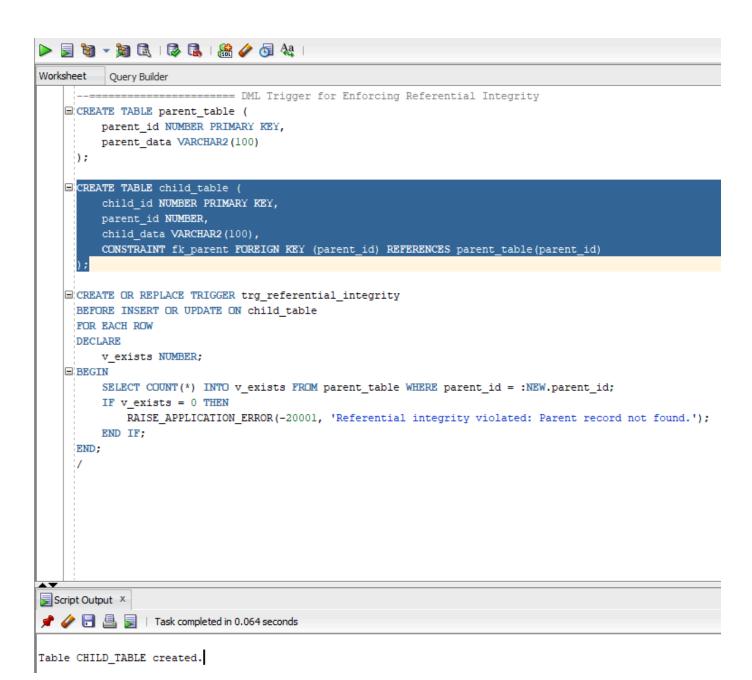
```
----- DML Trigger for Enforcing Referential Integrity
   CREATE TABLE parent_table (
        parent_id NUMBER PRIMARY KEY,
         parent_data VARCHAR2(100)
   CREATE TABLE child table (
        child id NUMBER PRIMARY KEY,
        parent id NUMBER,
        child_data VARCHAR2(100),
        CONSTRAINT fk parent FOREIGN KEY (parent id) REFERENCES parent table (parent id)
    );
   CREATE OR REPLACE TRIGGER trg_referential_integrity
    BEFORE INSERT OR UPDATE ON child_table
    FOR EACH ROW
    DECLARE
        v exists NUMBER;
   BEGIN
        SELECT COUNT(*) INTO v_exists FROM parent_table WHERE parent_id = :NEW.parent_id;
         IF v exists = 0 THEN
            RAISE_APPLICATION_ERROR(-20001, 'Referential integrity violated: Parent record not found.');
        END IF;
    END:
Script Output X
📌 🤌 🔡 🖺 🔋 | Task completed in 0.064 seconds
```

Table PARENT\_TABLE created.

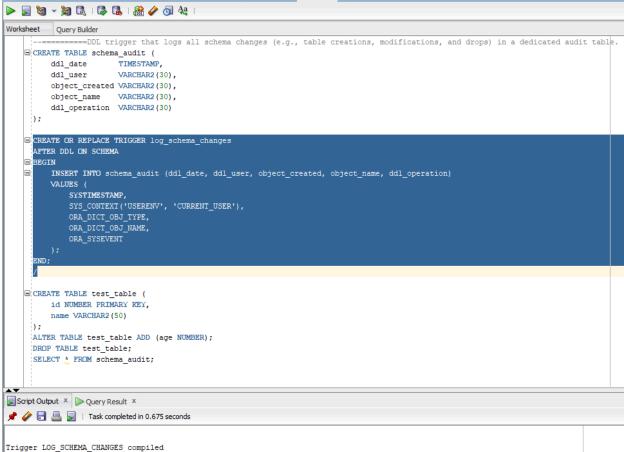


```
------ DML Trigger for Enforcing Referential Integrity
   CREATE TABLE parent table (
        parent_id NUMBER PRIMARY KEY,
         parent_data VARCHAR2(100)
    );
   CREATE TABLE child table (
        child id NUMBER PRIMARY KEY,
        parent id NUMBER,
         child_data VARCHAR2(100),
         CONSTRAINT fk_parent FOREIGN KEY (parent_id) REFERENCES parent_table(parent_id)
     );
   CREATE OR REPLACE TRIGGER trg_referential_integrity
     BEFORE INSERT OR UPDATE ON child_table
     FOR EACH ROW
     DECLARE
        v_exists NUMBER;
   BEGIN
         SELECT COUNT(*) INTO v_exists FROM parent_table WHERE parent_id = :NEW.parent_id;
         IF v_exists = 0 THEN
             RAISE APPLICATION ERROR (-20001, 'Referential integrity violated: Parent record not found.');
         END IF;
     END;
Script Output X
```

## LAB TASKS 2

```
--======DDL trigger that logs all schema changes (e.g., table creations, modifications, and drops) in a dedicated audit table.
   □ CREATE TABLE schema_audit (
         ddl_date
                    TIMESTAWN,
VARCHAR2(30),
                        TIMESTAMP,
         ddl_user
         object_created VARCHAR2(30),
         object_name VARCHAR2(30),
ddl_operation VARCHAR2(30)
   CREATE OR REPLACE TRIGGER log_schema_changes
    AFTER DDL ON SCHEMA
   BEGIN
        INSERT INTO schema_audit (ddl_date, ddl_user, object_created, object_name, ddl_operation)
         VALUES (
            SYSTIMESTAMP,
            SYS_CONTEXT('USERENV', 'CURRENT_USER'),
            ORA_DICT_OBJ_TYPE,
            ORA_DICT_OBJ_NAME,
            ORA_SYSEVENT
        );
     END;
   CREATE TABLE test_table (
        id NUMBER PRIMARY KEY,
        name VARCHAR2(50)
     ALTER TABLE test_table ADD (age NUMBER);
     DROP TABLE test_table;
     SELECT * FROM schema_audit;
Script Output × Duery Result ×
Task completed in 0.675 seconds
                штээтий ээ кеймога
```

Table SCHEMA\_AUDIT created.



```
Worksheet Query Builder
   CREATE TABLE schema_audit (
         ddl date TIMESTAMP,
         ddl_user
                       VARCHAR2 (30),
         object_created VARCHAR2(30),
         object name VARCHAR2(30),
         ddl_operation VARCHAR2(30)
     );
    CREATE OR REPLACE TRIGGER log_schema_changes
     AFTER DDL ON SCHEMA
    BEGIN
         INSERT INTO schema audit (ddl date, ddl user, object created, object name, ddl operation)
         VALUES (
             SYSTIMESTAMP,
             SYS CONTEXT ('USERENV', 'CURRENT USER'),
             ORA_DICT_OBJ_TYPE,
             ORA_DICT_OBJ_NAME,
             ORA SYSEVENT
         );
     END;
    CREATE TABLE test_table (
         id NUMBER PRIMARY KEY,
         name VARCHAR2 (50)
     );
     ALTER TABLE test table ADD (age NUMBER);
     DROP TABLE test table;
     SELECT * FROM schema_audit;
Script Output X Query Result X
🗸 🖺 🙀 🗽 SQL | All Rows Fetched: 4 in 0.037 seconds

    DDL_DATE

                                      DDL_USER | ⊕ OBJECT_CREATED | ⊕ OBJECT_NAME | ⊕ DDL_OPERATION
    1 30-OCT-24 03.34.00.712000000 PM SYSTEM
                                                INDEX
                                                               SYS C007152 CREATE
    2 30-OCT-24 03.34.00.743000000 PM SYSTEM
                                                TABLE
                                                               TEST_TABLE CREATE
    3 30-OCT-24 03.34.00.751000000 PM SYSTEM
                                                TABLE
                                                               TEST TABLE ALTER
    4 30-OCT-24 03.34.00.938000000 PM SYSTEM
                                                TABLE
                                                               TEST_TABLE DROP
```