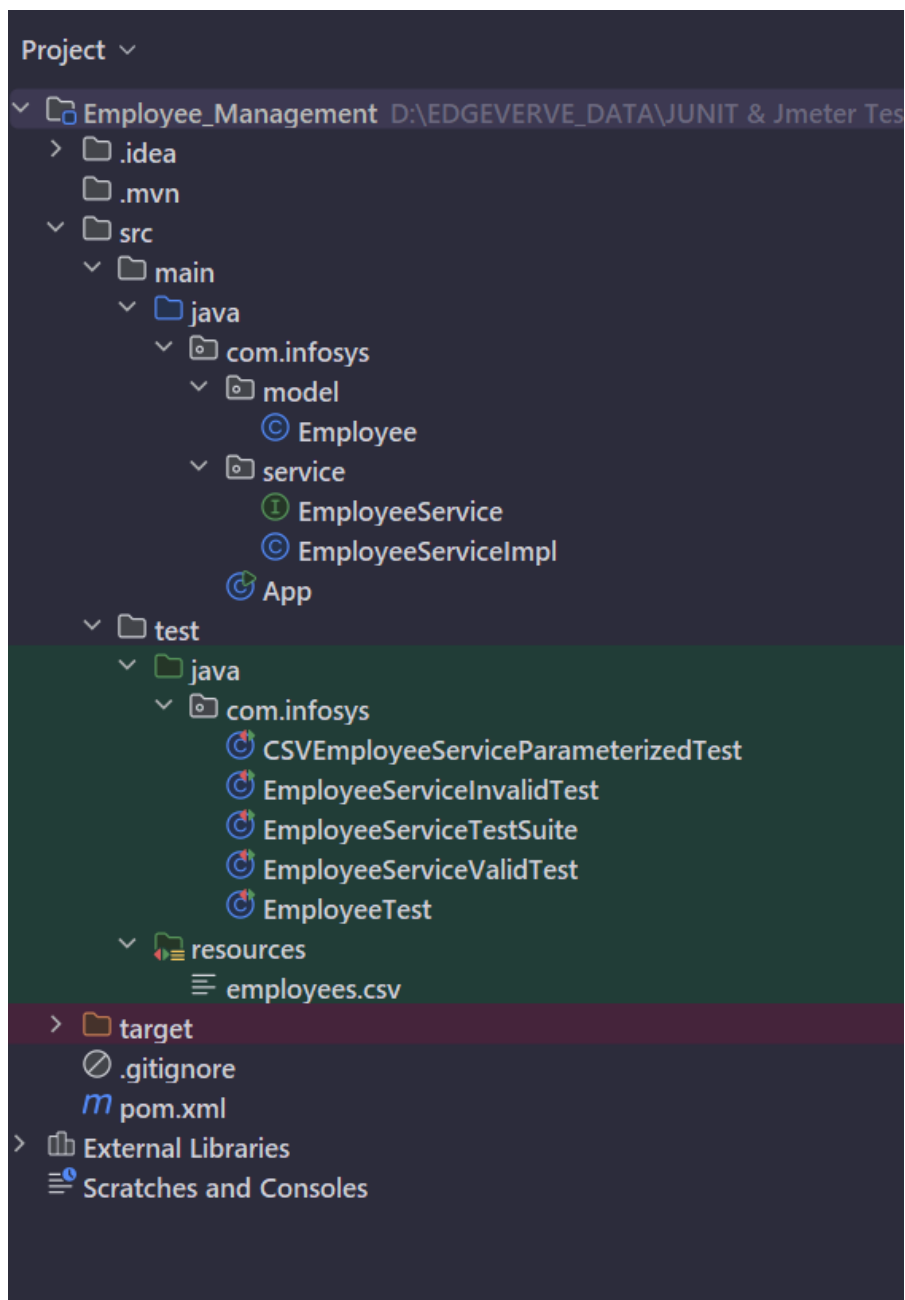


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Assignment_1 (JUnit Testing)

Folder Structure



Employee.java

```
package com.infosys.model;

public class Employee {

    private int id;
    private String name;
    private double monthlySalary;

    public Employee(int id, String name, double monthlySalary) {
        this.id = id;
        this.name = name;
        this.monthlySalary = monthlySalary;
    }

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public double getMonthlySalary() {
        return monthlySalary;
    }

    public void setMonthlySalary(double monthlySalary) {
        this.monthlySalary = monthlySalary;
    }
}
```

EmployeeService.java

```
package com.infosys.service;

import com.infosys.model.Employee;

public interface EmployeeService {

    double calculateHike(Employee employee);
    double calculateYearlySalary(Employee employee);
}
```

EmployeeServiceImpl.java

```
package com.infosys.service;

import com.infosys.model.Employee;

public class EmployeeServiceImpl implements EmployeeService{

    @Override
    public double calculateYearlySalary(Employee employee) {

        double yearlySalary = 0;
        yearlySalary = employee.getMonthlySalary()*12;
        return yearlySalary;
    }

    @Override
    public double calculateHike(Employee employee) {

        double hike = 0;
        if(employee.getMonthlySalary() < 10000){
            hike = 2000;
        }
        else {
            hike = 1000;
        }
        return hike;
    }

}
```

EmployeeTest.java

```
package com.infosys;

import com.infosys.model.Employee;
import com.infosys.service.EmployeeServiceImpl;
import org.junit.jupiter.api.*;

import static org.junit.jupiter.api.Assertions.*;

public class EmployeeTest {

    private EmployeeServiceImpl employeeService;

    @BeforeAll
    static void beforeAll()
    {
        System.out.println("BeforeAll is executed");
    }

    @AfterAll
    static void afterAll()
    {
        System.out.println("afterAll is executed");
    }

}
```

```

    }

    @BeforeEach
    void init()
    {
        System.out.println("Setup: Initializing EmployeeService...");
        employeeService = new EmployeeServiceImpl();
    }

    @AfterEach
    void cleanupCode()
    {
        System.out.println("Teardown: Cleaning up after test...");
    }

    @Test
    @DisplayName("Test Yearly Salary Calculation for 8000 Monthly")
    void testCalculateYearlySalary() {
        Employee emp = new Employee(1, "Zenitsu", 10000);
        double actual = employeeService.calculateYearlySalary(emp);
        double expected = 120000;
        assertEquals(expected, actual);
    }

    @Test
    @DisplayName("Test Hike Calculation for < 10000 Monthly")
    void testCalculateHike_LowSalary() {
        Employee e = new Employee(2, "Inosuke", 8000);
        double actual = employeeService.calculateHike(e);
        double expected = 2000;
        assertEquals(expected, actual);
    }

    @Test
    @DisplayName("Test Hike Calculation for >= 10000 Monthly")
    void testCalculateHike_HighSalary() {
        Employee e = new Employee(3, "Tanjiro", 12000);
        double actual = employeeService.calculateHike(e);
        double expected = 1000;
        assertEquals(expected, actual);
    }

    @Test
    @Disabled
    @DisplayName("Disabled test")
    void testFail()
    {
        System.out.println("This test is disabled and should not run.");
    }
}

```

EmployeeServiceValidTest.java

```
package com.infosys;

import com.infosys.model.Employee;
import com.infosys.service.EmployeeServiceImpl;
import org.junit.jupiter.api.*;

import static org.junit.jupiter.api.Assertions.assertEquals;

public class EmployeeServiceValidTest {

    EmployeeServiceImpl employeeService;

    @BeforeEach
    void init()
    {
        System.out.println("Setup: Initializing EmployeeService...");
        employeeService = new EmployeeServiceImpl();
    }

    @Test
    @Tag("Valid")
    @DisplayName("Valid: Hike for 9500 Salary")
    void validHikeLowSalary() {
        Employee e = new Employee(1, "John", 9500);
        double actual = employeeService.calculateHike(e);
        double expected = 2000;
        assertEquals(expected, actual);
    }

    @Test
    @DisplayName("Valid: Yearly Salary for 10000 Monthly")
    void validYearlySalary() {
        Employee e = new Employee(2, "Jane", 10000);
        double actual = employeeService.calculateYearlySalary(e);
        double expected = 120000;
        assertEquals(expected, actual);
    }
}
```

EmployeeServiceInvalidTest.java

```
package com.infosys;

import com.infosys.model.Employee;
import com.infosys.service.EmployeeServiceImpl;
import org.junit.jupiter.api.*;
import org.junit.jupiter.api.DisplayName;
import org.junit.jupiter.api.Tag;
import org.junit.jupiter.api.Test;

import static org.junit.jupiter.api.Assertions.assertTrue;

public class EmployeeServiceInvalidTest {

    EmployeeServiceImpl employeeService;
```

```

@BeforeEach
void init()
{
    System.out.println("Setup: Initializing EmployeeService...");
    employeeService = new EmployeeServiceImpl();
}

@Test
@Tag("Invalid")
@DisplayName("Invalid: Negative Monthly Salary")
void invalidSalaryTest() {
    Employee e = new Employee(3, "Bob", -5000);
    double yearly = employeeService.calculateYearlySalary(e);
    assertTrue(yearly < 0, "Yearly salary should be negative for invalid input");
}
}

```

EmployeeServiceParameterizedTest.java

```

package com.infosys;

import com.infosys.model.Employee;
import com.infosys.service.EmployeeServiceImpl;
import org.junit.jupiter.params.ParameterizedTest;
import org.junit.jupiter.params.provider.CsvFileSource;

import static org.junit.jupiter.api.Assertions.assertEquals;

public class CSVEmployeeServiceParameterizedTest {

    private EmployeeServiceImpl employeeService = new EmployeeServiceImpl();

    @ParameterizedTest
    @CsvFileSource(files = "src/test/resources/employees.csv",
numLinesToSkip = 1)
    void testYearlySalaryWithCsv(int id, String name, double monthlySalary,
double expectedYearly) {
        Employee e = new Employee(id, name, monthlySalary);
        double actual = employeeService.calculateYearlySalary(e);
        double expected = expectedYearly;
        assertEquals(expected, actual);
    }
}

```

EmployeeServiceTestSuite.java

```

package com.infosys;

import org.junit.jupiter.api.DisplayName;
import org.junit.platform.suite.api.ExcludeTags;
import org.junit.platform.suite.api.IncludeTags;
import org.junit.platform.suite.api.SelectClasses;
import org.junit.platform.suite.api.Suite;

```

```

@Suite
@SelectClasses({EmployeeServiceValidTest.class,
EmployeeServiceInvalidTest.class})
@IncludeTags({"Valid", "Invalid"})
@DisplayName("Employee Service Test Suite")
public class EmployeeServiceTestSuite {

}

```

employees.csv

id	name	monthlySalary	expectedYearly
1	Tanjiro	12000	144000
2	Zenitsu	10000	120000
3	Inosuke	8000	96000

id	name	monthlySalary	expectedYearly
1	Tanjiro	12000	144000
2	Zenitsu	10000	120000
3	Inosuke	8000	96000

Output:

Project view shows the package structure: EmployeeService, EmployeeServiceImpl, App, test, java, com.infosys, CSVEmployeeServiceParameterizedTest, EmployeeServiceInvalidTest, EmployeeServiceTestSuite, EmployeeServiceValidTest, EmployeeTest, resources, employees.csv.

Run view shows the execution of EmployeeTest (com.infosys). The test suite is disabled, and the output shows 3 tests passed, 1 ignored, 4 tests total, 33 ms.

```
public class EmployeeTest {
    @BeforeAll
    static void beforeAll() {
        System.out.println("BeforeAll is executed");
    }

    @AfterAll
    static void afterAll() {
        System.out.println("afterAll is executed");
    }
}
```

Process finished with exit code 0

Run view shows the execution of EmployeeTest (com.infosys). The test suite is disabled, and the output shows 3 tests passed, 1 ignored, 4 tests total, 33 ms.

```
void com.infosys.EmployeeTest.testFail() is @Disabled
Setup: Initializing EmployeeService...
Teardown: Cleaning up after test...
Setup: Initializing EmployeeService...
Teardown: Cleaning up after test...
Setup: Initializing EmployeeService...
Teardown: Cleaning up after test...
afterAll is executed

Process finished with exit code 0
```

Project view shows the package structure: EmployeeService, EmployeeServiceImpl, App, test, java, com.infosys, CSVEmployeeServiceParameterizedTest, EmployeeServiceInvalidTest, EmployeeServiceTestSuite, EmployeeServiceValidTest, EmployeeTest, resources, employees.csv, target, .gitignore, pom.xml.

Run view shows the execution of EmployeeServiceValidTest (com.infosys). The test suite is enabled, and the output shows 2 tests passed, 2 tests total, 53 ms.

```
import static org.junit.jupiter.api.Assertions.assertEquals;

public class EmployeeServiceValidTest {

    EmployeeServiceImpl employeeService;

    @BeforeEach
    void init() {
        System.out.println("Setup: Initializing EmployeeService...");
        employeeService = new EmployeeServiceImpl();
    }

    @Test
    // ...
}
```

Process finished with exit code 0

