

Cognizant Digital Nurture 4.0 – Java FSE

Week 2 – Hands-On Report

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Track: Deep Skilling – Java Full Stack Engineer

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1. PL/SQL – Senior Citizen Discount Eligibility

Code:

```
BEGIN
    FOR rec IN (SELECT CustomerID, DOB FROM Customers)
LOOP
    DECLARE
        v_age NUMBER;
    BEGIN
        v_age := FLOOR(MONTHS_BETWEEN(SYSDATE,
rec.DOB) / 12);
        IF v_age > 60 THEN
            DBMS_OUTPUT.PUT_LINE('Customer ID ' ||
rec.CustomerID || ' is senior. Discount applied!');
        ELSE
            DBMS_OUTPUT.PUT_LINE('Customer ID ' ||
rec.CustomerID || ' is not eligible.');
        END IF;
    END;
END LOOP;
END;
```

Output Sample:

Customer ID 2 is not eligible.

The screenshot shows the Oracle Live SQL interface. In the top navigation bar, it says "Live SQL" and "Worksheet". The main area has tabs for "Navigator" and "Files". Under "Navigator", "My Schema" is selected, showing "Tables" and "CUSTOMERS". A search bar "Search objects" is also present. The central workspace contains a PL/SQL script named "DiscountEligibility.sql". The script code is as follows:

```
1 BEGIN
2   FOR rec IN (SELECT CustomerID, DOB FROM Customers) LOOP
3     DECLARE
4       v_Age NUMBER;
5     BEGIN
6       v_Age := FLOOR(MONTHS_BETWEEN(SYSDATE, rec.DOB) / 12);
7       IF v_Age >= 60 THEN
8         DBMS_OUTPUT.PUT_LINE('Customer ID '|| rec.CustomerID ||' is senior. Discount applied!');
9       ELSE
10        DBMS_OUTPUT.PUT_LINE('Customer ID '|| rec.CustomerID ||' is not eligible.');
11      END IF;
12    END;
13  END LOOP;
14 END;
```

Below the script, the "Script output" tab is selected. The output shows the execution of the script and its results:

```
SQL> BEGIN
FOR rec IN (SELECT CustomerID, DOB FROM Customers) LOOP
DECLARE
  v_Age NUMBER;...
Show more...

Customer ID 2 is not eligible.

PL/SQL procedure successfully completed.
Elapsed: 00:00:00.088
```

At the bottom of the interface, there are links for "About Oracle", "Contact Us", "Legal Notices", "Terms and Conditions", "Your Privacy Rights", "Delete Your Live SQL Account", and "Cookie Preferences". It also mentions "Copyright © 2014, 2025 Oracle and/or its affiliates All rights reserved." and "r51.1".

2. JUnit Testing – Calculator

Calculator.java:

```
public class Calculator {  
    public int add(int a, int b) {  
        return a + b;  
    }  
}
```

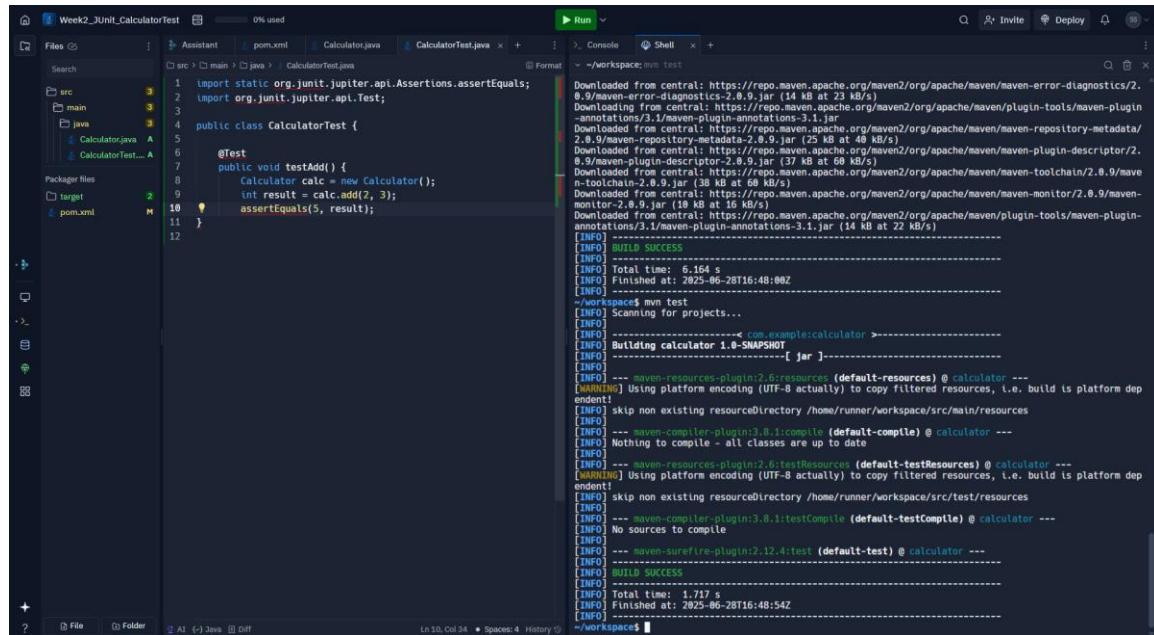
CalculatorTest.java:

```
import static org.junit.jupiter.api.Assertions.assertEquals;  
import org.junit.jupiter.api.Test;  
  
public class CalculatorTest {  
  
    @Test  
    public void testAdd() {  
        Calculator calc = new Calculator();  
        int result = calc.add(2, 3);  
        assertEquals(5, result); // ✅ Test passes  
    }  
}
```

Test Output:

BUILD SUCCESS

Tests run: 1, Failures: 0



The screenshot shows a Java development environment with a code editor and a terminal window. The code editor displays a Java test class named `CalculatorTest.java` with one test method, `testAdd()`. The terminal window shows the Maven build process and its output.

```
Week2_JUnit_CalculatorTest
```

```
src/main/java/CalculatorTest.java
```

```
CalculatorTest.java
```

```
Calculator.java
```

```
CalculatorTest....
```

```
pom.xml
```

```
mvn test
```

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-error-diagnostics/2.0.9/maven-error-diagnostics-2.0.9.jar (14 kB at 23 kB/s)
```

```
Downloading from central: https://repo.maven.apache.org/maven/plugin-tools/maven-plugin-annotations/3.1/maven-plugin-annotations-3.1.jar
```

```
Downloaded from central: https://repo.maven.apache.org/maven/maven-repository-metadata/2.0.9/maven-repository-metadata-2.0.9.jar (25 kB at 40 kB/s)
```

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-plugin-descriptor/2.0.9/maven-plugin-descriptor-2.0.9.jar (37 kB at 6 kB/s)
```

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-toolchain/2.0.9/maven-toolchain-2.0.9.jar (13 kB at 22 kB/s)
```

```
Downloaded from central: https://repo.maven.apache.org/maven-monitor/2.0.9/maven-monitor-2.0.9.jar (10 kB at 16 kB/s)
```

```
Downloaded from central: https://repo.maven.apache.org/maven/plugin-tools/maven-plugin-annotations/3.1/maven-plugin-annotations-3.1.jar (14 kB at 22 kB/s)
```

```
[INFO] [INFO] BUILD SUCCESS
```

```
[INFO] [INFO] Total time: 6.164 s
```

```
[INFO] Finished at: 2025-06-28T16:48:00Z
```

```
[INFO]
```

```
mvn test
```

```
Scanning for projects...
```

```
Building calculator 1.0-SNAPSHOT
```

```
[jar]
```

```
--- maven-resources-plugin:2.6:resources (default-resources) @ calculator ---
```

```
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
```

```
[INFO] skip non existing resourceDirectory /home/runner/workspace/src/main/resources
```

```
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ calculator ---
```

```
[INFO] Nothing to compile - all classes are up to date
```

```
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ calculator ---
```

```
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
```

```
[INFO] skip non existing resourceDirectory /home/runner/workspace/src/test/resources
```

```
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ calculator ---
```

```
[INFO] No sources to compile
```

```
[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ calculator ---
```

```
[INFO] BUILD SUCCESS
```

```
[INFO] Total time: 1.217 s
```

```
[INFO] Finished at: 2025-06-28T16:48:54Z
```

```
[INFO]
```

3. SLF4J Logging – LoggerDemo

LoggerDemo.java:

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;

public class LoggerDemo {
    private static final Logger logger =
LoggerFactory.getLogger(LoggerDemo.class);

    public static void main(String[] args) {
        logger.info(" Info: Application started");
        logger.warn(" Warning: Low disk space");
        logger.error(" Error: Unable to connect to server");

        int result = divide(10, 2);
        logger.info("Division result: " + result);

        divide(10, 0); // Triggers error log
    }

    public static int divide(int a, int b) {
        if (b == 0) {
            logger.error("Cannot divide by zero!");
            return 0;
        }
        return a / b;
    }
}
```

Log Output Sample:

INFO LoggerDemo - ● Info: Application started

WARN LoggerDemo - ● Warning: Low disk space

ERROR LoggerDemo - ● Error: Unable to connect to server

INFO LoggerDemo - Division result: 5

ERROR LoggerDemo - Cannot divide by zero!

The screenshot shows an IDE interface with two main panes. The left pane displays a Java file named `LoggerDemo.java` containing code that includes logging statements. The right pane shows the terminal output of a Maven build process for a project named `LoggerDemo`. The log output includes various Maven lifecycle phases like `clean`, `compile`, and `test`, along with detailed information about dependencies being downloaded from central repositories. The logs also reflect the execution of the Java code, showing INFO, WARN, and ERROR messages corresponding to the sample log output provided above.

```
INFO [main] 2023-06-28T16:39:42.337+00:00 [LoggerDemo.main()] INFO Application started
WARN [main] 2023-06-28T16:39:42.337+00:00 [LoggerDemo.main()] WARN Low disk space
ERROR [main] 2023-06-28T16:39:42.337+00:00 [LoggerDemo.main()] ERROR Unable to connect to server
INFO [main] 2023-06-28T16:39:42.337+00:00 [LoggerDemo.main()] INFO Division result: 5
ERROR [main] 2023-06-28T16:39:42.337+00:00 [LoggerDemo.main()] ERROR Cannot divide by zero!
```