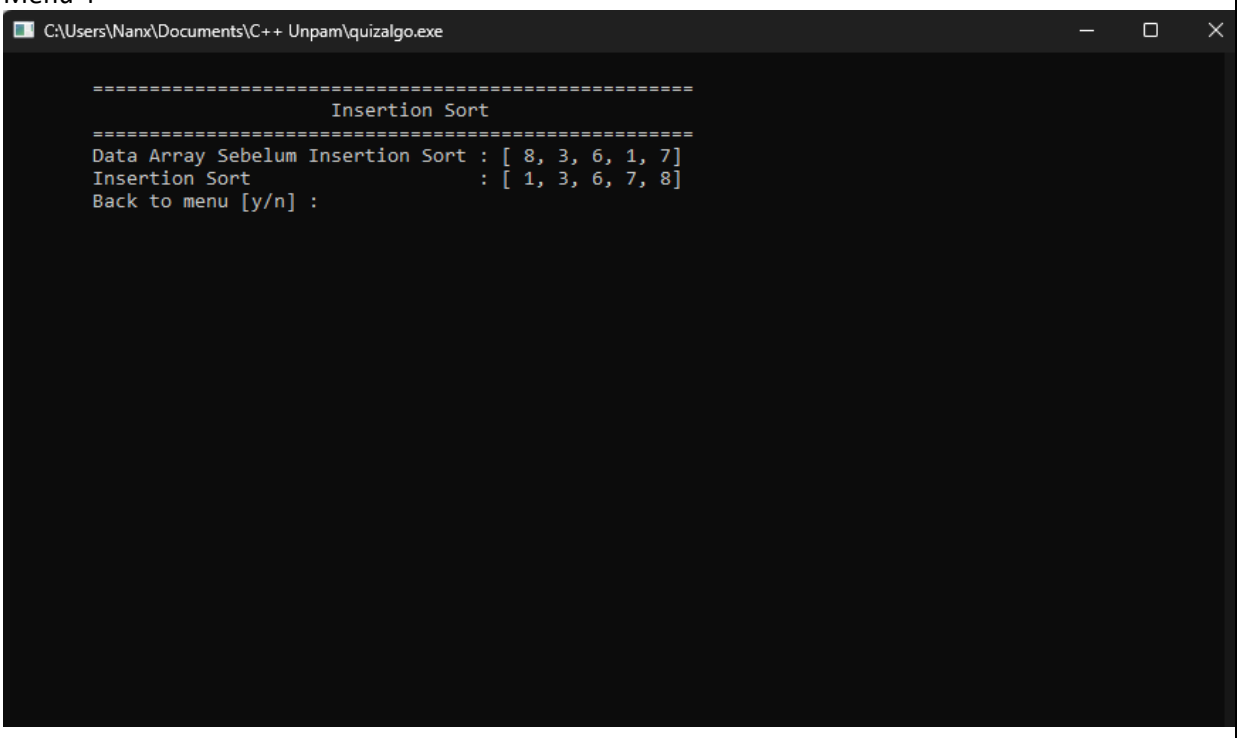
Menu 2


C:\Users\Nanx\Documents\C++ Unpam\quizalgo.exe
==========
Quick Sort
==========
Data Array Sebelum Quick Sort : [8, 3, 6, 1, 7]
Quick Sort : [1, 3, 6, 7, 8]
Back to menu [y/n] :

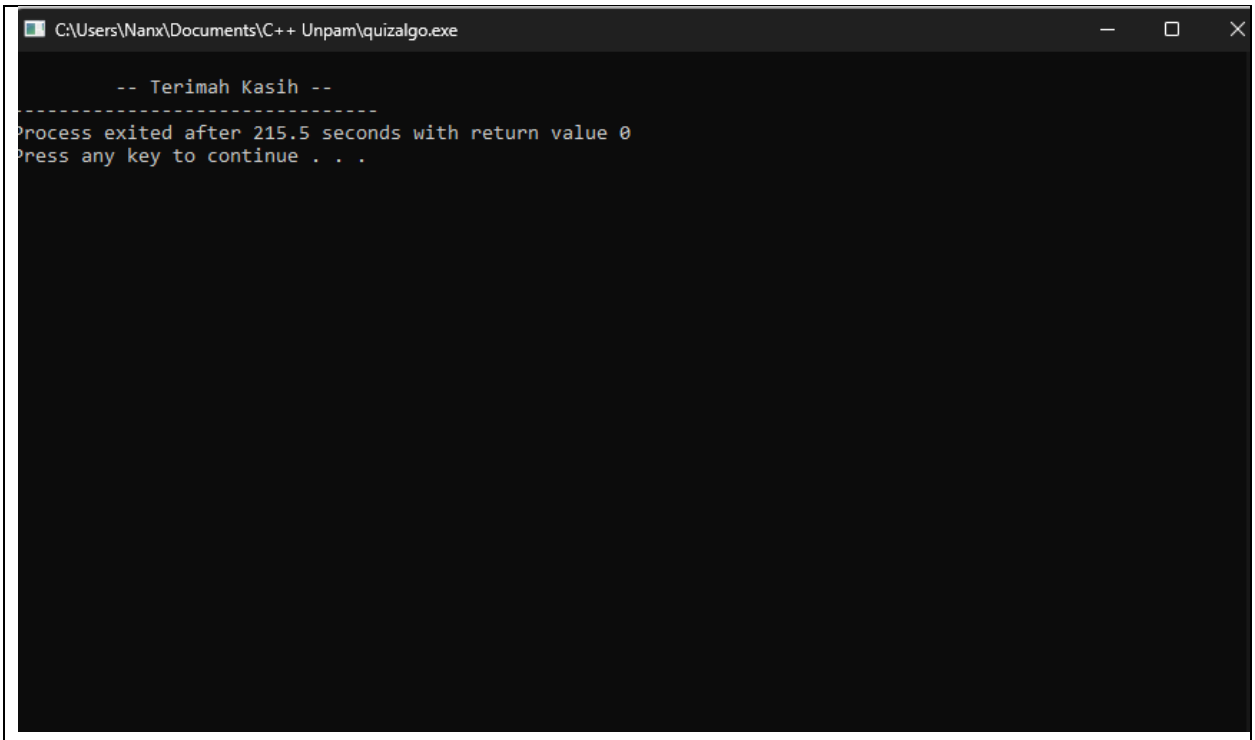
Menu 3



Menu 4



Menun 5



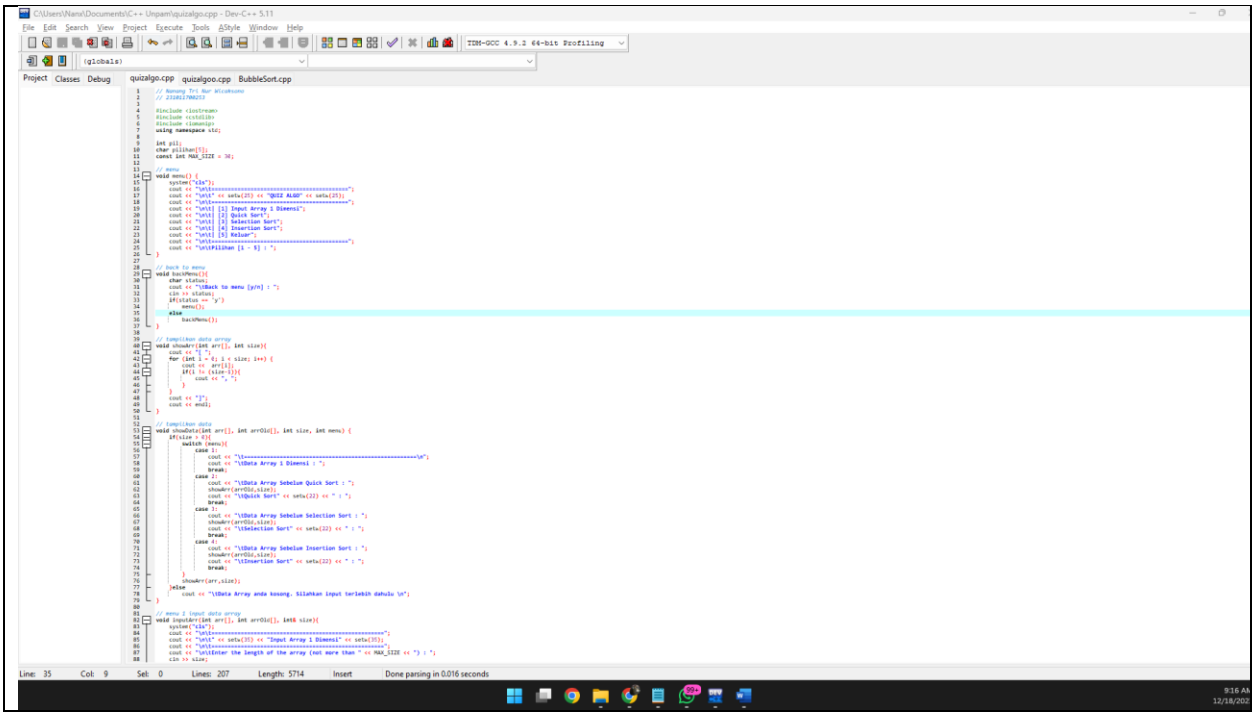

```
// Nanang Tri Nur Wicaksono
// 231011700253

#include <iostream>
#include <cstdlib>
#include <iomanip>
using namespace std;

int pil;
char pilihan[5];
const int MAX_SIZE = 30;

// menu
void menu() {
   system("cls");
   cout << "\n\t=========================================";
   cout << "\n\t" << setw(25) << "QUIZ ALGO" << setw(25);
   cout << "\n\t=========================================";
   cout << "\n\t| [1] Input Array 1 Dimensi";
   cout << "\n\t| [2] Quick Sort";
   cout << "\n\t| [3] Selection Sort";
   cout << "\n\t| [4] Insertion Sort";
   cout << "\n\t| [5] Keluar";
   cout << "\n\t=========================================";
   cout << "\n\tPilihan [1 - 5] : ";
}
```

```
// back to menu
void backMenu(){
	char status;
	cout << "\tBack to menu [y/n] : ";
	cin >> status;
	if(status == 'y')
		menu();
	else
		backMenu();
}

// tampilkan data array
void showArr(int arr[], int size){
	cout << "[ ";
   for (int i = 0; i < size; i++) {
      cout <<  arr[i];
      if(i != (size-1)){
	cout << ", ";
		}
   }
	cout << "]";
   cout << endl;
}

// tampilkan data
void showData(int arr[], int arrOld[], int size, int menu) {
	if(size > 0){
		switch (menu){
			case 1:
				cout <<
"\t==================================================\n";
				cout << "\tData Array 1 Dimensi : ";
				break;
			case 2:
				cout << "\tData Array Sebelum Quick Sort : ";
				showArr(arrOld,size);
				cout << "\tQuick Sort" << setw(22) << " : ";
				break;
			case 3:
				cout << "\tData Array Sebelum Selection Sort : ";
				showArr(arrOld,size);
				cout << "\tSelection Sort" << setw(22) << " : ";
				break;
			case 4:
				cout << "\tData Array Sebelum Insertion Sort : ";
				showArr(arrOld,size);
				cout << "\tInsertion Sort" << setw(22) << " : ";
```

```
                                        break;
                        }
                        showArr(arr,size);
    }else
            cout << "\tData Array anda kosong. Silahkan input terlebih dahulu \n";
}

// menu 1 input data array
void inputArr(int arr[], int arrOld[], int& size){
    system("cls");
    cout << "\n\t=====================================================";
    cout << "\n\t" << setw(35) << "Input Array 1 Dimensi" << setw(35);
    cout << "\n\t=====================================================";
            cout << "\n\tEnter the length of the array (not more than " << MAX_SIZE << ") : ";
            cin >> size;

            if(size <= 0 || size > MAX_SIZE){
                    cerr << "\tInvalid array Size. Exiting rthe Program." << endl;
                    exit(EXIT_FAILURE);
            }

            cout << "\tEnter " << size << " element for the array: \n";
            for(int i = 0;i < size;i++){
                    cout << "\tEnter element at Index [" << i << "] : ";
                    cin >> arr[i];
                    arrOld[i] = arr[i];
            }
}

// sorting sort
void quickSort(int arr[], int low, int high) {
    system("cls");
    cout << "\n\t=====================================================";
    cout << "\n\t" << setw(32) << "Quick Sort" << setw(32);
    cout << "\n\t=====================================================\n";
    if (low < high) {
        int pivot = arr[high];
        int i = low - 1;
        for (int j = low; j <= high - 1; j++) {
            if (arr[j] < pivot) {
                i++;
                swap(arr[i], arr[j]);
            }
        }
        swap(arr[i + 1], arr[high]);
        int pi = i + 1;
        quickSort(arr, low, pi - 1);
        quickSort(arr, pi + 1, high);
```

```
    }
}

// selection sort
void selectionSort(int arr[], int size) {
    system("cls");
    cout << "\n\t=====================================================";
    cout << "\n\t" << setw(35) << "Selection Sort" << setw(35);
    cout << "\n\t=====================================================\n";
    for (int i = 0; i < size - 1; i++) {
        int minIndex = i;
        for (int j = i + 1; j < size; j++) {
            if (arr[j] < arr[minIndex]) {
                minIndex = j;
            }
        }
        swap(arr[i], arr[minIndex]);
    }
}

// insertion sort
void insertionSort(int arr[], int size) {
    system("cls");
    cout << "\n\t=====================================================";
    cout << "\n\t" << setw(35) << "Insertion Sort" << setw(35);
    cout << "\n\t=====================================================\n";
    for (int i = 1; i < size; i++) {
        int key = arr[i];
        int j = i - 1;
        while (j >= 0 && arr[j] > key) {
            arr[j + 1] = arr[j];
            j = j - 1;
        }
        arr[j + 1] = key;
    }
}

// main default
int main() {
    int size;
    int arrOld[MAX_SIZE];
    int arr[MAX_SIZE];
    menu();
    do {
        cin >> pilihan;
        pil = atoi(pilihan);
        switch (pil) {
            case 1:
```

```
            inputArr(arr, arrOld, size);
            showData(arr, arrOld, size, pil);
                                        backMenu();
            break;

        case 2:
            quickSort(arr, 0, size - 1);
            showData(arr, arrOld, size, pil);
            backMenu();
            break;

        case 3:
            selectionSort(arr,size);
            showData(arr, arrOld, size, pil);
            backMenu();
                                        break;

        case 4:
            insertionSort(arr,size);
            showData(arr, arrOld, size, pil);
            backMenu();
            break;

        case 5:
            system("cls");
            cout << "\n\t -- Terimah Kasih -- ";
            break;

        default:
            menu();
            cout << "\n\t -- Terimah Kasih -- ";
            break;
      }
   } while (pil < 5);

   return 0;
}
```


C:\Users\Nana\Documents\C++ Unpam\quizalgo.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Profiling
(globals)
Project Classes Debug
quizalgo.cpp quizalgoo.cpp BubbleSort.cpp
// Nanang Tri Nur Hidayanto
// 23101170023
#include <iostream>
#include <stdlib>
#include <iomanip>
using namespace std;
int pil;
char pilihan[1];
const int MAX_SIZE = 30;
// menu
void menu() {
system("cls");
cout << "\n\t==";
cout << "\n\t" << setw(25) << "QUIZ ALGO" << setw(25);
cout << "\n\t==";
cout << "\n\t[1] Input Array 1 Dimensi";
cout << "\n\t[2] Quick Sort";
cout << "\n\t[3] Selection Sort";
cout << "\n\t[4] Insertion Sort";
cout << "\n\t[5] Keluar";
cout << "\n\t==";
cout << "\n\tPilihan [1 - 5] : ";
}
// back to menu
void backMenu(){
char status;
cout << "\tBack to menu [y/n] : ";
cin >> status;
if(status == 'y')
menu();
else
backMenu();
}
// tampilkan data array
void showArr(int arr[], int size){
cout << "[";
for (int i = 0; i < size; i++) {
cout << arr[i];
if(i != (size-1)){
cout << ", ";
}
}
cout << "]";
cout << endl;
}
// tampilkan data
void showData(int arr[], int arrOld[], int size, int menu) {
if(size > 0){
switch (menu){
case 1:
cout << "\t==\n";
cout << "\tData Array 1 Dimensi : ";
break;
case 2:
cout << "\tData Array Sebelum Quick Sort : ";
showArr(arrOld,size);
cout << "\tQuick Sort" << setw(22) << " : ";
break;
case 3:
cout << "\tData Array Sebelum Selection Sort : ";
showArr(arrOld,size);
cout << "\tSelection Sort" << setw(22) << " : ";
break;
case 4:
cout << "\tData Array Sebelum Insertion Sort : ";
showArr(arrOld,size);
cout << "\tInsertion Sort" << setw(22) << " : ";
break;
}
showArr(arr,size);
}else
cout << "\tData Array anda kosong. Silahkan input terlebih dahulu \n";
}
// menu 1 input data array
void inputArr(int arr[], int arrOld[], int& size){
system("cls");
cout << "\n\t==";
cout << "\n\t" << setw(35) << "Input Array 1 Dimensi" << setw(35);
cout << "\n\t==";
cout << "\n\tEnter the length of the array (not more than " << MAX_SIZE << ") : ";
cin >> size;
Line: 35 Col: 9 Sel: 0 Lines: 207 Length: 5714 Insert Done parsing in 0.016 seconds
9:16 AM
12/18/2023