I've written a program where the user can enter any number of values into a vector and it's supposed to return the quartiles, but I keep getting a "vector subscript out of range" error :

Решение проблемы в конце.

#include "stdafx.h"

#include <iostream>

#include <string>

#include <algorithm>

#include <iomanip>

#include <ios>

#include <vector>

int main () {

using namespace std;

cout << "Enter a list of numbers: ";

vector<double> quantile;

double x;

//invariant: homework contains all the homework grades so far

while (cin >> x)

quantile.push\_back(x);

//check that the student entered some homework grades

//typedef vector<double>::size\_type vec\_sz;

int size = quantile.size();

if (size == 0) {

cout << endl << "You must enter your numbers . "

"Please try again." << endl;

return 1;

}

sort(quantile.begin(), quantile.end());

int mid = size/2;

double median;

median = size % 2 == 0 ? (quantile[mid] + quantile[mid-1])/2 : quantile[mid];

vector<double> first;

vector<double> third;

for (int i = 0; i!=mid; ++i)

{

first[i] = quantile[i];

}

for (int i = mid; i!= size; ++i)

{

third[i] = quantile[i];

}

double fst;

double trd;

int side\_length = 0;

if (size % 2 == 0)

{

side\_length = size/2;

}

else {

side\_length = (size-1)/2;

}

fst = (size/2) % 2 == 0 ? (first[side\_length/2]/2 + first[(side\_length-1)/2])/2 : first[side\_length/2];

trd = (size/2) % 2 == 0 ? (third[side\_length/2]/2 + third[(side\_length-1)/2])/2 : third[side\_length/2];

streamsize prec = cout.precision();

cout << "The quartiles are" << setprecision(3) << "1st"

<< fst << "2nd" << median << "3rd" << trd << setprecision(prec) << endl;

return 0;

}

Instead of doing std::sort(quantile.begin(), quantile.end()) a somewhat cheaper way would be

auto const Q1 = quantile.size() / 4;

auto const Q2 = quantile.size() / 2;

auto const Q3 = Q1 + Q2;

std::nth\_element(quantile.begin(), quantile.begin() + Q1, quantile.end());

std::nth\_element(quantile.begin() + Q1 + 1, quantile.begin() + Q2, quantile.end());

std::nth\_element(quantile.begin() + Q2 + 1, quantile.begin() + Q3, quantile.end());