

EC-5080 SoftwareConstruction.

JUnit5 tutorial.

Step-01

Create the maven project

Step-02

Add the junit5 dependency in the pom Xml.

Step-03

Create the normal java class

```
public class BasicSalaryCalculator{
    private double basicsalary;

    public double getBasicSalary()
    {
        return basicsalary
    }
    public void setBasicSalary(double basicsalary )
    {
        if(basicsalary<0)
        {
            throw new IllegalArgumentException("negative salary is Invalid");
        }
        this.basicsalary=basicsalary;
    }
    public double getGrossSalary()
    {
        return this.basicsalary+getSocialInsurance()+getAdditionalBonus();
    }
    public double getSocialInsurance()
    {
        return this.basicsalary;
    }
    public double getAdditionalBonus()
    {
        return this.basicsalary;
    }
}
```

Step-04

Create the test in the test Directory.

Adding the Jupiter-api-dependency in the pom xml

```

import static org.junit.jupiter.api.Assertions.*;
import org.junit.jupiter.api.AfterEach;
import org.junit.jupiter.api.BeforeEach;
import org.junit.jupiter.api.DisplayName;
import org.junit.jupiter.api.Test;

public class BasicSalaryCalculatorTest{

    private BasicSalaryCalculator basicSalaryCalculator;

    @BeforeEach
    void init()
    {
        basicSalaryCalculator=new BasicSalaryCalculator();
    }

    @Test
    void testBasicSalaryWithValidSalary()
    {
        double basicSalary=4000;
        basicSalaryCalculator.setBasicSalary(basicSalary);

        double expectedSocialInsurance=basicSalary*0.25;
        assertEquals(expectedSocialInsurance,basicSalaryCalculator.getSocialInsurance());

        double expectedAdditionalBouns=basicSalary*0.1;
        assertEquals(expectedAdditionalBouns,basicSalaryCalculator.getAdditionalBonus());

        double expectedGross=basicSalary+expectedSocialInsurance+expectedAdditionalBouns;
        assertEquals(expectedGross,basicSalaryCalculator.getGrossSalary());
    }

    @DisplayName("Test BasicSalaryCalculator with invalid Salary");
    @Test
    void testBasicSalaryWithInvalidSalary()
    {
        double basicSalary=-100;
        assertThrows(IllegalArgumentException.class, () ->{
            basicSalaryCalculator.setBasicSalary(basicSalary);
        });
    }

    @AfterEach
    void tearDown()
    {
        basicSalaryCalculator=null;
    }
}

```

@beforeEach –annotated method should be executed before each invocation of @test.

@Displayname-It helps to declare our own display name for the annotated test class.

@AfterEach- annotated method should be executed After each @test method in the current test class.

Step-05

Run the test class