Databases Autumn 2025

Hand-In Exercise 4

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Total Points	

Task	Points

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Task 1

a)

```
1   CREATE FUNCTION checkBalance (cid IN NUMBER)
2   RETURN VARCHAR2
3   IS
4           balanceCalculated NUMBER(10,2);
5           balanceSaved NUMBER(10,2);
6   BEGIN
7           SELECT SUM(amount)
8           INTO balanceCalculated
9           FROM BankTransaction
10          WHERE customer_id = cid;
11          SELECT balance
12          INTO balanceSaved
13          FROM Customer
14          WHERE customer_id = cid;
15
16          IF balanceCalculated = balanceSaved THEN
17                  RETURN 'Consistent';
18          ELSE
19                  RETURN 'Inconsistent';
20          END IF;
21  END;
```

b)

```
1   CREATE PROCEDURE checkAllBalances (consistent OUT VARCHAR2)
2   IS
3           inconsistent BOOLEAN := FALSE;
4           CURSOR c IS SELECT customer_id FROM Customer;
5   BEGIN
6           FOR record IN c LOOP
7                   IF check_balance(record.customer_id) =
8                                           'Inconsistent' THEN
9                           inconsistent := TRUE;
10                  END IF;
11          END LOOP;
12
13          IF inconsistent THEN
14                  consistent := 'Inconsistent';
15          ELSE
16                  consistent := 'Consistent';
17          END IF;
18  END;
```

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c)

```
1   CREATE PROCEDURE checkReceive (
2           cid                     IN NUMBER,
3           amount                  IN NUMBER(10,2),
4           description             IN VARCHAR2)
5   IS
6           customerExists          NUMBER;
7           customerNotExists       EXCEPTION;
8           maxTransaction          BankTransaction.transaction_id%TYPE;
9   BEGIN
10          SELECT COUNT(*)
11          INTO customerExists
12          FROM Customer
13          WHERE customer_id = cid;
14
15          IF customerExists = 0 THEN RAISE customerNotExists;
16          END IF;
17
18          UPDATE Customer
19          SET balance = balance + amount
20          WHERE customer_id = cid;
21
22          SELECT MAX(transaction_id)
23          INTO maxTransaction
24          FROM BankTransaction;
25
26          INSERT INTO BankTransaction
27          VALUES (maxTransaction + 1, cid, SYSDATE,
28                                          amount, description);
29          COMMIT;
30
31  EXCEPTION
32          WHEN customerNotExists THEN
33                  ROLLBACK;
34          WHEN OTHERS THEN
35                  ROLLBACK;
36  END;
```

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Task 2

Task 3

Task 4

Task 5