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\* Class: CMSC140\_30522

\* Instructor: Charles Naegeli

\* Project 4

\* Description: Write a program that calculates the average number of days a company's employees are absent during the year and outputs a report on a file named "employeeAbsences.txt".

\* Due Date: 5/12/21

\* I pledge that I have completed the programming assignment independently.

I have not copied the code from a student or any source.

I have not given my code to any student.

Print your Name here: Chris Tark

\* Pseudocode or Algorithm for the program:

1.the user must enter the number of employees in the company

2.the user must enter as integers for each employee

3. Do not accept a number less than 1 for the number of employees

4. Do not accept a negative number for the days any employee missed

5. Be sure to print appropriate error messages for these items if the input is invalid.

\*/

using namespace std;

#include <iostream>

#include <iomanip>

#include <fstream>

int main() {

//varibles

int numOfEmployee();

int num\_days(int, std::ofstream&);

double avg\_abs(int, int);

//id and code

int numOfEmp = 0;

int numInfo = 0;

double avgAbsent = 0.0;

//start ofstream

ofstream myfile;

numOfEmp = numOfEmployee();

myfile.open("employeeAbsences.txt");

numInfo = num\_days(numOfEmp, myfile);

cout << endl;

//the total at the end and average

cout << "The " << numInfo << " employees were absent for a total number of " << numInfo << " days " << endl;

myfile << endl << "The " << numInfo << " employees were absent for a total number of " << numInfo << " days " << endl;

avgAbsent = avg\_abs(numInfo, numInfo);

cout << "The average number of days absent is: " << avgAbsent << " days " << endl;

myfile << "The average number of days absent is: " << avgAbsent << " days " << endl;

cout << "Programmer: Chris Tark";

return 0;

}

//# of employees

int numOfEmployee() {

int num;

cout << "Calculate the average number of days a company's employee are absent " << endl;

//asking for employees

cout << "\nPlease enter the number of employees in the company : ";

cin >> num;

//loop for employees being negative

while (num < 1)

{

cout << "INVALID, number of employees in a company must be > 1.";

cout << "Please enter the number of employees in the company : ";

cin >> num;

}

return num;

}

int num\_days(int e, std::ofstream& myfile) {

int numEmploy = e;

int num;

int total\_days = 0;

int id;

//report

if (myfile) {

myfile << "EMPLOYEE ABSENCE REPORT " << endl;

myfile << "employee id" << "days absent" << endl;

}

//loop for ID's

for (int i = 0; i < numEmploy; i++) {

cout << "Please enter an employee ID : ";

cin >> id;

cout << "Please enter the number of days this employee was absent : ";

cin >> num;

//loop for negative

while (num < 0) {

cout << "The number of days missed must not be negative." << endl;

cout << "Please re-enter the number of days this employee was absent : ";

cin >> num;

}

if (myfile) {

myfile << id << num << endl;

}

total\_days += num;

}

return total\_days;

}

//calulations for average absents

double avg\_abs(int i, int q) {

int numSecond = i;

int numSecondD = q;

double avgNumberOfAbsents;

avgNumberOfAbsents = numSecondD / numSecond;

return avgNumberOfAbsents;

}

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test Case #** | **Input** | **Actual Input** | **Expected Output** | | | **Actual Output** | **Did the test pass?** |
| 1 | No. of employees :  4  Employee ID’s/Days of absence : 1111 4  1112 5  1113 4  1114 3 | No. of employees :  4  Employee ID’s/Days of absence : 1111 4  1112 5  1113 4  1114 3 | Total: 16  Average: 4.0 | | | Total: 16  Average: 4.0 | yes |
| 2 | No. of employees :  5  Employee ID’s/Days of absence : 1234 2  2234 4  3234 6  4234 9  234 4 | No. of employees :  5  Employee ID’s/Days of absence : 1234 2  2234 4  3234 6  4234 9  234 4 | Total: 25  Average: 5.0 | | | Total: 25  Average: 5.0 | yes |
| 3 | 6 employees  1234 5  1234 3  1234 5  1234 2  1234 6  1234 2 | | 6 employees  1234 5  1234 3  1234 5  1234 2  1234 6  1234 2 | 23  3 | 23  3 | yes | |
| 4 | 1employee  6474 5 | | 1employee  6474 5 | 5  5 | 5  5 | yes | |









