Ch 06 Tutorial

Created by Jack
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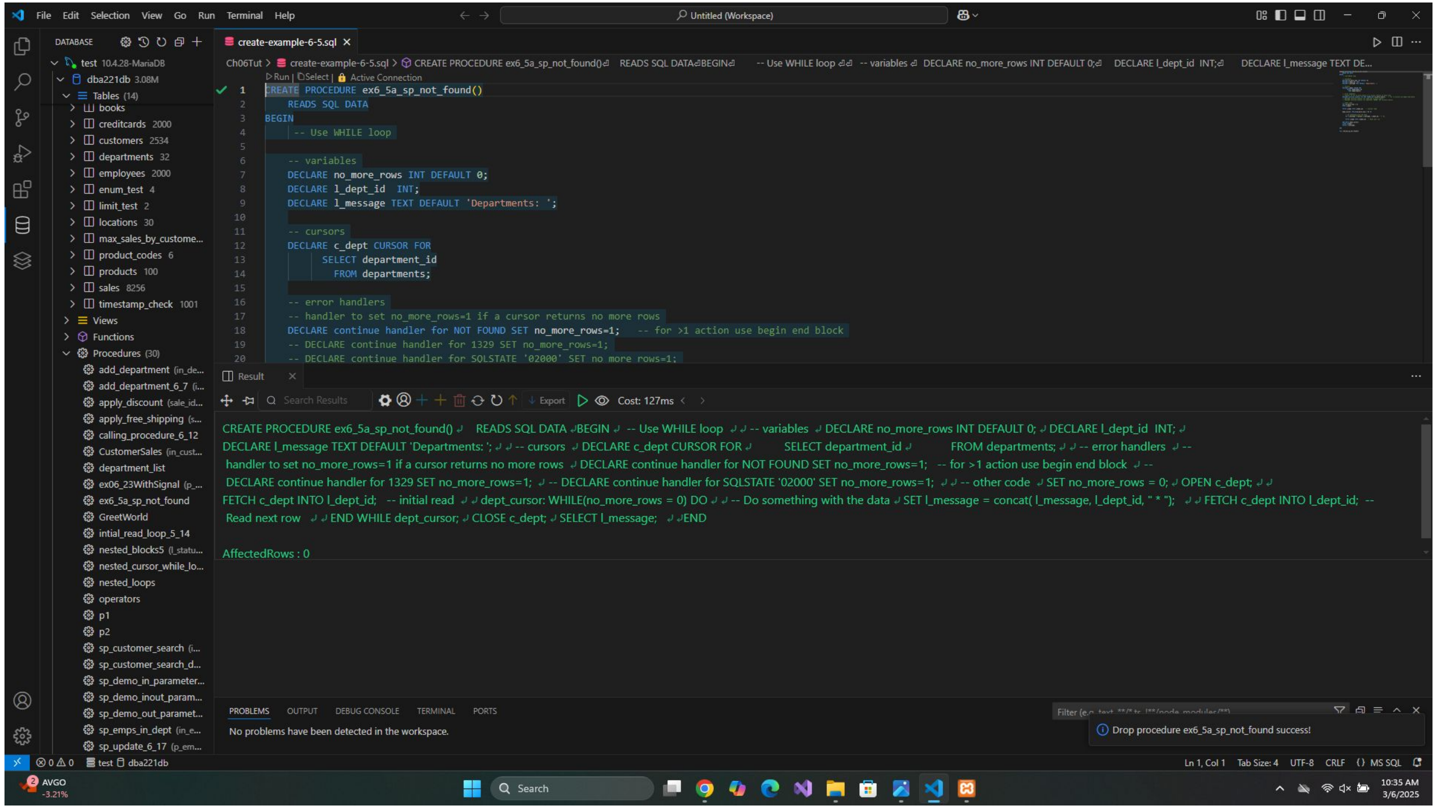
Create example 6-5



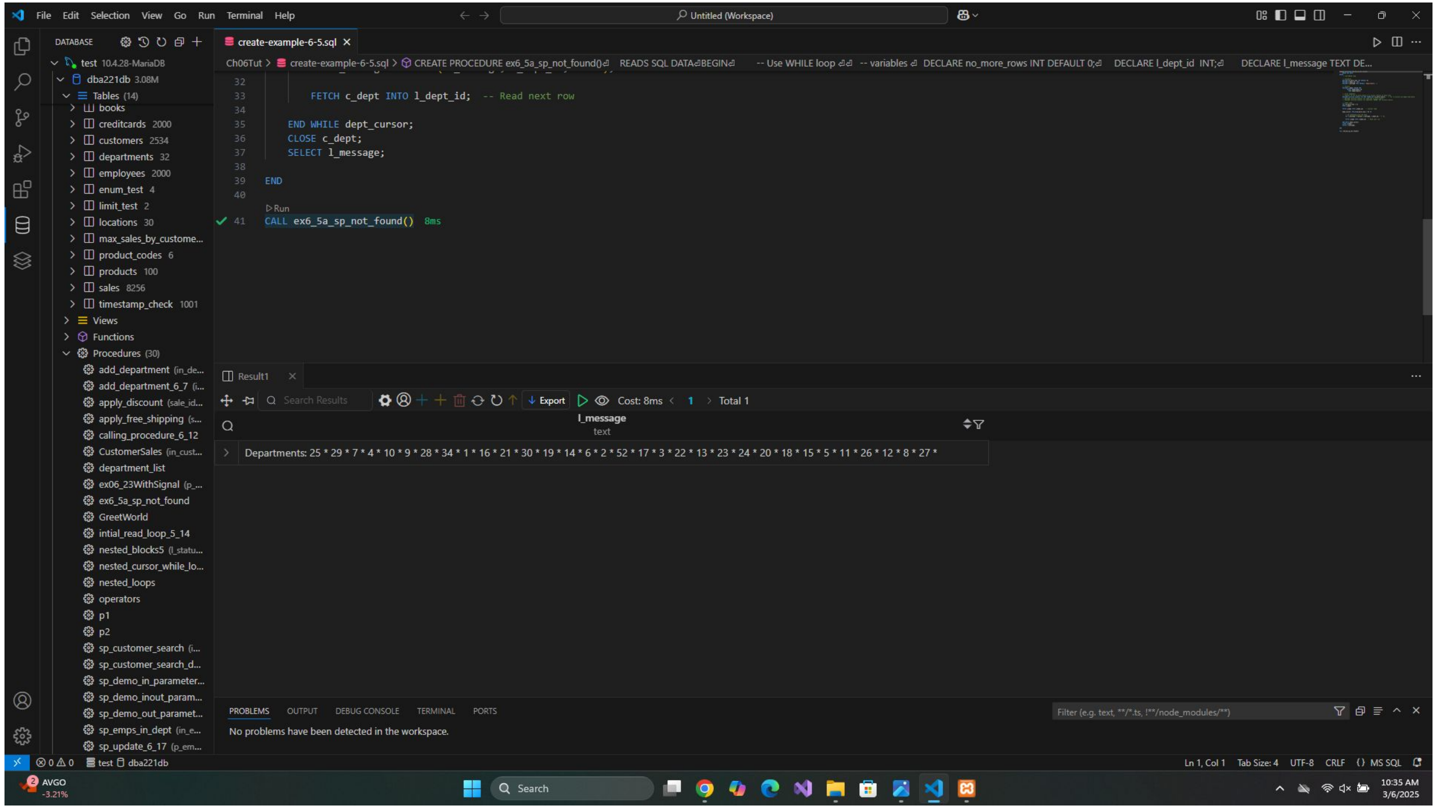
```sql
CREATE PROCEDURE ex6_5a_sp_not_found()
    READS SQL DATA
BEGIN
    -- Use WHILE loop

    -- variables
    DECLARE no_more_rows INT DEFAULT 0;
    DECLARE l_dept_id  INT;
    DECLARE l_message TEXT DEFAULT 'Departments: ';

    -- cursors
    DECLARE c_dept CURSOR FOR
          SELECT department_id
            FROM departments;

    -- error handlers
    -- handler to set no_more_rows=1 if a cursor returns no more rows
    DECLARE continue handler for NOT FOUND SET no_more_rows=1;   -- for >1 action use begin end block
    -- DECLARE continue handler for 1329 SET no_more_rows=1;
    -- DECLARE continue handler for SQLSTATE '02000' SET no_more_rows=1;
```

```
CREATE PROCEDURE ex6_5a_sp_not_found() ↲    READS SQL DATA ↲BEGIN ↲  -- Use WHILE loop  ↲ ↲ -- variables  ↲ DECLARE no_more_rows INT DEFAULT 0; ↲ DECLARE l_dept_id  INT; ↲
DECLARE l_message TEXT DEFAULT 'Departments: '; ↲ ↲ -- cursors  ↲ DECLARE c_dept CURSOR FOR ↲        SELECT department_id ↲          FROM departments; ↲ ↲ -- error handlers  ↲ --
 handler to set no_more_rows=1 if a cursor returns no more rows  ↲ DECLARE continue handler for NOT FOUND SET no_more_rows=1;   -- for >1 action use begin end block  ↲ --
 DECLARE continue handler for 1329 SET no_more_rows=1;  ↲ -- DECLARE continue handler for SQLSTATE '02000' SET no_more_rows=1;  ↲ ↲ -- other code  ↲ SET no_more_rows = 0; ↲ OPEN c_dept; ↲ ↲
FETCH c_dept INTO l_dept_id;   -- initial read  ↲ ↲ dept_cursor: WHILE(no_more_rows = 0) DO ↲ ↲ -- Do something with the data ↲ SET l_message = concat( l_message, l_dept_id, " * ");   ↲ ↲ FETCH c_dept INTO l_dept_id;  --
 Read next row   ↲ ↲ END WHILE dept_cursor; ↲ CLOSE c_dept; ↲ SELECT l_message;   ↲ ↲END

AffectedRows : 0
```

No problems have been detected in the workspace.

Drop procedure ex6_5a_sp_not_found success!

Call example 6-5



create-example-6-5.sql

Ch06Tut > create-example-6-5.sql > CREATE PROCEDURE ex6_5a_sp_not_found()⏎ READS SQL DATA⏎BEGIN⏎ -- Use WHILE loop ⏎⏎ -- variables ⏎ DECLARE no_more_rows INT DEFAULT 0;⏎ DECLARE l_dept_id INT;⏎ DECLARE l_message TEXT DE...

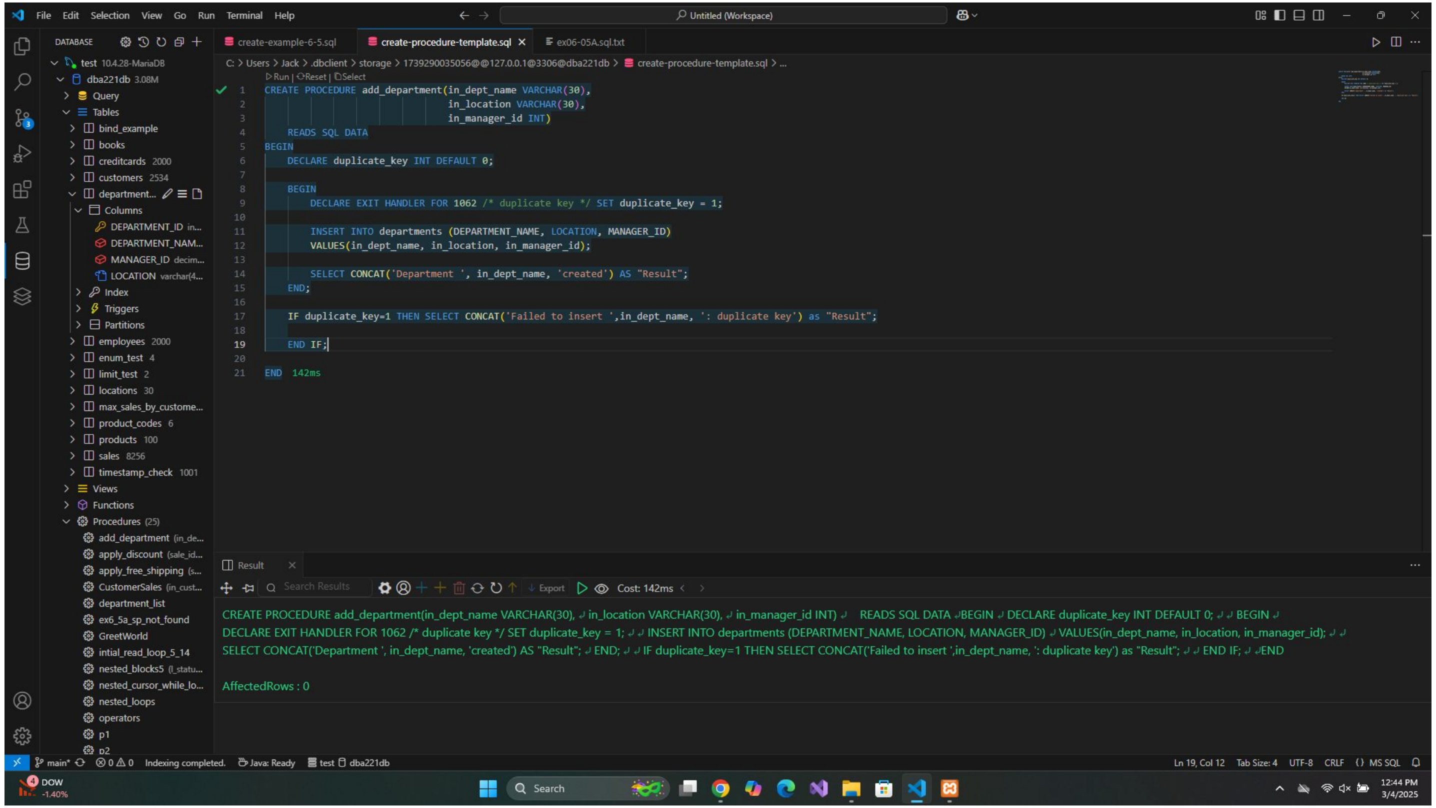
```sql
            FETCH c_dept INTO l_dept_id;  -- Read next row

        END WHILE dept_cursor;
        CLOSE c_dept;
        SELECT l_message;

END

CALL ex6_5a_sp_not_found()  8ms
```

Result1 — Cost: 8ms — Total 1

```
l_message
text
Departments: 25 * 29 * 7 * 4 * 10 * 9 * 28 * 34 * 1 * 16 * 21 * 30 * 19 * 14 * 6 * 2 * 52 * 17 * 3 * 22 * 13 * 23 * 24 * 20 * 18 * 15 * 5 * 11 * 26 * 12 * 8 * 27 *
```

No problems have been detected in the workspace.

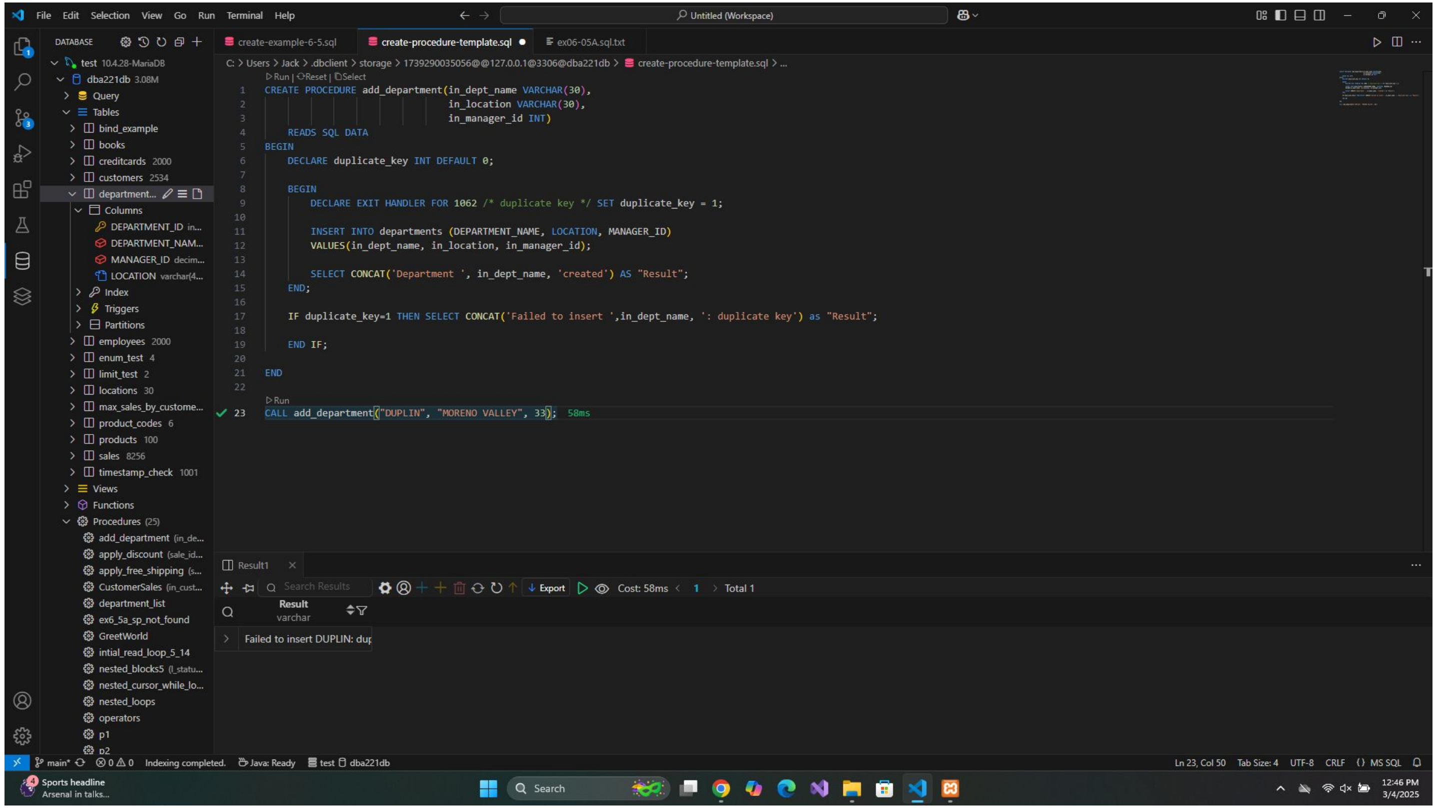
Create example 6-6



```sql
CREATE PROCEDURE add_department(in_dept_name VARCHAR(30),
                                in_location VARCHAR(30),
                                in_manager_id INT)
    READS SQL DATA
BEGIN
    DECLARE duplicate_key INT DEFAULT 0;

    BEGIN
        DECLARE EXIT HANDLER FOR 1062 /* duplicate key */ SET duplicate_key = 1;

        INSERT INTO departments (DEPARTMENT_NAME, LOCATION, MANAGER_ID)
        VALUES(in_dept_name, in_location, in_manager_id);

        SELECT CONCAT('Department ', in_dept_name, 'created') AS "Result";
    END;

    IF duplicate_key=1 THEN SELECT CONCAT('Failed to insert ',in_dept_name, ': duplicate key') as "Result";

    END IF;

END
```

```
CREATE PROCEDURE add_department(in_dept_name VARCHAR(30), ↲ in_location VARCHAR(30), ↲ in_manager_id INT) ↲    READS SQL DATA ↲BEGIN ↲ DECLARE duplicate_key INT DEFAULT 0; ↲ ↲ BEGIN ↲
DECLARE EXIT HANDLER FOR 1062 /* duplicate key */ SET duplicate_key = 1; ↲ ↲ INSERT INTO departments (DEPARTMENT_NAME, LOCATION, MANAGER_ID) ↲ VALUES(in_dept_name, in_location, in_manager_id); ↲ ↲
SELECT CONCAT('Department ', in_dept_name, 'created') AS "Result"; ↲ END; ↲ ↲ IF duplicate_key=1 THEN SELECT CONCAT('Failed to insert ',in_dept_name, ': duplicate key') as "Result"; ↲ ↲ END IF; ↲ ↲END

AffectedRows : 0
```

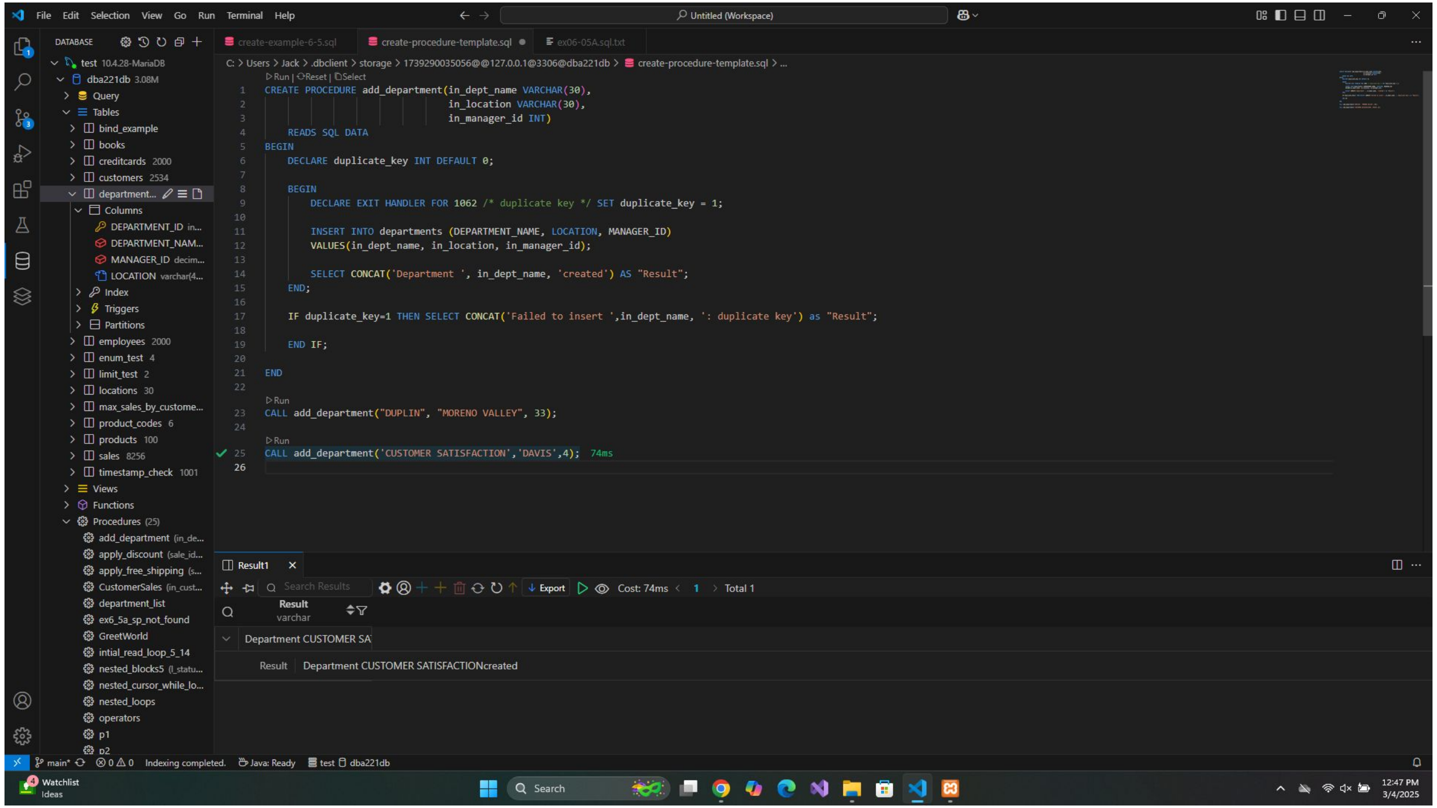
Call example 6-6



```sql
CREATE PROCEDURE add_department(in_dept_name VARCHAR(30),
                                in_location VARCHAR(30),
                                in_manager_id INT)
    READS SQL DATA
BEGIN
    DECLARE duplicate_key INT DEFAULT 0;

    BEGIN
        DECLARE EXIT HANDLER FOR 1062 /* duplicate key */ SET duplicate_key = 1;

        INSERT INTO departments (DEPARTMENT_NAME, LOCATION, MANAGER_ID)
        VALUES(in_dept_name, in_location, in_manager_id);

        SELECT CONCAT('Department ', in_dept_name, 'created') AS "Result";
    END;

    IF duplicate_key=1 THEN SELECT CONCAT('Failed to insert ',in_dept_name, ': duplicate key') as "Result";

    END IF;

END

CALL add_department("DUPLIN", "MORENO VALLEY", 33);  58ms
```

```
Result
varchar
Failed to insert DUPLIN: dup
```

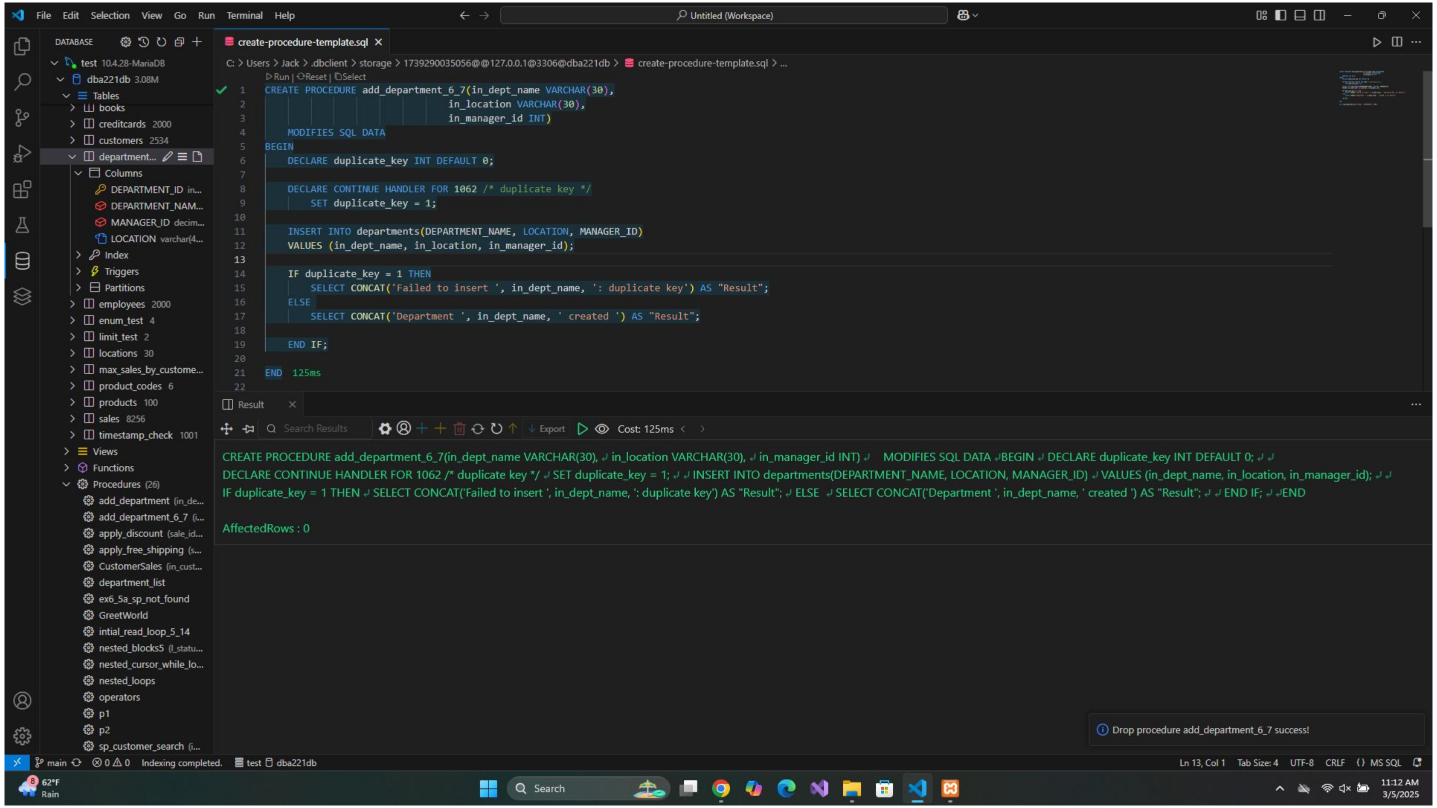
Call example 6-6



```
CREATE PROCEDURE add_department(in_dept_name VARCHAR(30),
                                in_location VARCHAR(30),
                                in_manager_id INT)
    READS SQL DATA
BEGIN
    DECLARE duplicate_key INT DEFAULT 0;

    BEGIN
        DECLARE EXIT HANDLER FOR 1062 /* duplicate key */ SET duplicate_key = 1;

        INSERT INTO departments (DEPARTMENT_NAME, LOCATION, MANAGER_ID)
        VALUES(in_dept_name, in_location, in_manager_id);

        SELECT CONCAT('Department ', in_dept_name, 'created') AS "Result";
    END;

    IF duplicate_key=1 THEN SELECT CONCAT('Failed to insert ',in_dept_name, ': duplicate key') as "Result";

    END IF;

END

CALL add_department("DUPLIN", "MORENO VALLEY", 33);

CALL add_department('CUSTOMER SATISFACTION','DAVIS',4);  74ms
```

```
Result
varchar
Department CUSTOMER SA

Result  Department CUSTOMER SATISFACTIONcreated
```

Create example 6-7

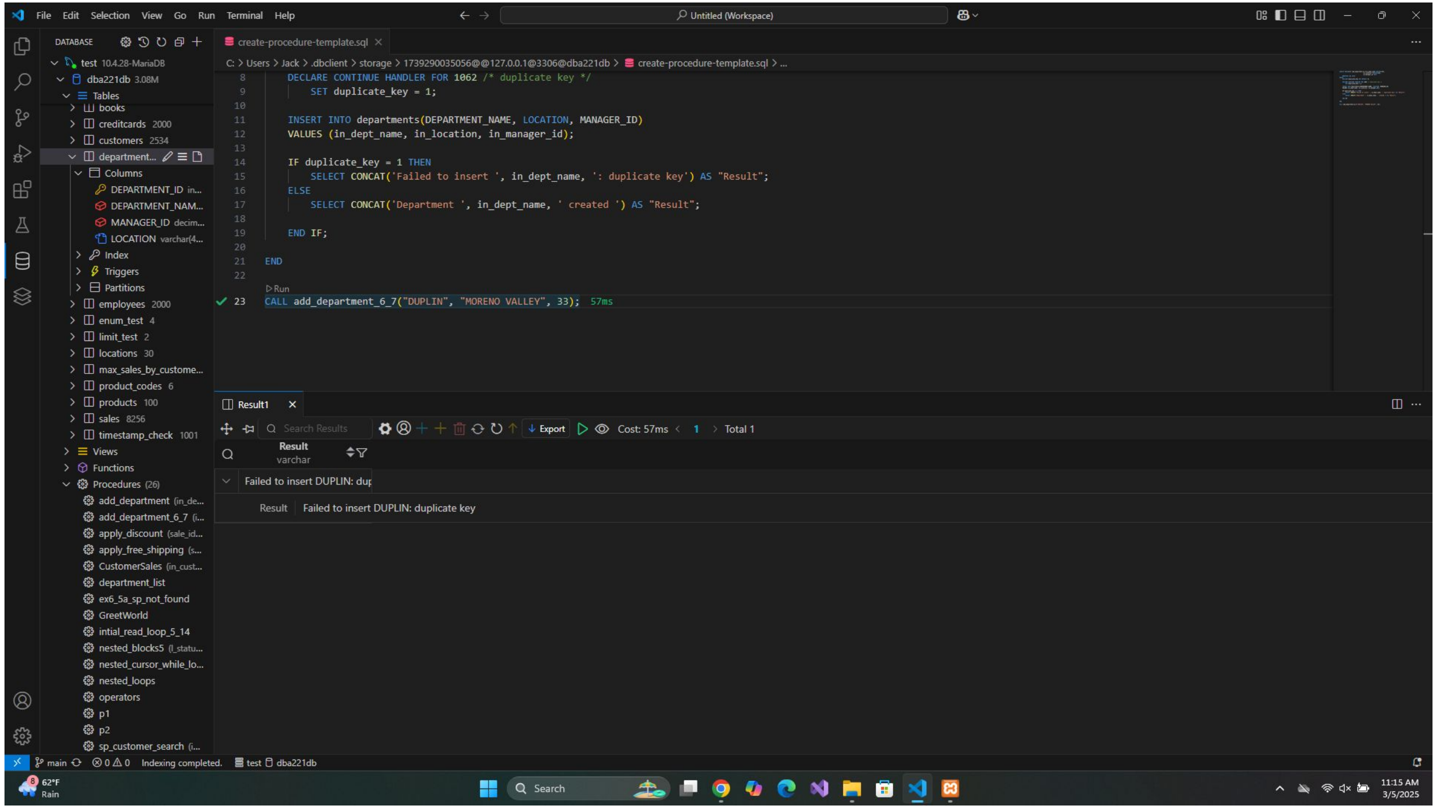


```sql
CREATE PROCEDURE add_department_6_7(in_dept_name VARCHAR(30),
                                    in_location VARCHAR(30),
                                    in_manager_id INT)
    MODIFIES SQL DATA
BEGIN
    DECLARE duplicate_key INT DEFAULT 0;

    DECLARE CONTINUE HANDLER FOR 1062 /* duplicate key */
        SET duplicate_key = 1;

    INSERT INTO departments(DEPARTMENT_NAME, LOCATION, MANAGER_ID)
    VALUES (in_dept_name, in_location, in_manager_id);

    IF duplicate_key = 1 THEN
        SELECT CONCAT('Failed to insert ', in_dept_name, ': duplicate key') AS "Result";
    ELSE
        SELECT CONCAT('Department ', in_dept_name, ' created ') AS "Result";

    END IF;

END  125ms
```

```
CREATE PROCEDURE add_department_6_7(in_dept_name VARCHAR(30), ↲ in_location VARCHAR(30), ↲ in_manager_id INT) ↲    MODIFIES SQL DATA ↲BEGIN ↲ DECLARE duplicate_key INT DEFAULT 0; ↲ ↲
DECLARE CONTINUE HANDLER FOR 1062 /* duplicate key */ ↲ SET duplicate_key = 1; ↲ ↲ INSERT INTO departments(DEPARTMENT_NAME, LOCATION, MANAGER_ID) ↲ VALUES (in_dept_name, in_location, in_manager_id); ↲ ↲
IF duplicate_key = 1 THEN ↲ SELECT CONCAT('Failed to insert ', in_dept_name, ': duplicate key') AS "Result"; ↲ ELSE  ↲ SELECT CONCAT('Department ', in_dept_name, ' created ') AS "Result"; ↲ ↲ END IF; ↲ ↲END

AffectedRows : 0
```

Drop procedure add_department_6_7 success!

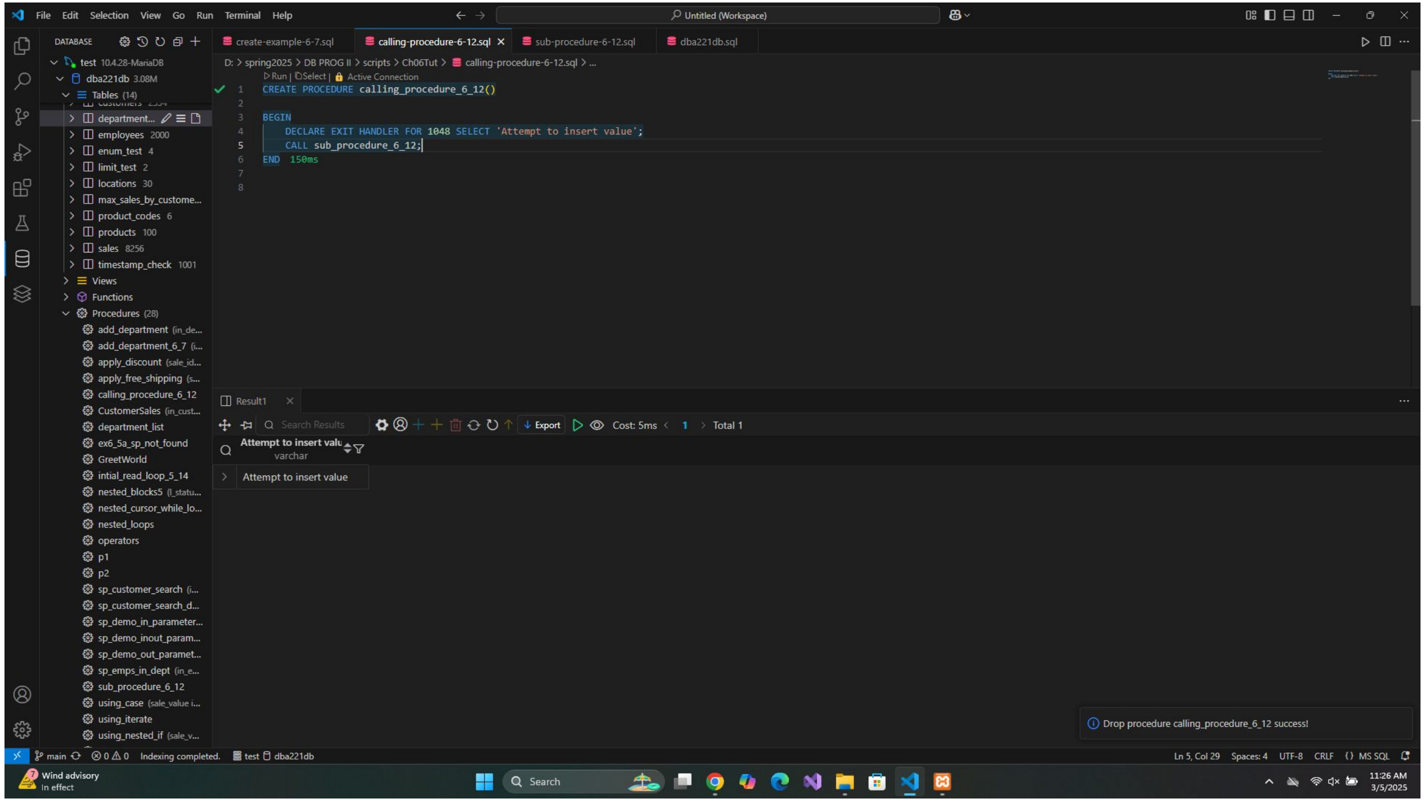
Call example 6-7


create-procedure-template.sql
C: > Users > Jack > .dbclient > storage > 1739290035056@@127.0.0.1@3306@dba221db > create-procedure-template.sql > ...
Result1
Export
Cost: 57ms
Total 1

```sql
    DECLARE CONTINUE HANDLER FOR 1062 /* duplicate key */
        SET duplicate_key = 1;

    INSERT INTO departments(DEPARTMENT_NAME, LOCATION, MANAGER_ID)
    VALUES (in_dept_name, in_location, in_manager_id);

    IF duplicate_key = 1 THEN
        SELECT CONCAT('Failed to insert ', in_dept_name, ': duplicate key') AS "Result";
    ELSE
        SELECT CONCAT('Department ', in_dept_name, ' created ') AS "Result";

    END IF;

END

CALL add_department_6_7("DUPLIN", "MORENO VALLEY", 33);  57ms
```

```
Result
varchar
Failed to insert DUPLIN: duplicate key
```

Create calling_procedure 6-12

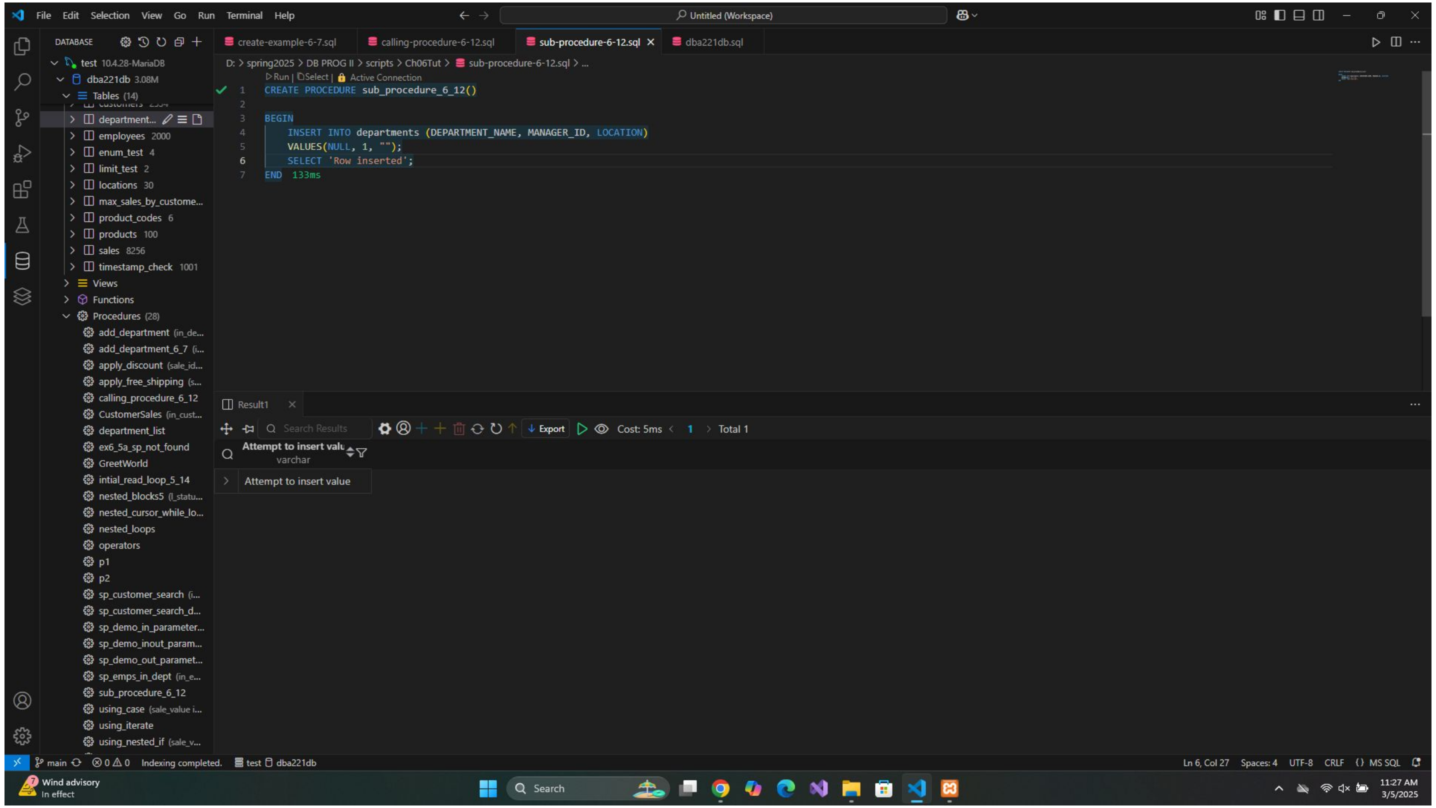


```sql
CREATE PROCEDURE calling_procedure_6_12()

BEGIN
    DECLARE EXIT HANDLER FOR 1048 SELECT 'Attempt to insert value';
    CALL sub_procedure_6_12;
END  150ms
```

```
Attempt to insert valu
varchar

Attempt to insert value
```

Drop procedure calling_procedure_6_12 success!

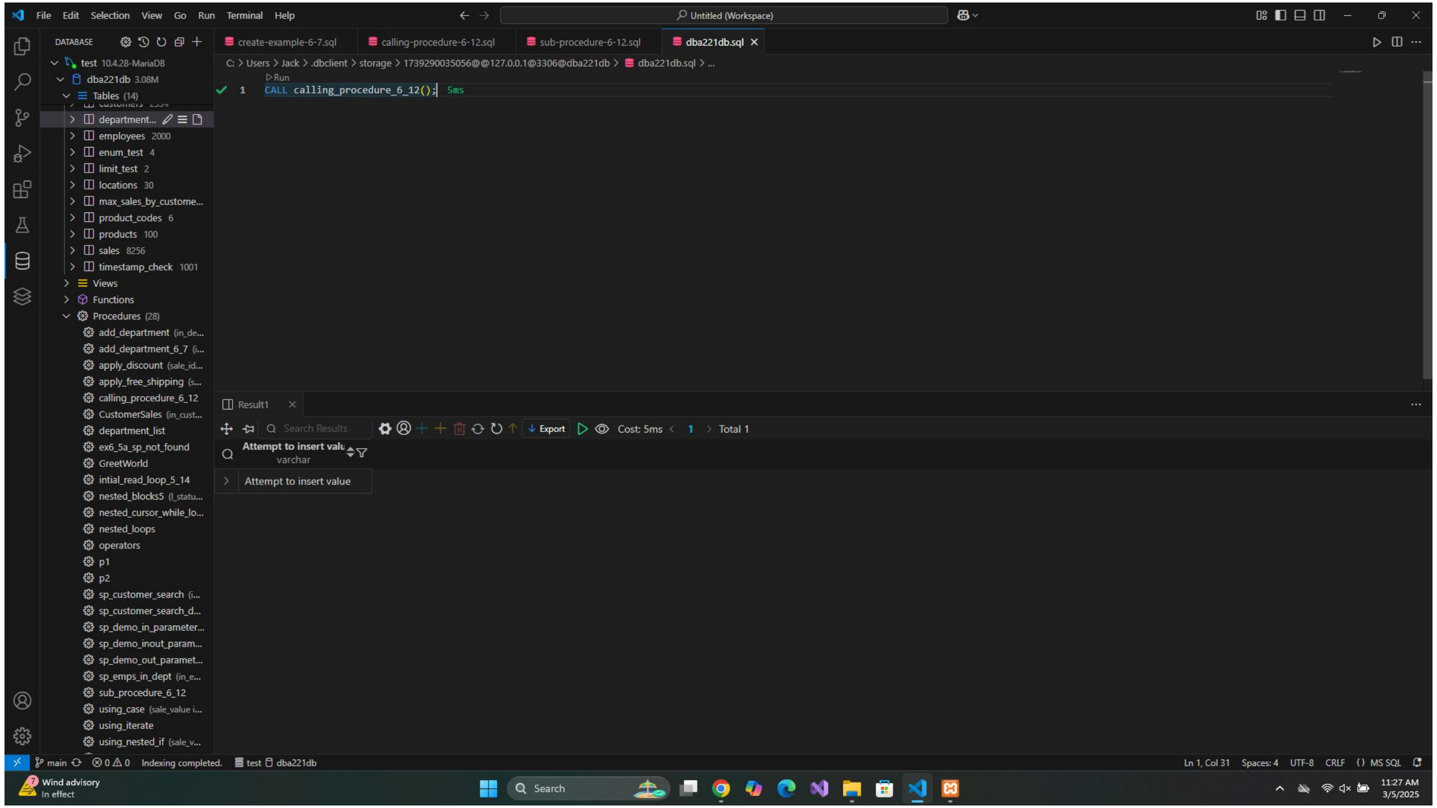
Create sub procedure 6-12



```sql
CREATE PROCEDURE sub_procedure_6_12()

BEGIN
    INSERT INTO departments (DEPARTMENT_NAME, MANAGER_ID, LOCATION)
    VALUES(NULL, 1, "");
    SELECT 'Row inserted';
END 133ms
```

```
Attempt to insert valu
varchar
Attempt to insert value
```

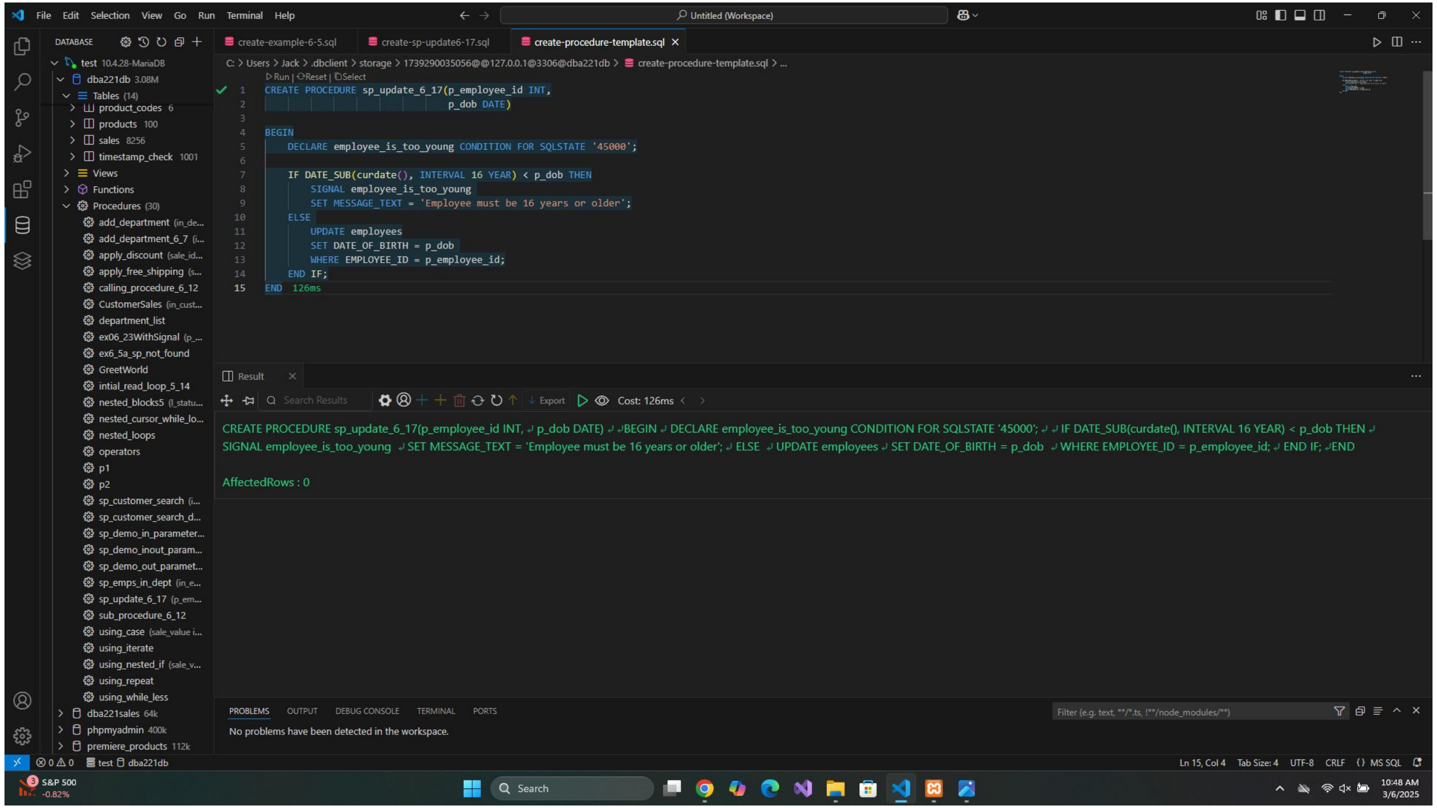
Call example 6-12



```sql
CALL calling_procedure_6_12();  5ms
```

```
Attempt to insert value
varchar

Attempt to insert value
```

Create example 6-17



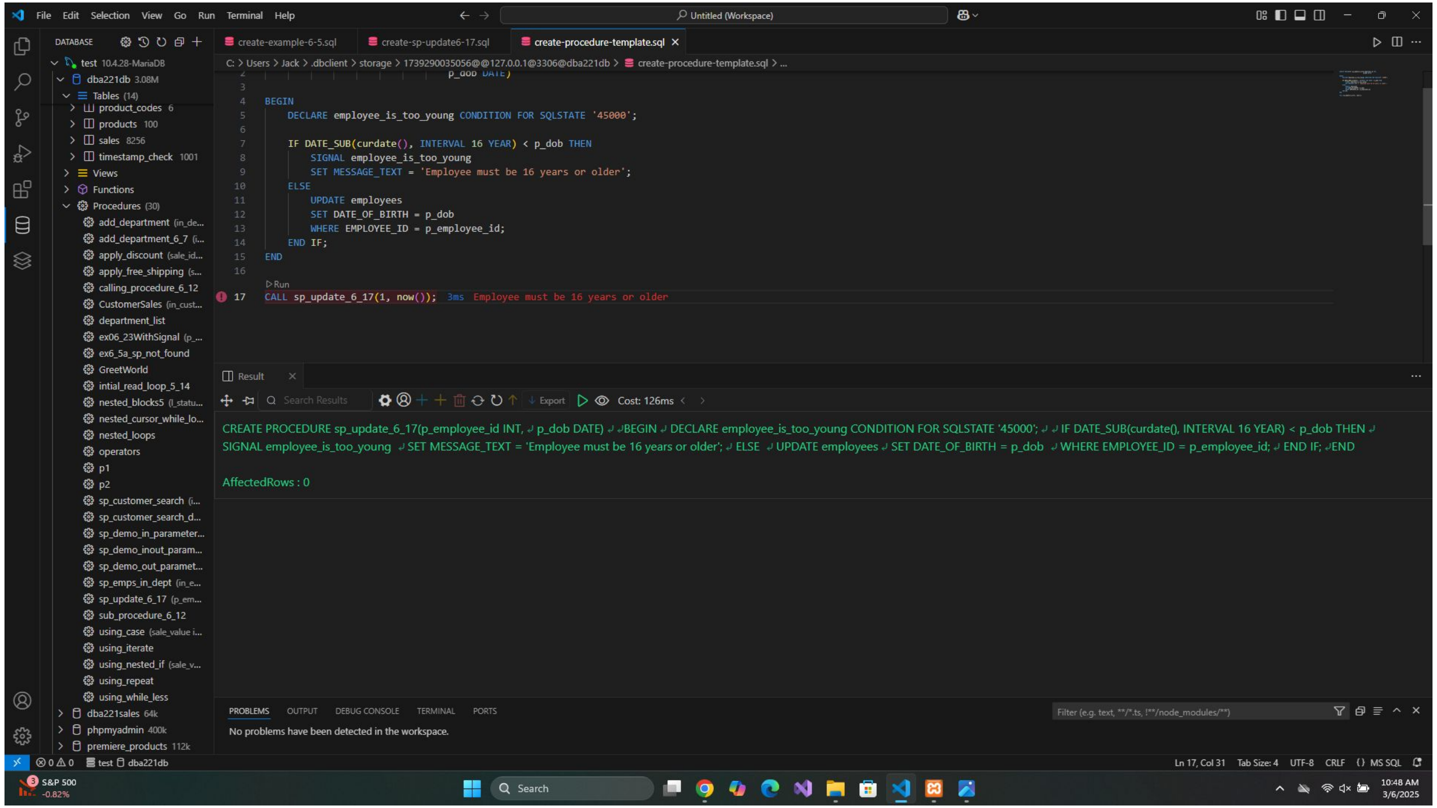
```
CREATE PROCEDURE sp_update_6_17(p_employee_id INT,
                                p_dob DATE)

BEGIN
    DECLARE employee_is_too_young CONDITION FOR SQLSTATE '45000';

    IF DATE_SUB(curdate(), INTERVAL 16 YEAR) < p_dob THEN
        SIGNAL employee_is_too_young
        SET MESSAGE_TEXT = 'Employee must be 16 years or older';
    ELSE
        UPDATE employees
        SET DATE_OF_BIRTH = p_dob
        WHERE EMPLOYEE_ID = p_employee_id;
    END IF;
END  126ms
```

Cost: 126ms

```
CREATE PROCEDURE sp_update_6_17(p_employee_id INT, ↲ p_dob DATE) ↲ ↲BEGIN ↲ DECLARE employee_is_too_young CONDITION FOR SQLSTATE '45000'; ↲ ↲ IF DATE_SUB(curdate(), INTERVAL 16 YEAR) < p_dob THEN ↲
SIGNAL employee_is_too_young  ↲ SET MESSAGE_TEXT = 'Employee must be 16 years or older'; ↲ ELSE  ↲ UPDATE employees ↲ SET DATE_OF_BIRTH = p_dob  ↲ WHERE EMPLOYEE_ID = p_employee_id; ↲ END IF; ↲END

AffectedRows : 0
```

No problems have been detected in the workspace.

Call example 6-17

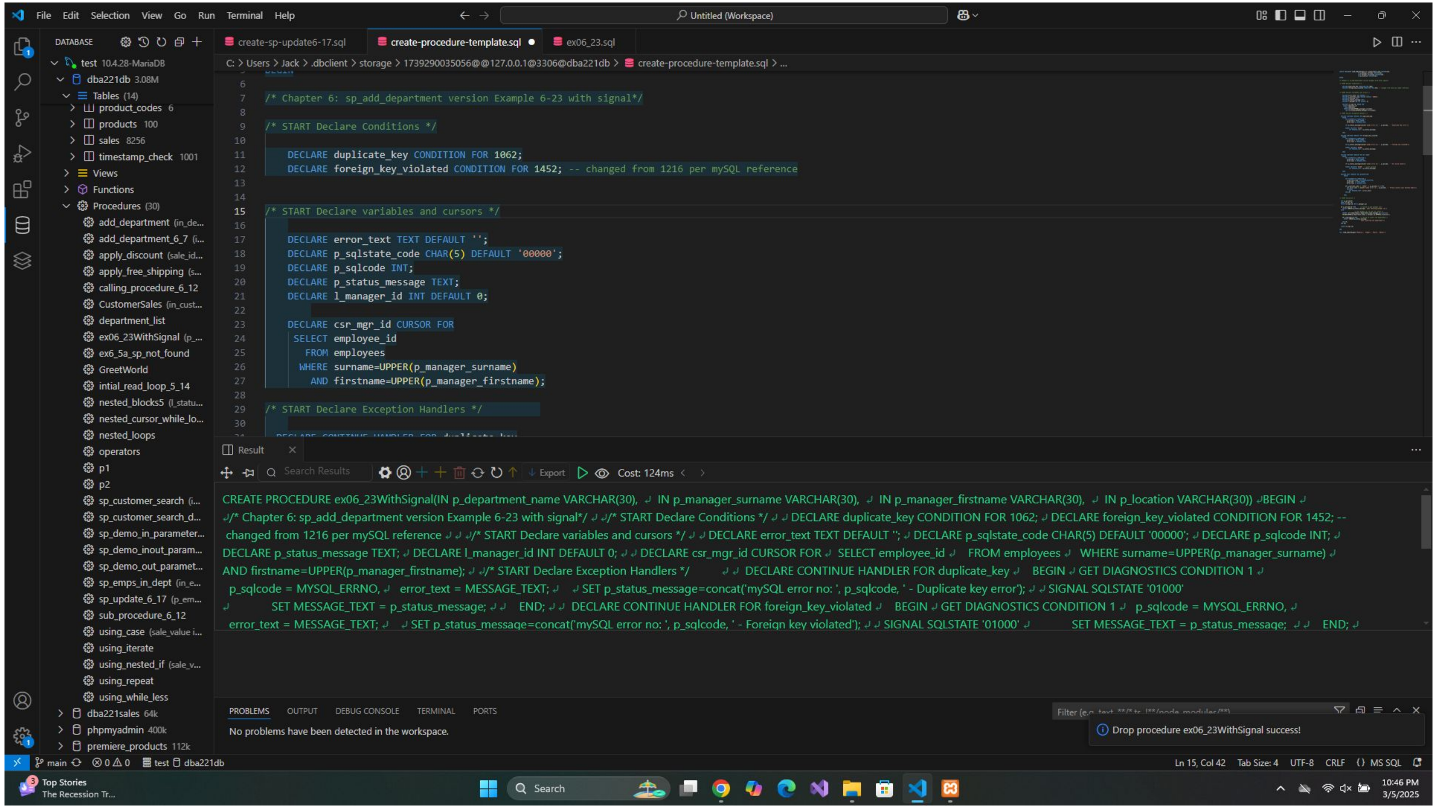


```
                                p_dob DATE)

BEGIN
    DECLARE employee_is_too_young CONDITION FOR SQLSTATE '45000';

    IF DATE_SUB(curdate(), INTERVAL 16 YEAR) < p_dob THEN
        SIGNAL employee_is_too_young
        SET MESSAGE_TEXT = 'Employee must be 16 years or older';
    ELSE
        UPDATE employees
        SET DATE_OF_BIRTH = p_dob
        WHERE EMPLOYEE_ID = p_employee_id;
    END IF;
END

CALL sp_update_6_17(1, now());  3ms  Employee must be 16 years or older
```

```
CREATE PROCEDURE sp_update_6_17(p_employee_id INT, ↲ p_dob DATE) ↲ ↲BEGIN ↲ DECLARE employee_is_too_young CONDITION FOR SQLSTATE '45000'; ↲ ↲ IF DATE_SUB(curdate(), INTERVAL 16 YEAR) < p_dob THEN ↲
SIGNAL employee_is_too_young  ↲ SET MESSAGE_TEXT = 'Employee must be 16 years or older'; ↲ ELSE  ↲ UPDATE employees ↲ SET DATE_OF_BIRTH = p_dob  ↲ WHERE EMPLOYEE_ID = p_employee_id; ↲ END IF; ↲END

AffectedRows : 0
```

No problems have been detected in the workspace.

Create example 6-23



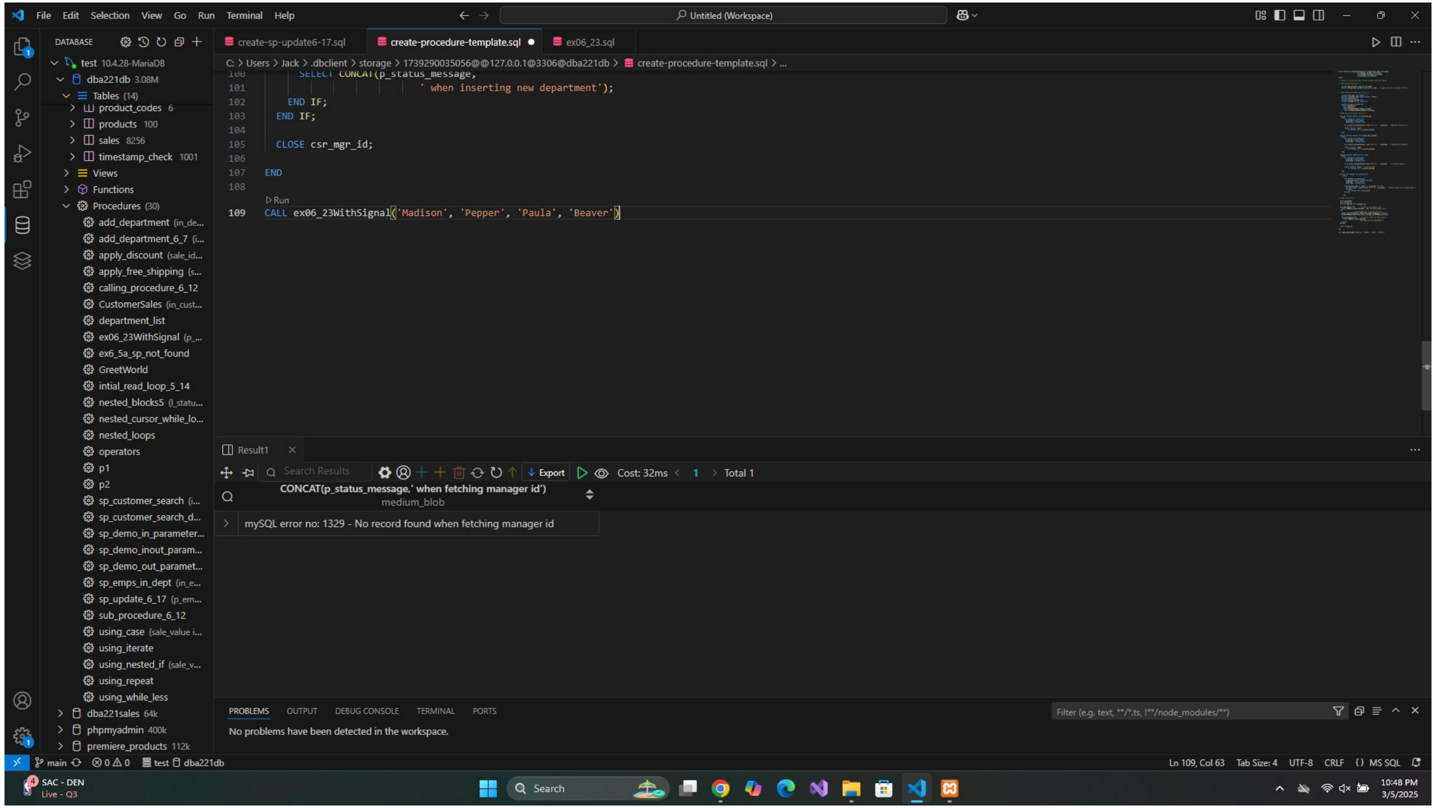
```
/* Chapter 6: sp_add_department version Example 6-23 with signal*/

/* START Declare Conditions */

   DECLARE duplicate_key CONDITION FOR 1062;
   DECLARE foreign_key_violated CONDITION FOR 1452; -- changed from 1216 per mySQL reference


/* START Declare variables and cursors */

   DECLARE error_text TEXT DEFAULT '';
   DECLARE p_sqlstate_code CHAR(5) DEFAULT '00000';
   DECLARE p_sqlcode INT;
   DECLARE p_status_message TEXT;
   DECLARE l_manager_id INT DEFAULT 0;

   DECLARE csr_mgr_id CURSOR FOR
    SELECT employee_id
      FROM employees
     WHERE surname=UPPER(p_manager_surname)
       AND firstname=UPPER(p_manager_firstname);

/* START Declare Exception Handlers */
```

```
CREATE PROCEDURE ex06_23WithSignal(IN p_department_name VARCHAR(30), ↲ IN p_manager_surname VARCHAR(30), ↲ IN p_manager_firstname VARCHAR(30), ↲ IN p_location VARCHAR(30)) ↲BEGIN ↲
↲/* Chapter 6: sp_add_department version Example 6-23 with signal*/ ↲ ↲/* START Declare Conditions */ ↲ ↲ DECLARE duplicate_key CONDITION FOR 1062; ↲ DECLARE foreign_key_violated CONDITION FOR 1452; --
 changed from 1216 per mySQL reference ↲ ↲ ↲/* START Declare variables and cursors */ ↲ ↲ DECLARE error_text TEXT DEFAULT ''; ↲ DECLARE p_sqlstate_code CHAR(5) DEFAULT '00000'; ↲ DECLARE p_sqlcode INT; ↲
DECLARE p_status_message TEXT; ↲ DECLARE l_manager_id INT DEFAULT 0; ↲ ↲ DECLARE csr_mgr_id CURSOR FOR ↲  SELECT employee_id ↲   FROM employees ↲   WHERE surname=UPPER(p_manager_surname) ↲
AND firstname=UPPER(p_manager_firstname); ↲ ↲/* START Declare Exception Handlers */        ↲ ↲ DECLARE CONTINUE HANDLER FOR duplicate_key ↲   BEGIN ↲ GET DIAGNOSTICS CONDITION 1 ↲
 p_sqlcode = MYSQL_ERRNO, ↲   error_text = MESSAGE_TEXT; ↲    ↲ SET p_status_message=concat('mySQL error no: ', p_sqlcode, ' - Duplicate key error'); ↲ ↲ SIGNAL SQLSTATE '01000'
↲           SET MESSAGE_TEXT = p_status_message; ↲ ↲   END; ↲ ↲ DECLARE CONTINUE HANDLER FOR foreign_key_violated ↲   BEGIN ↲ GET DIAGNOSTICS CONDITION 1 ↲   p_sqlcode = MYSQL_ERRNO, ↲
 error_text = MESSAGE_TEXT; ↲   ↲ SET p_status_message=concat('mySQL error no: ', p_sqlcode, ' - Foreign key violated'); ↲ ↲ SIGNAL SQLSTATE '01000' ↲          SET MESSAGE_TEXT = p_status_message; ↲ ↲   END; ↲
```

No problems have been detected in the workspace.

Drop procedure ex06_23WithSignal success!

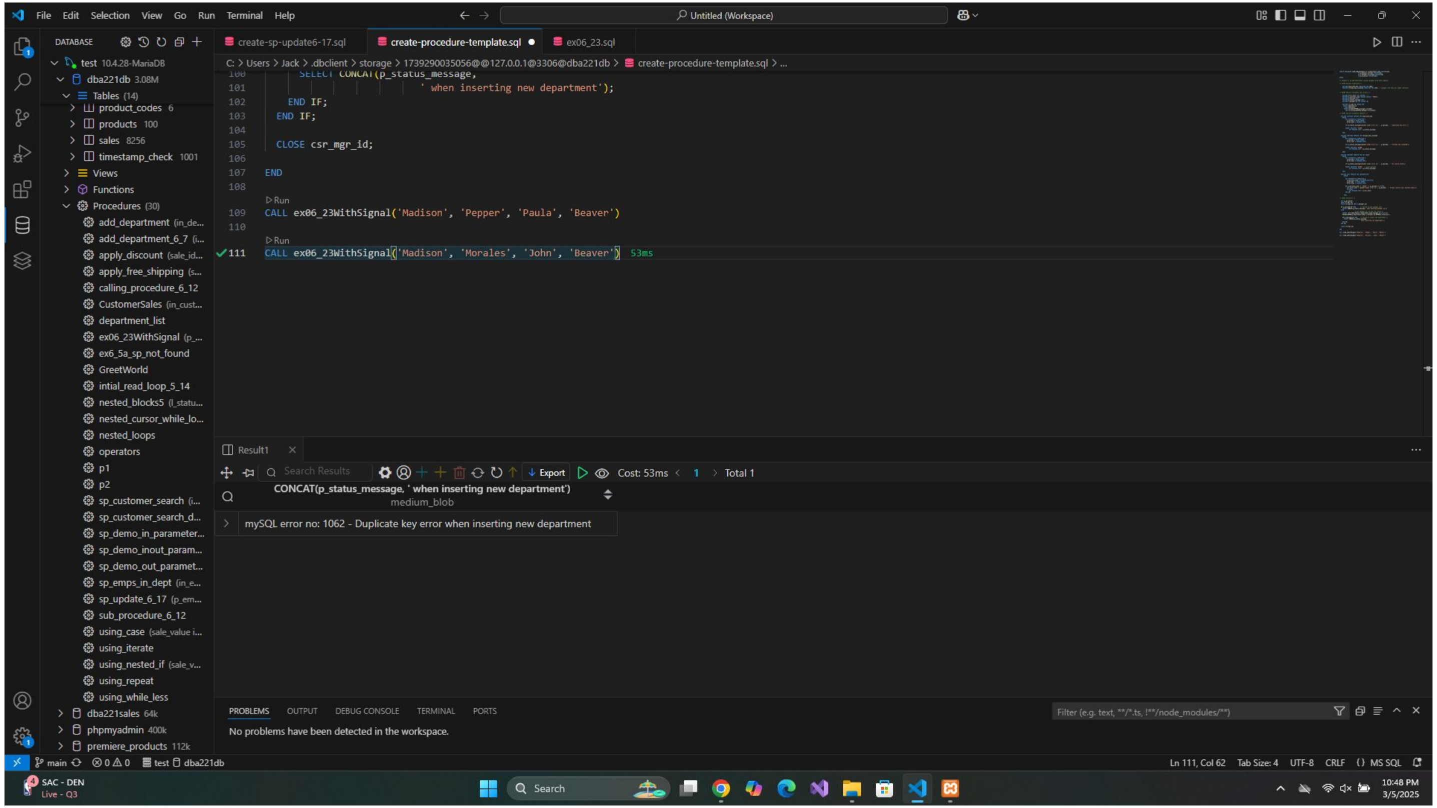
Call example 6-23



```
        SELECT CONCAT(p_status_message,
                      ' when inserting new department');
      END IF;
    END IF;

    CLOSE csr_mgr_id;

  END

CALL ex06_23WithSignal('Madison', 'Pepper', 'Paula', 'Beaver')
```

```
CONCAT(p_status_message,' when fetching manager id')
medium_blob
mySQL error no: 1329 - No record found when fetching manager id
```

Call example 6-23

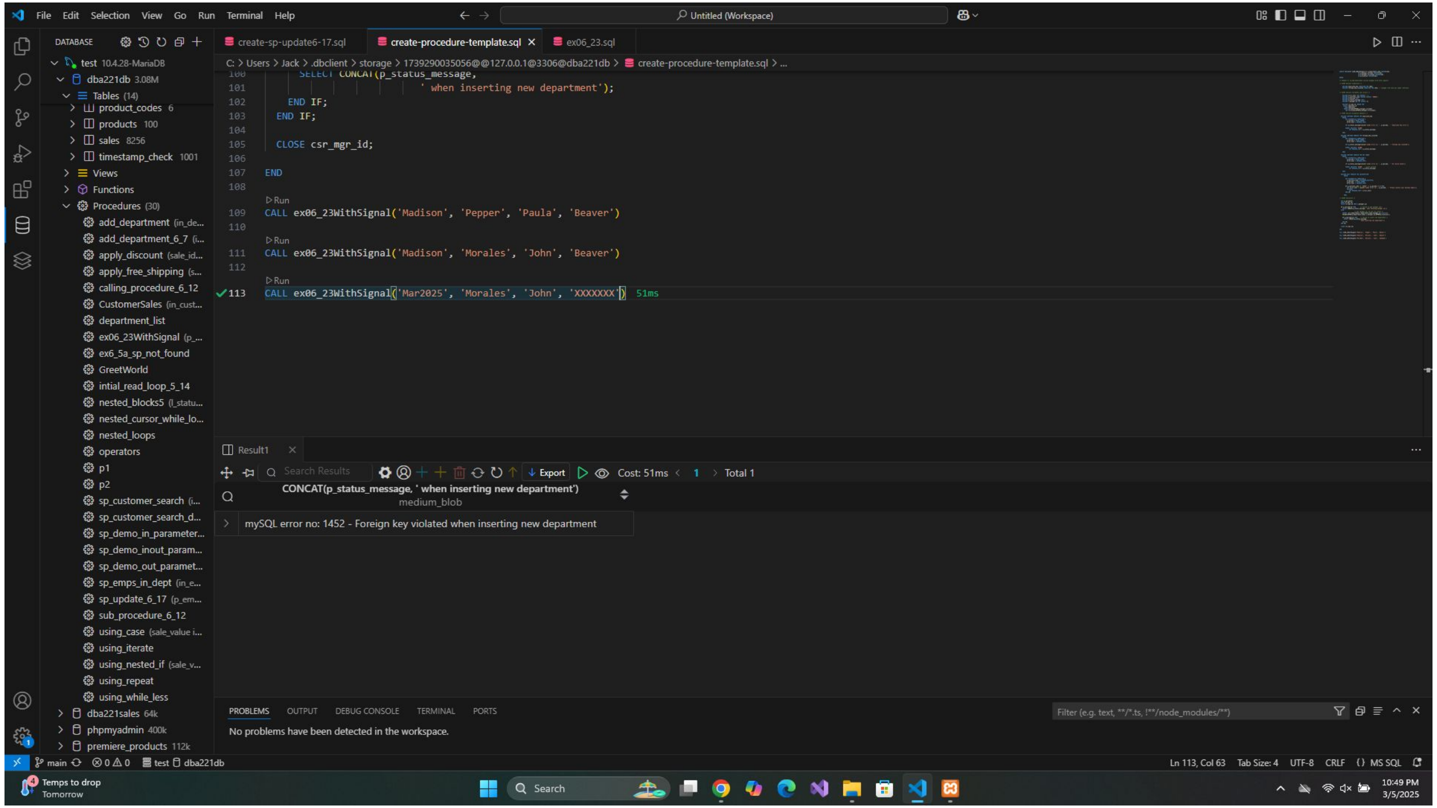


```
        SELECT CONCAT(p_status_message,
                      ' when inserting new department');
    END IF;
  END IF;

  CLOSE csr_mgr_id;

END

CALL ex06_23WithSignal('Madison', 'Pepper', 'Paula', 'Beaver')

CALL ex06_23WithSignal('Madison', 'Morales', 'John', 'Beaver')  53ms
```

```
CONCAT(p_status_message, ' when inserting new department')
medium_blob
mySQL error no: 1062 - Duplicate key error when inserting new department
```

No problems have been detected in the workspace.

Call example 6-23

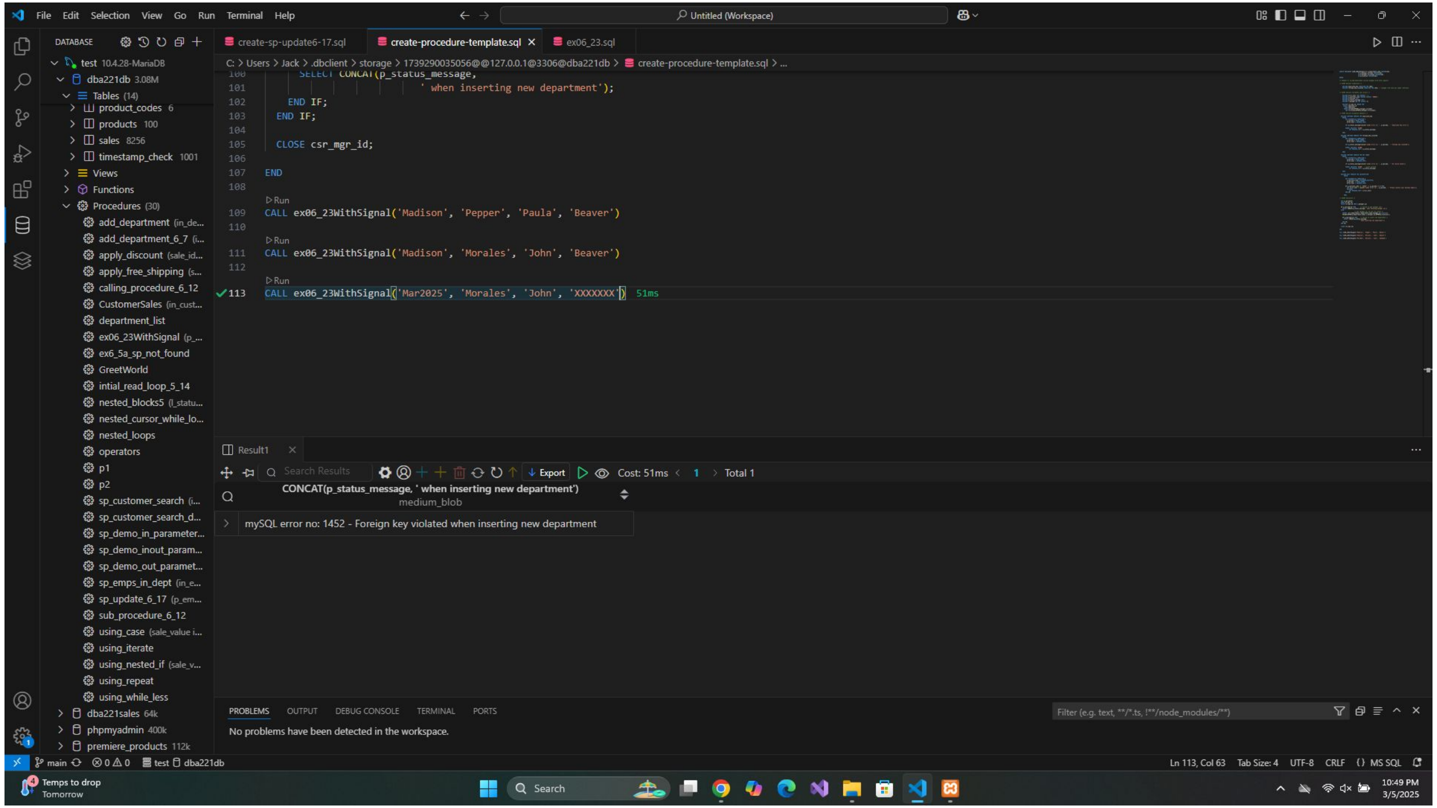


```
        SELECT CONCAT(p_status_message,
                      ' when inserting new department');
      END IF;
    END IF;

    CLOSE csr_mgr_id;

END

▷ Run
CALL ex06_23WithSignal('Madison', 'Pepper', 'Paula', 'Beaver')

▷ Run
CALL ex06_23WithSignal('Madison', 'Morales', 'John', 'Beaver')

▷ Run
CALL ex06_23WithSignal('Mar2025', 'Morales', 'John', 'XXXXXXX')  51ms
```

```
CONCAT(p_status_message, ' when inserting new department')
medium_blob
mySQL error no: 1452 - Foreign key violated when inserting new department
```

No problems have been detected in the workspace.

Call example 6-23

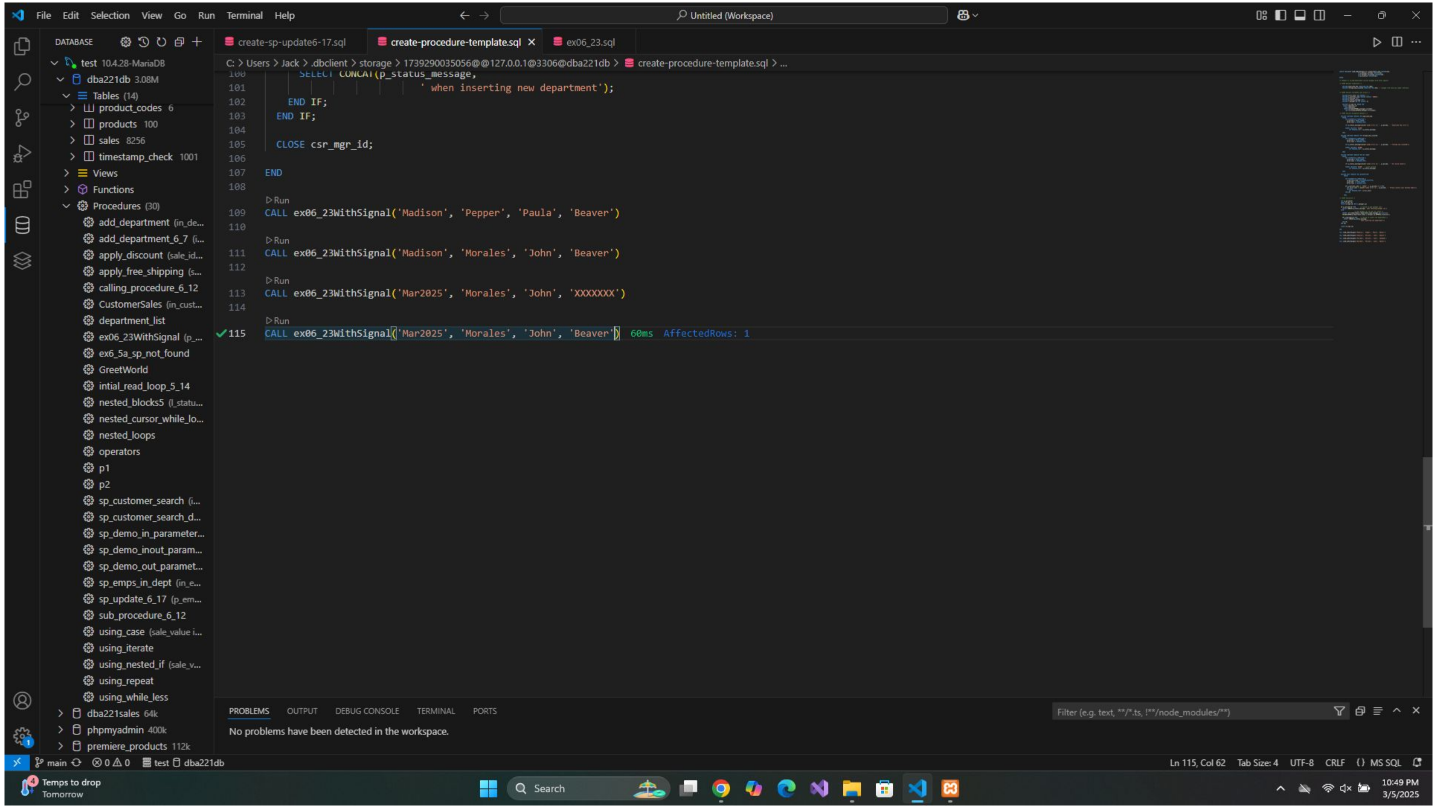


```sql
            SELECT CONCAT(p_status_message,
                          ' when inserting new department');
        END IF;
    END IF;

    CLOSE csr_mgr_id;

END

CALL ex06_23WithSignal('Madison', 'Pepper', 'Paula', 'Beaver')

CALL ex06_23WithSignal('Madison', 'Morales', 'John', 'Beaver')

CALL ex06_23WithSignal('Mar2025', 'Morales', 'John', 'XXXXXXX')  51ms
```

```
CONCAT(p_status_message, ' when inserting new department')
medium_blob
mySQL error no: 1452 - Foreign key violated when inserting new department
```

No problems have been detected in the workspace.

Call example 6-23



```
        SELECT CONCAT(p_status_message,
                      ' when inserting new department');
      END IF;
    END IF;

    CLOSE csr_mgr_id;

END

CALL ex06_23WithSignal('Madison', 'Pepper', 'Paula', 'Beaver')

CALL ex06_23WithSignal('Madison', 'Morales', 'John', 'Beaver')

CALL ex06_23WithSignal('Mar2025', 'Morales', 'John', 'XXXXXXX')

CALL ex06_23WithSignal('Mar2025', 'Morales', 'John', 'Beaver')  60ms  AffectedRows: 1
```

No problems have been detected in the workspace.