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...ssignments\131_Assignment_2\question_1\question_1.cpp 1
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2 //Name Sai Chaitanya Kilambi
3 //Course CPSC 131 Data Structures, Fall, 2022
4 //Assignment No.2 question:1
5 //Due date 09/07/2022
6 // Purpose:
7 // his program copies the data from a text file and calculates the total 2
number of students, total number of female students, total number of 2
graduate students and total number of undergrad students in orange 2
campus
8 //----- 2
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9 // list of libraries
10 //
11 //importing the required libraries
12
13 #include<iostream>
14
15 #include<fstream>
16
17
18 //function for copying the data from the file.txt file into a 3D array
19 void copyData(std::string f_name, int X[2][4][2]) {
20     std::fstream f;
21     f.open(f_name, std::ios::in);
22     for (int i = 0; i < 2; i++) {
23         for (int j = 0; j < 4; j++) {
24             for (int k = 0; k < 2; k++) {
25                 f >> X[i][j][k];
26             }
27         }
28     }
29     f.close();
30 }
31 //function for calculating total number of students
32 int findTotalStud(int X[2][4][2]) {
33     int total = 0;
34     for (int i = 0; i < 2; i++) {
35         for (int j = 0; j < 4; j++) {
36             for (int k = 0; k < 2; k++) {
37                 total += X[i][j][k];
38             }
39         }
40     }
41     return total;
42 }
43

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44 //function for calculating total number of Female students
45 int findFemales(int X[2][4][2]) {
46     int total = 0;
47     for (int i = 0; i < 2; i++) {
48         for (int j = 0; j < 4; j++) {
49             total += X[i][j][0];
50         }
51     }
52     return total;
53 }
54 }
55
56 //function for calculating total number of Graduate students
57 int findGrads(int X[2][4][2]) {
58     int total = 0;
59     for (int j = 0; j < 4; j++) {
60         for (int k = 0; k < 2; k++) {
61             total += X[1][j][k];
62         }
63     }
64     return total;
65 }
66
67 //function for calculating total number of undergraduate students at orange campus
68 int findunderGradOrange(int X[2][4][2]) {
69     int total = 0;
70     for (int k = 0; k < 2; k++) {
71         total += X[0][1][k];
72     }
73     return total;
74 }
75
76 //main function
77 int main() {
78     int stud[2][4][2]; //created a 3D array
79
80     //calling copy function
81     copyData("file.txt", stud);
82
83     //calling the function to calculate the total number of students
84     int totalStud = findTotalStud(stud);
85     std::cout << "The total number of Students: " << totalStud <<
        std::endl; //print statement
86
87     //calling the function to calculate the total number of female students
88     int totalFemales = findFemales(stud);
89     std::cout << "The total number of Female Students: " << totalFemales <<
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    std::endl; //print statement
90
91    //calling the function to calculate the total number of Graduate students
92    int totalGrads = findGrads(stud);
93    std::cout << "The total number of Graduates: " << totalGrads <<
    std::endl; //print statement
94
95    //calling the function to calculate the total number of UnderGraduate students at orange campus
96    int underGradOrange = findunderGradOrange(stud);
97    std::cout << "The total number of Under Graduates of Orange Campus: "
    << underGradOrange << std::endl; //print statement
98
99    return 0;
100 }
```