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//COSC 1437 Program 3

#include <iostream>

#include <iomanip>

using namespace std;

class Population {

private:

int population;

int births;

int deaths;

public:

// Constructor

Population(int population, int births, int deaths) {

// Validate input values

if (population < 1 || births < 0 || deaths < 0) {

cout << "Invalid input values. Population should be greater than zero and births/deaths should be non-negative." << endl;

exit(1);

}

this->population = population;

this->births = births;

this->deaths = deaths;

}

// Member function to calculate the birth rate

double calculateBirthRate() {

return static\_cast<double>(births) / population;

}

// Member function to calculate the death rate

double calculateDeathRate() {

return static\_cast<double>(deaths) / population;

}

};

int main() {

int population, births, deaths;

cout << "Enter the population: ";

cin >> population;

cout << "Enter the number of births: ";

cin >> births;

cout << "Enter the number of deaths: ";

cin >> deaths;

Population populationStats(population, births, deaths);

double birthRate = populationStats.calculateBirthRate();

double deathRate = populationStats.calculateDeathRate();

cout << "Population statistics:" << endl;

cout << " Population: " << population << endl;

cout << " Birth Rate: " << fixed << setprecision(2) << birthRate << endl;

cout << " Death Rate: " << fixed << setprecision(2) << deathRate << endl;

return 0;

}

A screenshot of a computer

Description automatically generated with medium confidence