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...ssignments\131_Assignment_2\question_2\question_2.cpp 1
1 // question_2.cpp : This file contains the 'main' function. Program ➤
  execution begins and ends there.
2 //// / ➤
  ----- ➤
  -----
3 //Name Sai Chaitanya Kilambi
4 //Course CPSC 131 Data Structures, Fall, 2022
5 //Assignment No.2 question:2
6 //Due date 09/07/2022
7 // Purpose:
8 // This program uses the arrays and vectors concept to store and display ➤
  names ,age and also calculates the average age
9 //----- ➤
  -----
10 // list of libraries
11 //
12 //importing the required libraries
13
14 #include <iostream>
15 #include <iomanip>
16 #include<string>
17 #include <vector>
18
19 //creating a template class
20 template <class T>
21
22 //function to display the elements in an array
23 void displayAll(T A[], int n)
24 {
25     for (int i = 0; i < n; i++) {
26         std::cout << A[i]<<" ";
27     }
28 }
29 //creating a template class
30 template<class V>
31
32 //function to display the elements in a vector
33 void DisplayAll(std::vector <V> B)
34 {
35     for (int i = 0; i < B.size(); i++)
36     {
37         std::cout << B[i] << " ";
38     }
39 }
40
41 //function to compute the average age
42 double computeAgeAve(int A[], int n) {
43     double avg = 0.0;
44     for (int i = 0; i < n; i++) {

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45     avg += A[i];
46 }
47 avg = avg / n;
48 return avg;
49 }
50
51 //main function
52 int main()
53 {
54     int age[5] = { 33, 67, 55, 72, 44 };
55     std::string names[3] = { "Trump", "Clinton", "Obama" };
56
57     //calling the display function for age array
58     std::cout << "Array age: ";
59     displayAll(age, 5);
60     std::cout << std::endl;
61
62     //calling the display function for names array
63     std::cout << "Array names: ";
64     displayAll(names, 3);
65     std::cout << std::endl;
66
67     //copying the elements from the age array to the vage vector
68     std::vector<int> vage;
69     for (int i = 0; i < 5; i++) {
70         vage.push_back(age[i]);
71     }
72
73     //copying the elements from the age array to the vnames vector
74     std::vector<std::string> vnames;
75     for (int i = 0; i < 3; i++) {
76         vnames.push_back(names[i]);
77     }
78
79     std::cout << std::endl;
80
81     //calling the display function for age array
82     std::cout << "Vector vage: ";
83     DisplayAll(vage);
84     std::cout << std::endl;
85
86     //calling the display function for vnames vector
87     std::cout << "Vector vnames: ";
88     DisplayAll(vnames);
89     std::cout << std::endl;
90
91     std::cout << std::endl;
92
93     //calling the compute avg age function
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94     std::cout << "Age average= " <<std::fixed <<std::setprecision(2) <<
      computeAgeAve(age, 5);
95
96     return 0;
97
98 }
```