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| Pertemuan 7  Main Menu    Menu 1    Menu 2    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;  } |
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