

## WEEK 2-MANDATORY HANDS ON EXERCISES

### Module 3 - PL/SQL Programming

#### Exercise 1: Control Structures

**Scenario 1:** The bank wants to apply a discount to loan interest rates for customers above 60 years old.

- **Question:** Write a PL/SQL block that loops through all customers, checks their age, and if they are above 60, apply a 1% discount to their current loan interest rates.

**Output ->**

```
SQL> SELECT CUSTOMERNAME,AGE,LOANINTERESTRATE FROM CUSTOMERS;
```

```
CUSTOMERNAME
```

```
-----
```

```
      AGE  LOANINTERESTRATE
```

```
-----
```

```
John
```

```
      65          6.5
```

```
Mary
```

```
      45          10
```

```
Sita
```

```
      70           5
```

```
CUSTOMERNAME
```

```
-----
```

```
      AGE  LOANINTERESTRATE
```

```
-----
```

```
Ali
```

```
      30          12
```

**Scenario 2:** A customer can be promoted to VIP status based on their balance.

- **Question:** Write a PL/SQL block that iterates through all customers and sets a flag IsVIP to TRUE for those with a balance over \$10,000.

Output ->

```
SQL> SELECT CUSTOMERNAME,AGE,LOANINTERESTRATE,BALANCE,ISVIP FROM CUSTOMERS;
```

CUSTOMERNAME	AGE	LOANINTERESTRATE	BALANCE	ISVIP
John	65	6.5	12000	TRUE
Mary	45	10	8000	FALSE
Sita	70	5	15000	TRUE

  

CUSTOMERNAME	AGE	LOANINTERESTRATE	BALANCE	ISVIP
Ali	30	12	2000	FALSE

**Scenario 3:** The bank wants to send reminders to customers whose loans are due within the next 30 days.

- **Question:** Write a PL/SQL block that fetches all loans due in the next 30 days and prints a reminder message for each customer.

Output->

```
Reminder: Customer John (ID: 1) has Loan ID 201 due on 29-JUN-2025.  
PL/SQL procedure successfully completed.
```

### Exercise 3: Stored Procedures

**Scenario 1:** The bank needs to process monthly interest for all savings accounts.

- **Question:** Write a stored procedure **ProcessMonthlyInterest** that calculates and updates the balance of all savings accounts by applying an interest rate of 1% to the current balance.

**Output ->**

```
SQL> SELECT ACCOUNTID BALANCE FROM SAVINGSACCOUNTS;
```

BALANCE
-----
101
102
103

**Scenario 2:** The bank wants to implement a bonus scheme for employees based on their performance.

- **Question:** Write a stored procedure **UpdateEmployeeBonus** that updates the salary of employees in a given department by adding a bonus percentage passed as a parameter.

**Output->**

```
SQL> SELECT EMPID,DEPARTMENT,SALARY FROM EMPLOYEES;
```

EMPID	DEPARTMENT	SALARY
-----	-----	-----
1	HR	30000
2	IT	48400
3	IT	54450
4	Finance	38000

**Scenario 3:** Customers should be able to transfer funds between their accounts.

- **Question:** Write a stored procedure **TransferFunds** that transfers a specified amount from one account to another,

checking that the source account has sufficient balance before making the transfer.

Output->

```
SQL> SELECT * FROM ACCOUNTS;
```

ACCOUNTID	CUSTOMERNAME	BALANCE
201	John	6000
202	Mary	8000

## Module 4 – Test driven development and Logging framework

Output of all the testing files->

```
PS D:\JAVA FSE\Week 2\junitexample> mvn clean test
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:junitexample >-----
[INFO] Building junitexample 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- clean:3.1.0:clean (default-clean) @ junitexample ---
[INFO] Deleting D:\JAVA FSE\Week 2\junitexample\target
[INFO]
[INFO] --- resources:3.0.2:resources (default-resources) @ junitexample ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory D:\JAVA FSE\Week 2\junitexample\src\main\resources
[INFO]
[INFO] --- compiler:3.8.0:compile (default-compile) @ junitexample ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to D:\JAVA FSE\Week 2\junitexample\target\classes
[INFO]
[INFO] --- resources:3.0.2:testResources (default-testResources) @ junitexample ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory D:\JAVA FSE\Week 2\junitexample\src\test\resources
[INFO]
[INFO] --- compiler:3.8.0:testCompile (default-testCompile) @ junitexample ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 7 source files to D:\JAVA FSE\Week 2\junitexample\target\test-classes
[INFO]
[INFO] --- surefire:2.22.1:test (default-test) @ junitexample ---
[INFO]
```

```

[INFO] T E S T S
[INFO] -----
[INFO] Running com.example.AAATest
Setup before test
Teardown after test
Setup before test
Teardown after test
[INFO] Tests run: 2, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.009 s - in com.example.AAATest
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0 s - in com.example.AppTest
[INFO] Running com.example.AssertionsTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0 s - in com.example.AssertionsTest
[INFO] Running com.example.MyServiceTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.67 s - in com.example.MyServiceTest
[INFO] Running MyFirstTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.001 s - in MyFirstTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 6, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 5.821 s
[INFO] Finished at: 2025-06-28T18:23:49:05:30
[INFO] -----
PS D:\JAVA FSE\Week 2\junitexample>

```

```

PS D:\JAVA FSE\Week 2\junitexample> mvn exec:java
>>
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.example:junitexample >-----
[INFO] Building junitexample 1.0-SNAPSHOT
[INFO]   from pom.xml
[INFO]
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- exec:3.1.0:java (default-cli) @ junitexample ---
18:38:08.211 [com.example.LoggingExample.main()] ERROR com.example.LoggingExample - This is an error message
18:38:08.214 [com.example.LoggingExample.main()] WARN com.example.LoggingExample - This is a warning message
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 0.742 s
[INFO] Finished at: 2025-06-28T18:38:08+05:30
[INFO]
PS D:\JAVA FSE\Week 2\junitexample>

```