#include <iostream>

#include <vector>

#include <string>

using namespace std;

class Employee {

private:

string name;

int id;

int hoursWorked;

float hourlyRate;

public:

Employee(string n, int i, int h, float r) {

name = n;

id = i;

hoursWorked = h;

hourlyRate = r;

}

int getID() { return id; }

string getName() { return name; }

float calculateSalary() { return hoursWorked \* hourlyRate; }

void displaySalarySlip() {

cout << "\n----- Salary Slip -----\n";

cout << "Employee ID : " << id << endl;

cout << "Employee Name : " << name << endl;

cout << "Hours Worked : " << hoursWorked << endl;

cout << "Hourly Rate : " << hourlyRate << endl;

cout << "Total Salary : " << calculateSalary() << endl;

cout << "-----------------------\n";

}

void updateDetails(string n, int h, float r) {

name = n;

hoursWorked = h;

hourlyRate = r;

}

};

class PayrollSystem {

private:

vector<Employee> employees;

public:

void addEmployee(string name, int id, int hours, float rate) {

employees.push\_back(Employee(name, id, hours, rate));

cout << "✅ Employee added successfully!\n";

}

void deleteEmployee(int id) {

for (auto it = employees.begin(); it != employees.end(); ++it) {

if (it->getID() == id) {

employees.erase(it);

cout << "✅ Employee deleted successfully!\n";

return;

}

}

cout << "❌ Employee not found!\n";

}

void updateEmployee(int id, string name, int hours, float rate) {

for (auto &e : employees) {

if (e.getID() == id) {

e.updateDetails(name, hours, rate);

cout << "✅ Employee updated successfully!\n";

return;

}

}

cout << "❌ Employee not found!\n";

}

void searchEmployee(int id) {

for (auto &e : employees) {

if (e.getID() == id) {

e.displaySalarySlip();

return;

}

}

cout << "❌ Employee not found!\n";

}

void displayAll() {

cout << "\n----- Employee List -----\n";

float totalPayroll = 0;

for (auto &e : employees) {

cout << "ID: " << e.getID()

<< " | Name: " << e.getName()

<< " | Salary: " << e.calculateSalary() << endl;

totalPayroll += e.calculateSalary();

}

cout << "--------------------------\n";

cout << "Total Payroll Amount: " << totalPayroll << endl;

}

};

int main() {

PayrollSystem system;

int choice;

do {

cout << "\n===== Employee Payroll System =====\n";

cout << "1. Add Employee\n";

cout << "2. Delete Employee\n";

cout << "3. Update Employee\n";

cout << "4. Search Employee\n";

cout << "5. Display All Employees & Payroll\n";

cout << "6. Exit\n";

cout << "Enter your choice: ";

cin >> choice;

if (choice == 1) {

string name;

int id, hours;

float rate;

cout << "Enter Name: ";

cin >> name;

cout << "Enter ID: ";

cin >> id;

cout << "Enter Hours Worked: ";

cin >> hours;

cout << "Enter Hourly Rate: ";

cin >> rate;

system.addEmployee(name, id, hours, rate);

}

else if (choice == 2) {

int id;

cout << "Enter Employee ID to delete: ";

cin >> id;

system.deleteEmployee(id);

}

else if (choice == 3) {

int id, hours;

string name;

float rate;

cout << "Enter Employee ID to update: ";

cin >> id;

cout << "Enter New Name: ";

cin >> name;

cout << "Enter New Hours Worked: ";

cin >> hours;

cout << "Enter New Hourly Rate: ";

cin >> rate;

system.updateEmployee(id, name, hours, rate);

}

else if (choice == 4) {

int id;

cout << "Enter Employee ID to search: ";

cin >> id;

system.searchEmployee(id);

}

else if (choice == 5) {

system.displayAll();

}

} while (choice != 6);

cout << "✅ Exiting Payroll System. Goodbye!\n";

return 0;

}