Dr. Vishwanath Karad
MIT WORLD PEACE UNIVERSITY | PUNE
TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

Third Year B. Tech (EL & CE)

Semester: V **Subject:** Object-Oriented Programming Lab

Name: Shreerang Mhatre **Class: SY**

Roll No: 52 **Batch: A3**

Experiment No: 02

Name of the Experiment: Database of Airline Company
Performed on: 13/09/2023
Submitted on: 27/08/2023

Problem Statement:
Develop an object oriented program in C++ to create a database of employee into system containing following info:
Employee name, Employee No, Qualification ,address ,contact , Salary (basic, DA, Ta , Net Salary)
Construct the Database with suitable inline member function for initializing and destroying the data via Constructor, default Constructor, Copy Constructor , destructor.
Use dynamic memory allocation concept while creating and destroying the object of class.
Use static data member concept whenever needed display the Employee info.

OUTPUT:

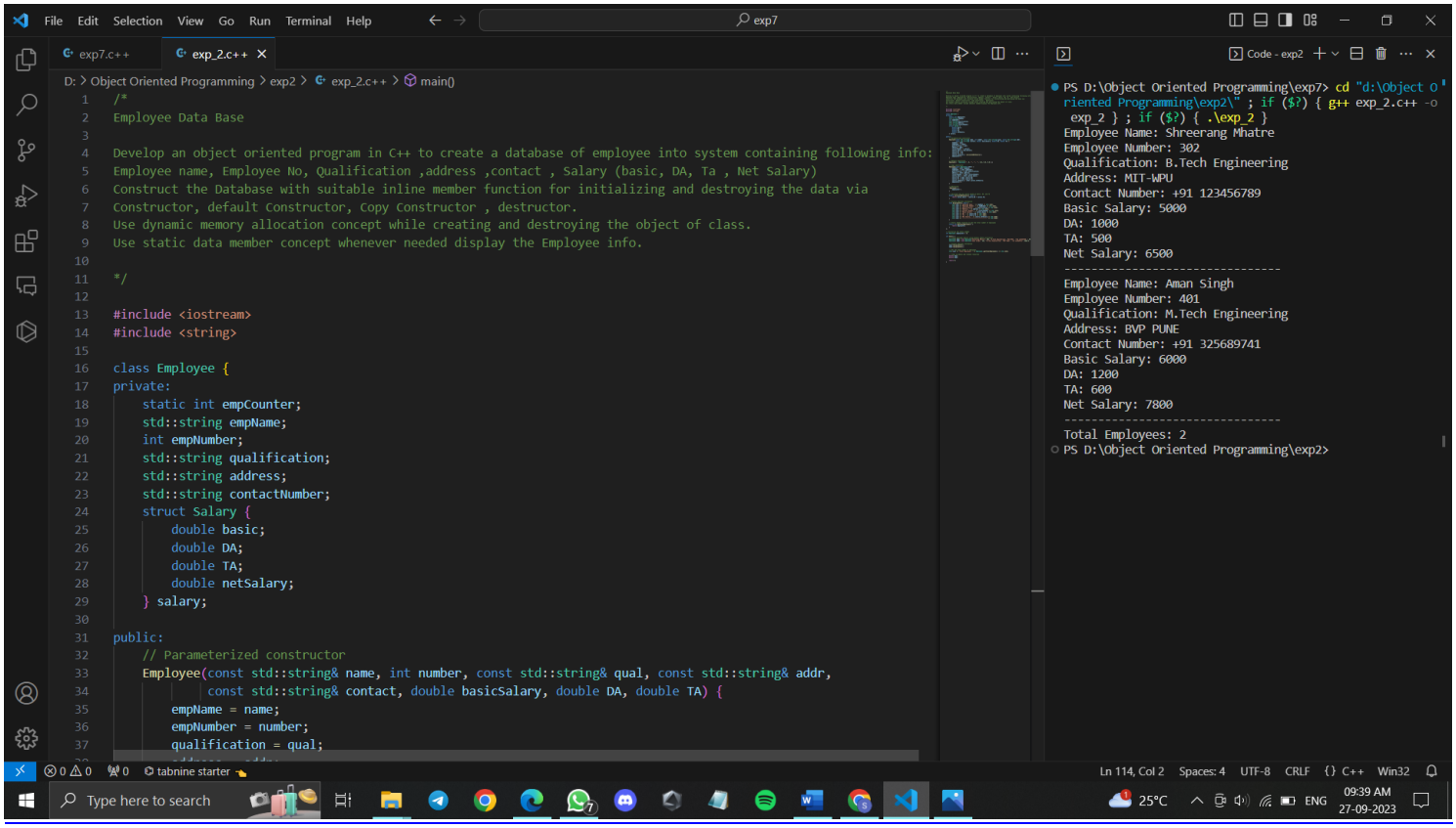
```
Employee Name: Shreerang Mhatre
Employee Number: 302
Qualification: B.Tech Engineering
Address: MIT-WPU
Contact Number: +91 123456789
Basic Salary: 5000
DA: 1000
TA: 500
Net Salary: 6500
--------------------------------
Employee Name: Aman Singh
Employee Number: 401
Qualification: M.Tech Engineering
Address: BVP PUNE
Contact Number: +91 325689741
Basic Salary: 6000
DA: 1200
TA: 600
Net Salary: 7800
--------------------------------
Total Employees: 2
```

Code:

```
#include <iostream>
#include <string>

class Employee {
private:
    static int empCounter;
    std::string empName;
    int empNumber;
    std::string qualification;
    std::string address;
    std::string contactNumber;
    struct Salary {
        double basic;
        double DA;
        double TA;
        double netSalary;
    } salary;

public:
    // Parameterized constructor
    Employee(const std::string& name, int number, const std::string& qual, const std::string& addr,
             const std::string& contact, double basicSalary, double DA, double TA) {
        empName = name;
        empNumber = number;
        qualification = qual;
        address = addr;
        contactNumber = contact;
        salary.basic = basicSalary;
        salary.DA = DA;
        salary.TA = TA;
        salary.netSalary = calculateNetSalary();
        empCounter++;
    }

    // Default constructor
    Employee() : Employee("", 0, "", "", "", 0.0, 0.0, 0.0) {}
```

```
// Copy constructor
Employee(const Employee& other) {
    empName = other.empName;
    empNumber = other.empNumber;
    qualification = other.qualification;
    address = other.address;
    contactNumber = other.contactNumber;
    salary.basic = other.salary.basic;
    salary.DA = other.salary.DA;
    salary.TA = other.salary.TA;
    salary.netSalary = other.salary.netSalary;
    empCounter++;
}

// Destructor
~Employee() {
    empCounter--;
}

// Calculate the net salary based on basic, DA, and TA
double calculateNetSalary() const {
    return salary.basic + salary.DA + salary.TA;
}

// Display employee information
void displayInfo() const {
    std::cout << "Employee Name: " << empName << std::endl;
    std::cout << "Employee Number: " << empNumber << std::endl;
    std::cout << "Qualification: " << qualification << std::endl;
    std::cout << "Address: " << address << std::endl;
    std::cout << "Contact Number: " << contactNumber << std::endl;
    std::cout << "Basic Salary: " << salary.basic << std::endl;
    std::cout << "DA: " << salary.DA << std::endl;
    std::cout << "TA: " << salary.TA << std::endl;
    std::cout << "Net Salary: " << salary.netSalary << std::endl;
    std::cout << "--------------------------------" << std::endl;
}

// Static member function to get the total number of employees
static int getTotalEmployees() {
    return empCounter;
```

```
    }
};

// Initialize the static member
int Employee::empCounter = 0;

int main() {
    // Create employee objects using dynamic memory allocation
    Employee* emp1 = new Employee("Shreerang Mhatre", 302, "B.Tech Engineering", "MIT-WPU", "+91 123456789 ", 5000.0, 1000.0, 500.0);
    Employee* emp2 = new Employee("Aman Singh", 401, "M.Tech Engineering", "BVP PUNE", "+91 325689741", 6000.0, 1200.0, 600.0);

    // Display employee information
    emp1->displayInfo();
    emp2->displayInfo();

    // Get the total number of employees
    std::cout << "Total Employees: " << Employee::getTotalEmployees() << std::endl;

    // Clean up memory and release resources
    delete emp1;
    delete emp2;

    return 0;
}
```



```cpp
/*
Employee Data Base

Develop an object oriented program in C++ to create a database of employee into system containing following info:
Employee name, Employee No, Qualification ,address ,contact , Salary (basic, DA, Ta , Net Salary)
Construct the Database with suitable inline member function for initializing and destroying the data via
Constructor, default Constructor, Copy Constructor , destructor.
Use dynamic memory allocation concept while creating and destroying the object of class.
Use static data member concept whenever needed display the Employee info.

*/

#include <iostream>
#include <string>

class Employee {
private:
    static int empCounter;
    std::string empName;
    int empNumber;
    std::string qualification;
    std::string address;
    std::string contactNumber;
    struct Salary {
        double basic;
        double DA;
        double TA;
        double netSalary;
    } salary;

public:
    // Parameterized constructor
    Employee(const std::string& name, int number, const std::string& qual, const std::string& addr,
             const std::string& contact, double basicSalary, double DA, double TA) {
        empName = name;
        empNumber = number;
        qualification = qual;
```

```
PS D:\Object Oriented Programming\exp7> cd "d:\Object Oriented Programming\exp2\" ; if ($?) { g++ exp_2.c++ -o exp_2 } ; if ($?) { .\exp_2 }
Employee Name: Shreerang Mhatre
Employee Number: 302
Qualification: B.Tech Engineering
Address: MIT-WPU
Contact Number: +91 123456789
Basic Salary: 5000
DA: 1000
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Net Salary: 6500
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Employee Name: Aman Singh
Employee Number: 401
Qualification: M.Tech Engineering
Address: BVP PUNE
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Total Employees: 2
PS D:\Object Oriented Programming\exp2>
```

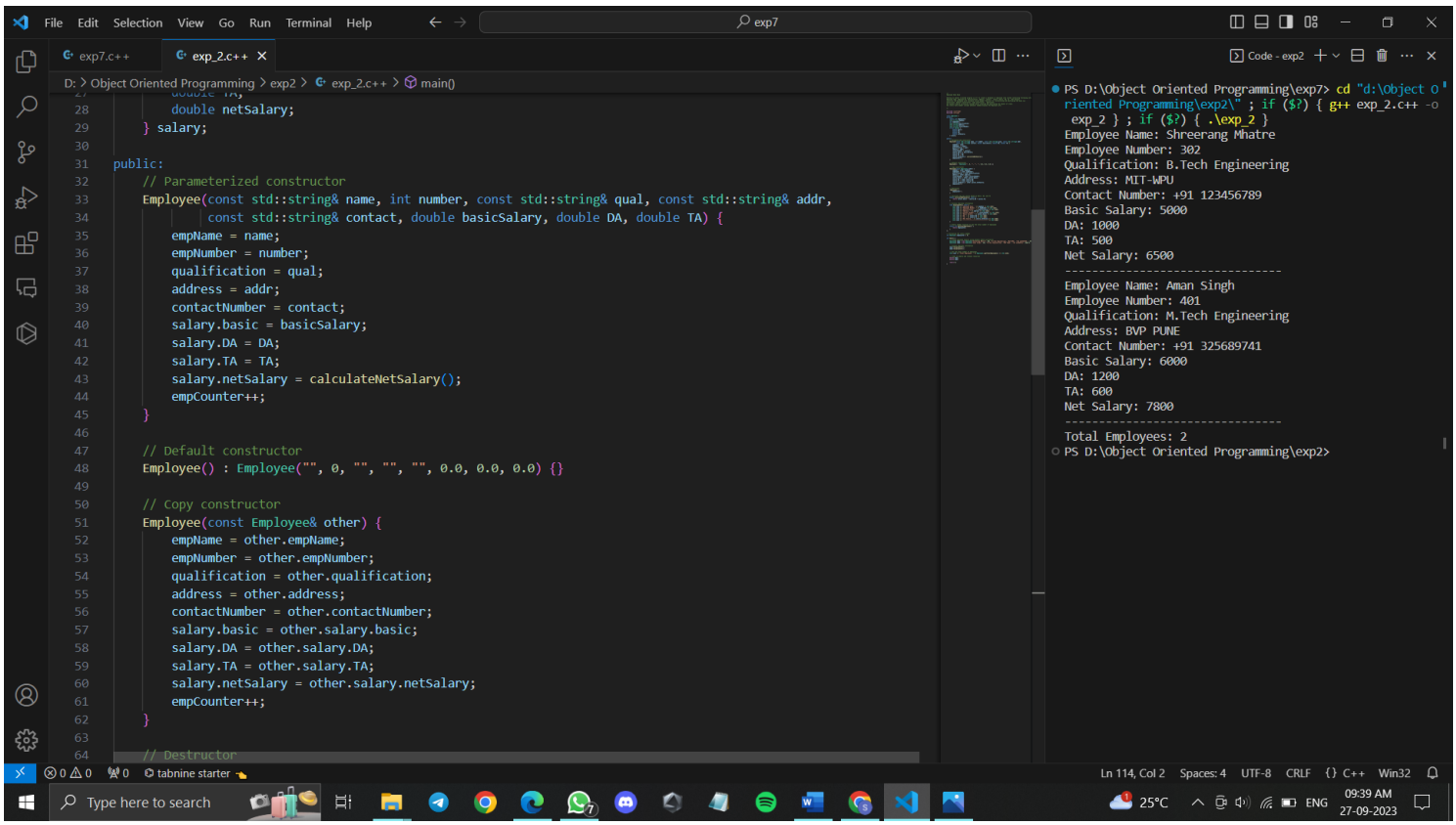

```cpp
    double netSalary;
} salary;

public:
    // Parameterized constructor
    Employee(const std::string& name, int number, const std::string& qual, const std::string& addr,
             const std::string& contact, double basicSalary, double DA, double TA) {
        empName = name;
        empNumber = number;
        qualification = qual;
        address = addr;
        contactNumber = contact;
        salary.basic = basicSalary;
        salary.DA = DA;
        salary.TA = TA;
        salary.netSalary = calculateNetSalary();
        empCounter++;
    }

    // Default constructor
    Employee() : Employee("", 0, "", "", "", 0.0, 0.0, 0.0) {}

    // Copy constructor
    Employee(const Employee& other) {
        empName = other.empName;
        empNumber = other.empNumber;
        qualification = other.qualification;
        address = other.address;
        contactNumber = other.contactNumber;
        salary.basic = other.salary.basic;
        salary.DA = other.salary.DA;
        salary.TA = other.salary.TA;
        salary.netSalary = other.salary.netSalary;
        empCounter++;
    }

    // Destructor
```

```
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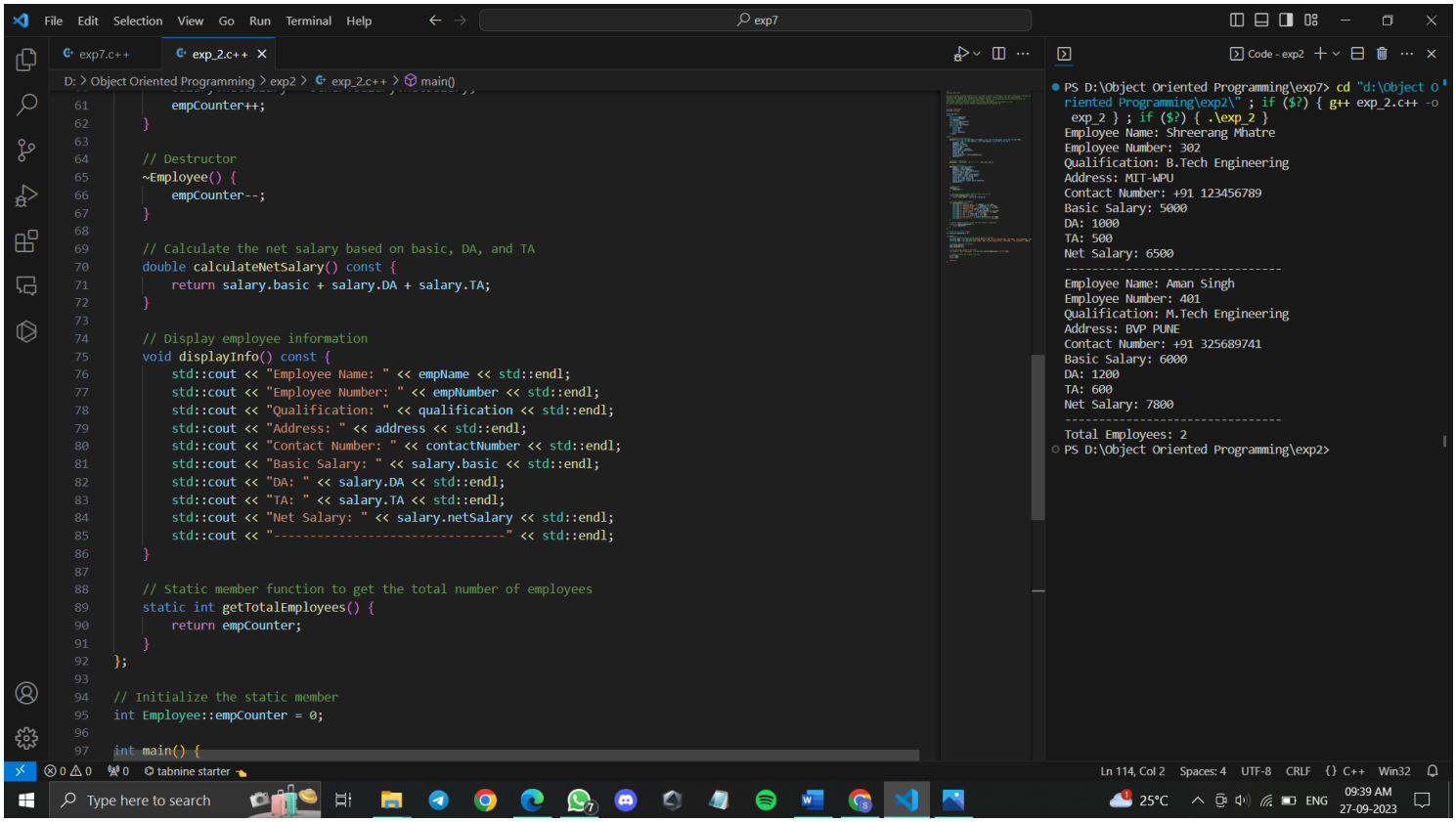

```
        empCounter++;
    }

    // Destructor
    ~Employee() {
        empCounter--;
    }

    // Calculate the net salary based on basic, DA, and TA
    double calculateNetSalary() const {
        return salary.basic + salary.DA + salary.TA;
    }

    // Display employee information
    void displayInfo() const {
        std::cout << "Employee Name: " << empName << std::endl;
        std::cout << "Employee Number: " << empNumber << std::endl;
        std::cout << "Qualification: " << qualification << std::endl;
        std::cout << "Address: " << address << std::endl;
        std::cout << "Contact Number: " << contactNumber << std::endl;
        std::cout << "Basic Salary: " << salary.basic << std::endl;
        std::cout << "DA: " << salary.DA << std::endl;
        std::cout << "TA: " << salary.TA << std::endl;
        std::cout << "Net Salary: " << salary.netSalary << std::endl;
        std::cout << "--------------------------------" << std::endl;
    }

    // Static member function to get the total number of employees
    static int getTotalEmployees() {
        return empCounter;
    }
};

// Initialize the static member
int Employee::empCounter = 0;

int main() {
```

```
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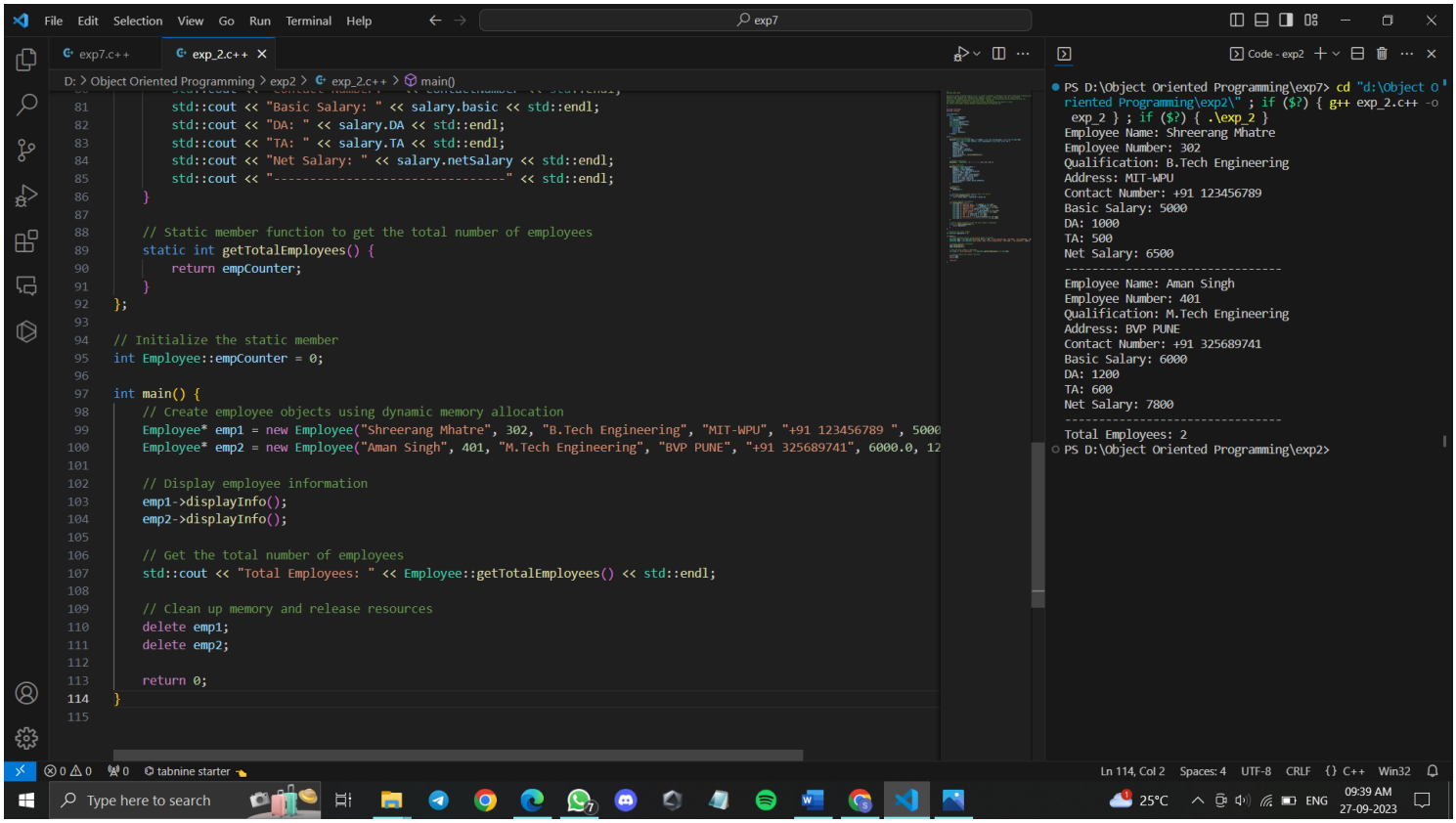

```
        std::cout << "Basic Salary: " << salary.basic << std::endl;
        std::cout << "DA: " << salary.DA << std::endl;
        std::cout << "TA: " << salary.TA << std::endl;
        std::cout << "Net Salary: " << salary.netSalary << std::endl;
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};

// Initialize the static member
int Employee::empCounter = 0;

int main() {
    // Create employee objects using dynamic memory allocation
    Employee* emp1 = new Employee("Shreerang Mhatre", 302, "B.Tech Engineering", "MIT-WPU", "+91 123456789 ", 5000
    Employee* emp2 = new Employee("Aman Singh", 401, "M.Tech Engineering", "BVP PUNE", "+91 325689741", 6000.0, 12

    // Display employee information
    emp1->displayInfo();
    emp2->displayInfo();

    // Get the total number of employees
    std::cout << "Total Employees: " << Employee::getTotalEmployees() << std::endl;

    // Clean up memory and release resources
    delete emp1;
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    return 0;
}
```

```
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