********** Test Case 1 **********
Case: Insert subject with S_TYPE = W
Title: Insert subject
SQL: INSERT INTO SUBJECT (S_ID, FK_ST_NAME, S_NAME, S_SEMESTER, S_STUPO_HOURS, S_NOTES, S_TYPE)
SELECT 1768422884, ST_NAME, 'Test Subject W', 1, 1.00, 'Test insert', 'W' FROM STUDY_PROGRAM FETCH
FIRST 1 ROW ONLY
Result: ok
Detail: affected_rows=1
Title: Verify subject 1768422884
SQL: SELECT * FROM SUBJECT WHERE S_ID = 1768422884
Result: ok
Rows (first 10):
  {'S_ID': 1768422884, 'S_NAME': 'Test Subject W', 'S_STUPO_HOURS': '1.00', 'S_SEMESTER': 1,
'FK_ST_NAME': 'AN', 'S_NOTES': 'Test insert', 'S_TYPE': 'W'}
********** End of Test Case 1 **********

********** Test Case 2 **********
Case: Insert lecturer
Title: Insert teacher for lecturer
SQL: INSERT INTO TEACHER (T_ID, T_NAME, T_LASTNAME, FK_D_NAME, FK_ZIP, T_NOTES, T_IS_ACTIVE)
VALUES (1768422884, 'Test', 'Lecturer', NULL, NULL, 'Test insert', 1)
Result: ok
Detail: affected_rows=1
Title: Insert lecturer
SQL: INSERT INTO LECTURER (T_ID, L_STREET_ADDRESS) VALUES (1768422884, 'Test Street 1')
Result: ok
Detail: affected_rows=1
Title: Verify lecturer 1768422884
SQL: SELECT * FROM LECTURER WHERE T_ID = 1768422884
Result: ok
Rows (first 10):
  {'T_ID': 1768422884, 'L_STREET_ADDRESS': 'Test Street 1', 'L_SUPERVISOR': None}
********** End of Test Case 2 **********

********** Test Case 3 **********
Case: Deactivate lecturer
Title: Insert teacher for lecturer
SQL: INSERT INTO TEACHER (T_ID, T_NAME, T_LASTNAME, FK_D_NAME, FK_ZIP, T_NOTES, T_IS_ACTIVE)
VALUES (1768422884, 'Test', 'Lecturer', NULL, NULL, 'Test insert', 1)
Result: ok
Detail: affected_rows=1
Title: Insert lecturer
SQL: INSERT INTO LECTURER (T_ID, L_STREET_ADDRESS) VALUES (1768422884, 'Test Street 2')
Result: ok
Detail: affected_rows=1
Title: Deactivate lecturer
SQL: UPDATE TEACHER SET T_IS_ACTIVE = 0 WHERE T_ID = 1768422884
Result: ok
Detail: affected_rows=1
Title: Verify lecturer inactive 1768422884
SQL: SELECT T_ID, T_IS_ACTIVE FROM TEACHER WHERE T_ID = 1768422884
Result: ok
Rows (first 10):

{'T_ID': 1768422884, 'T_IS_ACTIVE': 0}
********** End of Test Case 3 **********

********** Test Case 4 **********
Case: Deactivate professor
Title: Insert teacher for professor
SQL: INSERT INTO TEACHER (T_ID, T_NAME, T_LASTNAME, FK_D_NAME, FK_ZIP, T_NOTES, T_IS_ACTIVE) VALUES (1768422884, 'Test', 'Professor', NULL, NULL, 'Test insert', 1)
Result: ok
Detail: affected_rows=1
Title: Insert professor
SQL: INSERT INTO PROFESSOR (T_ID, P_ROOM) VALUES (1768422884, 'R-101')
Result: ok
Detail: affected_rows=1
Title: Deactivate professor
SQL: UPDATE TEACHER SET T_IS_ACTIVE = 0 WHERE T_ID = 1768422884
Result: ok
Detail: affected_rows=1
Title: Verify professor inactive 1768422884
SQL: SELECT T_ID, T_IS_ACTIVE FROM TEACHER WHERE T_ID = 1768422884
Result: ok
Rows (first 10):
{'T_ID': 1768422884, 'T_IS_ACTIVE': 0}
********** End of Test Case 4 **********

********** Test Case 5 **********
Case: Hire professor
Title: Insert postal code
SQL: INSERT INTO POSTAL_CODE (ZIP, CITY) VALUES ('Z22884', 'Test City')
Result: ok
Detail: affected_rows=1
Title: Insert teacher for professor
SQL: INSERT INTO TEACHER (T_ID, T_NAME, T_LASTNAME, FK_D_NAME, FK_ZIP, T_NOTES, T_IS_ACTIVE) VALUES (1768422884, 'Test', 'Professor', NULL, 'Z22884', 'Test hire', 1)
Result: ok
Detail: affected_rows=1
Title: Insert professor
SQL: INSERT INTO PROFESSOR (T_ID, P_ROOM) VALUES (1768422884, 'R-202')
Result: ok
Detail: affected_rows=1
Title: Verify hired professor 1768422884
SQL: SELECT T.T_ID, T.T_IS_ACTIVE, T.FK_ZIP, P.P_ROOM FROM TEACHER T JOIN PROFESSOR P ON P.T_ID = T.T_ID WHERE T.T_ID = 1768422884
Result: ok
Rows (first 10):
{'T_ID': 1768422884, 'T_IS_ACTIVE': 1, 'FK_ZIP': 'Z22884', 'P_ROOM': 'R-202'}
********** End of Test Case 5 **********

********** Test Case 6 **********
Case: Insert semester planning
Title: Start a new semester planning session for a upcoming term
SQL: INSERT INTO SEMESTER_PLANNING (SP_ID, SP_TERM, SP_VERSION_NR, SP_IS_FINAL) VALUES (1768422884, 'WS99', 1, 0)

Result: ok
Detail: affected_rows=1
Title: Verify semester planning 1768422884
SQL: SELECT * FROM SEMESTER_PLANNING WHERE SP_ID = 1768422884
Result: ok
Rows (first 10):
  {'SP_ID': 1768422884, 'SP_TERM': 'WS99', 'SP_VERSION_NR': 1, 'SP_IS_FINAL': 0}
********** End of Test Case 6 **********

********** Test Case 7 **********
Case: List subjects for SWB semester 6
Title: Query subjects for SWB semester 6
SQL: SELECT S.S_ID, S.S_NAME, S.S_SEMESTER, ST.ST_NAME FROM SUBJECT S JOIN STUDY_PROGRAM ST ON S.FK_ST_NAME = ST.ST_NAME WHERE ST.ST_NAME = 'SWB' AND S.S_SEMESTER = 6
Result: ok
Rows (first 10):
  {'S_ID': 171, 'S_NAME': 'Informationssysteme ', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
  {'S_ID': 174, 'S_NAME': 'Labor Informationssysteme ', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
  {'S_ID': 177, 'S_NAME': 'Sofwarequalit■t', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
  {'S_ID': 179, 'S_NAME': 'Labor Softwarequalit■t ', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
  {'S_ID': 181, 'S_NAME': 'IT-Sicherheit ', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
  {'S_ID': 183, 'S_NAME': 'Labor IT-Sicherheit ', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
  {'S_ID': 185, 'S_NAME': 'Studienprojekt ', 'S_SEMESTER': 6, 'ST_NAME': 'SWB'}
Title: Get current semester
SQL: SELECT MAX(SP_ID) AS SP_ID FROM SEMESTER_PLANNING
Result: ok
Rows (first 10):
  {'SP_ID': 3}
Title: Get next offering id
SQL: SELECT COALESCE(MAX(O_ID), 0) + 1 AS NEXT_ID FROM OFFERING
Result: ok
Rows (first 10):
  {'NEXT_ID': 807}
Title: Insert offering for subject 171
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (807, 171, 3, 0)
Result: ok
Detail: affected_rows=1
Title: Insert offering for subject 174
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (808, 174, 3, 0)
Result: ok
Detail: affected_rows=1
Title: Insert offering for subject 177
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (809, 177, 3, 0)
Result: ok
Detail: affected_rows=1
Title: Insert offering for subject 179
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (810, 179, 3, 0)
Result: ok
Detail: affected_rows=1
Title: Insert offering for subject 181
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (811, 181, 3, 0)
Result: ok

Detail: affected_rows=1
Title: Insert offering for subject 183
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (812, 183, 3, 0)
Result: ok
Detail: affected_rows=1
Title: Insert offering for subject 185
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (813, 185, 3, 0)
Result: ok
Detail: affected_rows=1
Title: Verify inserted offerings
SQL: SELECT O_ID, FK_S_ID, FK_SP_ID FROM OFFERING WHERE O_ID IN (807, 808, 809, 810, 811, 812, 813)
Result: ok
Rows (first 10):
  {'O_ID': 807, 'FK_S_ID': 171, 'FK_SP_ID': 3}
  {'O_ID': 808, 'FK_S_ID': 174, 'FK_SP_ID': 3}
  {'O_ID': 809, 'FK_S_ID': 177, 'FK_SP_ID': 3}
  {'O_ID': 810, 'FK_S_ID': 179, 'FK_SP_ID': 3}
  {'O_ID': 811, 'FK_S_ID': 181, 'FK_SP_ID': 3}
  {'O_ID': 812, 'FK_S_ID': 183, 'FK_SP_ID': 3}
  {'O_ID': 813, 'FK_S_ID': 185, 'FK_SP_ID': 3}
********** End of Test Case 7 **********

********** Test Case 8 **********
Case: Missing offering assignments
Title: Find offerings without assignments
SQL: SELECT O.O_ID, O.FK_S_ID, O.FK_SP_ID FROM OFFERING O LEFT JOIN OFFERING_ASSIGNMENT OA ON OA.FK_O_ID = O.O_ID WHERE OA.FK_O_ID IS NULL
Result: ok
Rows (first 10):
  {'O_ID': 1, 'FK_S_ID': 274, 'FK_SP_ID': 1}
  {'O_ID': 2, 'FK_S_ID': 274, 'FK_SP_ID': 2}
  {'O_ID': 3, 'FK_S_ID': 274, 'FK_SP_ID': 3}
  {'O_ID': 4, 'FK_S_ID': 287, 'FK_SP_ID': 2}
  {'O_ID': 5, 'FK_S_ID': 303, 'FK_SP_ID': 1}
  {'O_ID': 6, 'FK_S_ID': 303, 'FK_SP_ID': 2}
  {'O_ID': 7, 'FK_S_ID': 303, 'FK_SP_ID': 3}
  {'O_ID': 8, 'FK_S_ID': 106, 'FK_SP_ID': 2}
  {'O_ID': 14, 'FK_S_ID': 108, 'FK_SP_ID': 3}
  {'O_ID': 117, 'FK_S_ID': 271, 'FK_SP_ID': 1}
********** End of Test Case 8 **********

********** Test Case 9 **********
Case: Professor workload for semester
Title: Get current semester
SQL: SELECT MAX(SP_ID) AS SP_ID FROM SEMESTER_PLANNING
Result: ok
Rows (first 10):
  {'SP_ID': 3}
Title: Get a professor
SQL: SELECT T_ID FROM PROFESSOR FETCH FIRST 1 ROW ONLY
Result: ok
Rows (first 10):

{'T_ID': 86}
Title: Compute professor workload
SQL: SELECT T.T_ID, O.FK_SP_ID, COALESCE(SUM(OA.OA_ASSIGNED_HOURS), 0) AS ASSIGNED_HOURS, COALESCE(SUM(PA.PA_REDUCTION_HOURS), 0) AS REDUCTION_HOURS, COALESCE(SUM(OA.OA_ASSIGNED_HOURS + COALESCE(SUM(PA.PA_REDUCTION_HOURS), 0) AS TOTAL_WORKLOAD FROM TEACHER T LEFT JOIN OFFERING_ASSIGNMENT OA ON OA.FK_T_ID = T.T_ID LEFT JOIN OFFERING O ON O.O_ID = OA.FK_O_ID LEFT JOIN POSITION_ASSIGNMENT PA ON PA.FK_P_ID = T.T_ID LEFT JOIN POSITION_SEMESTER PS ON PS.PS_ID = PA.FK_PS_ID WHERE T.T_ID = 86 AND (O.FK_SP_ID = 3 OR PS.FK_SP_ID = 3) GROUP BY T.T_ID, O.FK_SP_ID
Result: ok
Rows (first 10):
{'T_ID': 86, 'FK_SP_ID': 3, 'ASSIGNED_HOURS': '17.00', 'REDUCTION_HOURS': '0.00', 'TOTAL_WORKLOAD': '17.00'}
********** End of Test Case 9 **********

********** Test Case 10 **********
Case: Report offered courses for semester
Title: Get current semester
SQL: SELECT MAX(SP_ID) AS SP_ID FROM SEMESTER_PLANNING
Result: ok
Rows (first 10):
{'SP_ID': 3}
Title: Report offered courses for semester
SQL: SELECT O.O_ID, O.FK_SP_ID, S.S_ID, S.S_NAME, S.S_SEMESTER, SP.ST_NAME FROM OFFERING O JOIN SUBJECT S ON S.S_ID = O.FK_S_ID LEFT JOIN STUDY_PROGRAM SP ON SP.ST_NAME = S.FK_ST_NAME WHERE O.FK_SP_ID = 3 ORDER BY S.S_NAME
Result: ok
Rows (first 10):
{'O_ID': 7, 'FK_SP_ID': 3, 'S_ID': 303, 'S_NAME': 'Algorithmen', 'S_SEMESTER': 7, 'ST_NAME': 'TIB'}
{'O_ID': 3, 'FK_SP_ID': 3, 'S_ID': 274, 'S_NAME': 'Algorithmen', 'S_SEMESTER': 7, 'ST_NAME': 'KTB'}
{'O_ID': 11, 'FK_SP_ID': 3, 'S_ID': 107, 'S_NAME': 'Algorithmen und Datenstrukturen', 'S_SEMESTER': 3, 'ST_NAME': 'SWB'}
{'O_ID': 14, 'FK_SP_ID': 3, 'S_ID': 108, 'S_NAME': 'Algorithmen und Datenstrukturen', 'S_SEMESTER': 4, 'ST_NAME': 'WKB'}
{'O_ID': 67, 'FK_SP_ID': 3, 'S_ID': 23, 'S_NAME': 'BWL', 'S_SEMESTER': 1, 'ST_NAME': 'WKB'}
{'O_ID': 22, 'FK_SP_ID': 3, 'S_ID': 203, 'S_NAME': 'Bachelorarbeit ', 'S_SEMESTER': 7, 'ST_NAME': 'SWB'}
{'O_ID': 30, 'FK_SP_ID': 3, 'S_ID': 205, 'S_NAME': 'Bachelorarbeit', 'S_SEMESTER': 7, 'ST_NAME': 'WKB'}
{'O_ID': 27, 'FK_SP_ID': 3, 'S_ID': 204, 'S_NAME': 'Bachelorarbeit', 'S_SEMESTER': 7, 'ST_NAME': 'TIB'}
{'O_ID': 19, 'FK_SP_ID': 3, 'S_ID': 202, 'S_NAME': 'Bachelorarbeit ', 'S_SEMESTER': 7, 'ST_NAME': 'MIB'}
{'O_ID': 33, 'FK_SP_ID': 3, 'S_ID': 325, 'S_NAME': 'Bachelorarbeiten ASM," Export', 'S_SEMESTER': 1, 'ST_NAME': 'ASM'}
********** End of Test Case 10 **********

********** Test Case 11 **********
Case: Update offering assignment actual hours
Title: Insert department
SQL: INSERT INTO DEPARTMENT (D_NAME) VALUES ('D1768422884')
Result: ok

Detail: affected_rows=1
Title: Insert study program
SQL: INSERT INTO STUDY_PROGRAM (ST_NAME, FK_D_NAME) VALUES ('S1768422884', 'D1768422884')
Result: ok
Detail: affected_rows=1
Title: Insert subject
SQL: INSERT INTO SUBJECT (S_ID, FK_ST_NAME, S_NAME, S_SEMESTER, S_STUPO_HOURS, S_NOTES, S_TYPE) VALUES (1768422884, 'S1768422884', 'Test Subject', 1, 1.00, 'Test', 'W')
Result: ok
Detail: affected_rows=1
Title: Insert semester planning
SQL: INSERT INTO SEMESTER_PLANNING (SP_ID, SP_TERM, SP_VERSION_NR, SP_IS_FINAL) VALUES (1768422884, 'TS1768422884', 1, 0)
Result: ok
Detail: affected_rows=1
Title: Insert offering
SQL: INSERT INTO OFFERING (O_ID, FK_S_ID, FK_SP_ID, O_PLANNED_HOURS) VALUES (1768422884, 1768422884, 1768422884, 1)
Result: ok
Detail: affected_rows=1
Title: Insert teacher
SQL: INSERT INTO TEACHER (T_ID, T_NAME, T_LASTNAME, FK_D_NAME, FK_ZIP, T_NOTES, T_IS_ACTIVE) VALUES (1768422884, 'Test', 'Teacher', 'D1768422884', NULL, 'Test', 1)
Result: ok
Detail: affected_rows=1
Title: Insert offering assignment
SQL: INSERT INTO OFFERING_ASSIGNMENT (OA_ID, FK_O_ID, FK_T_ID, OA_ASSIGNED_HOURS, OA_ACTUAL_HOURS, OA_ROLE) VALUES (1768422884, 1768422884, 1768422884, 2.0, 0.0, NULL)
Result: ok
Detail: affected_rows=1
Title: Update offering assignment actual hours
SQL: UPDATE OFFERING_ASSIGNMENT SET OA_ACTUAL_HOURS = 7.0 WHERE OA_ID = 1768422884
Result: ok
Detail: affected_rows=1
Title: Verify updated actual hours
SQL: SELECT OA_ID, OA_ACTUAL_HOURS FROM OFFERING_ASSIGNMENT WHERE OA_ID = 1768422884
Result: ok
Rows (first 10):
  {'OA_ID': 1768422884, 'OA_ACTUAL_HOURS': '7.00'}
********** End of Test Case 11 **********

********** Test Case 12 **********
Case: Teacher actual workload for WS1415
Title: Get semester WS1415
SQL: SELECT SP_ID FROM SEMESTER_PLANNING WHERE SP_TERM = 'WS1415'
Result: ok
Rows (first 10):
  {'SP_ID': 2}
Title: Get teacher Nonnast
SQL: SELECT T_ID FROM TEACHER WHERE T_LASTNAME = 'Nonnast'
Result: ok
Rows (first 10):

{'T_ID': 16}
Title: Compute teacher actual workload
SQL: SELECT T.T_ID, SP.SP_TERM, COALESCE(SUM(OA.OA_ACTUAL_HOURS), 0) AS ACTUAL_HOURS FROM TEACHER T JOIN OFFERING_ASSIGNMENT OA ON OA.FK_T_ID = T.T_ID JOIN OFFERING O ON O.O_ID = OA.FK_O_ID JOIN SEMESTER_PLANNING SP ON SP.SP_ID = O.FK_SP_ID WHERE T.T_ID = 16 AND SP.SP_ID = 2 GROUP BY T.T_ID, SP.SP_TERM
Result: ok
Rows (first 10):
{'T_ID': 16, 'SP_TERM': 'WS1415', 'ACTUAL_HOURS': '14.00'}
********** End of Test Case 12 **********