CASE B: INSULATION UNLIMITED COMPANY | SEGMENT - 1

SERLY SONAM | C00528979

SPRING 2024 | INFX-531-001 (Advanced Databases)

Case Description:

Insulation Unlimited Company was founded in Bothell, Washington in 1985, and has since grown into three offices with some degree of autonomy across the greater Seattle area. The company serves a wide range of customers, including general contractors, government organizations, and homeowners. It specializes in asbestos removal, acoustic engineering, and insulation installation.

The company's primary services include blowing loose-fill fiberglass, rockwool, and cellulose into attics and crawl spaces, as well as placing insulation blankets (sometimes known as "batts") made of fiberglass and rockwool in walls, floors, and ceilings. They also offer fitting services for specialty insulation goods like foam board. Subcontractors' work is very different from general contracting since they are more concerned with labor costs and material handling for individual works than they are with project management and scheduling.

Although general contractors can choose from a wide range of software systems, insulation subcontractors have fewer options that are specifically designed to meet their needs. The company processes payroll, manages inventory, accounts payable for vendor payments, accounts receivable for customer invoices, and maintains a general ledger for all accounts. These accounting functions are like those of other retail establishments.

Workflow:

The process of a normal contracting job starts with the proposal, moves on to work order preparation, work scheduling, and finally ends with invoice creation. The proposal, which describes the work to be done and the price quote given to the customer by a salesman, is the first step in an insulation contracting operation. The proposal is usually presented in response to a request for bids for commercial or government contracts, although for residential projects, it is frequently based on a walkthrough and standard area calculations. Every proposal contains a unique identification number and a status field that indicates whether it has been "Accepted," "Pending," or "Denied." The decision date indicates when the status changes.

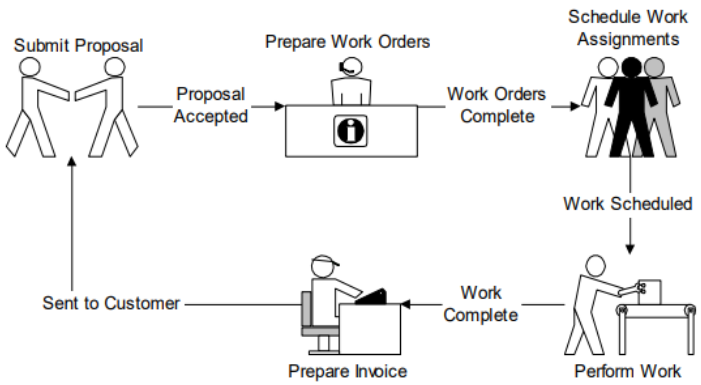


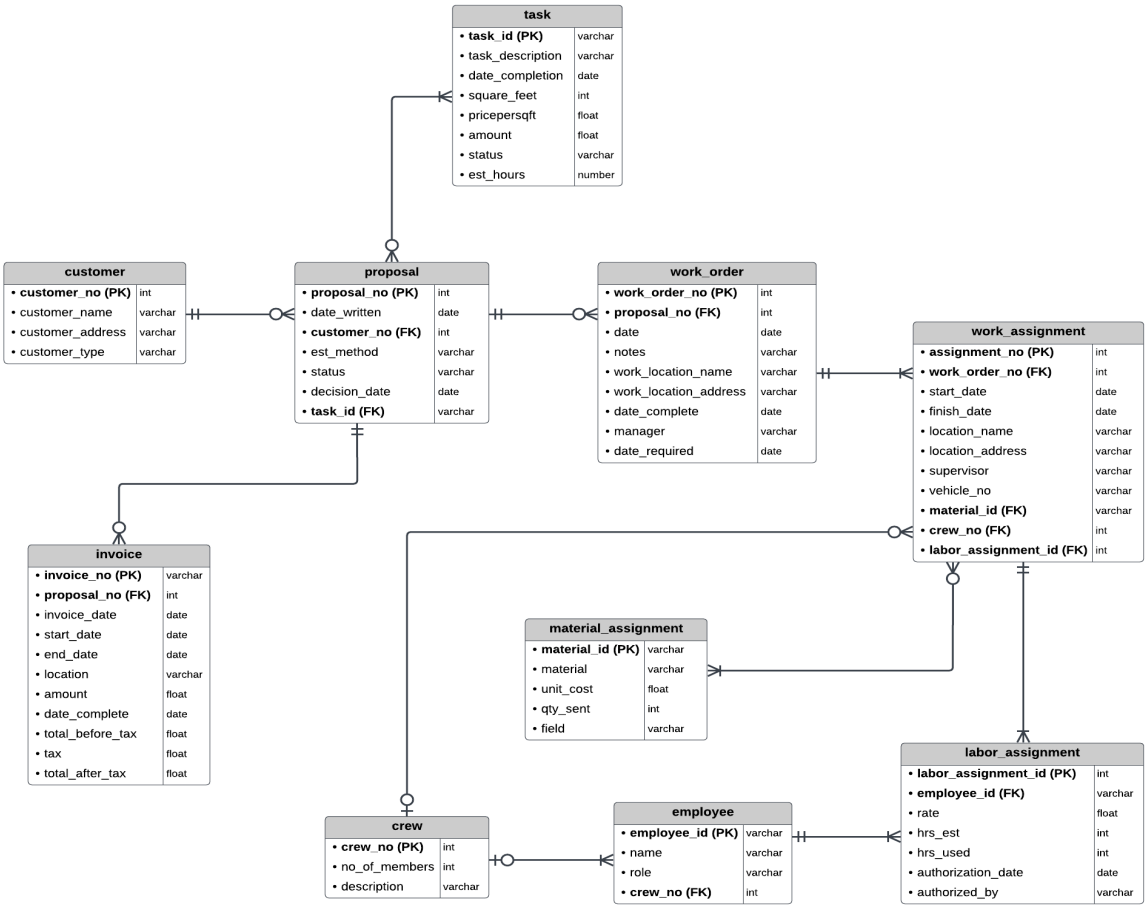
Figure 1: Workflow for a Typical Contracting Job

Until the customer responds, the Estimation Method field is left null. "Floor plan" or "walk through" are the two options. There are how many work locations listed in the Locations box. Requested tasks are listed in each proposal; the locations of these jobs may differ. A work order lists activities to be completed at various places. The price per square foot covers expenditures and profit, whereas the square footage estimates task effort. The cost to the consumer is represented by the amount stated.

Business Rules:

- A **Customer** can receive zero or many **proposals**.
- A **proposal** can be sent to one and only one **customer.**
- A **proposal** can have zero or many **work orders**.
- A **work order** can have one and only one **proposal**.
- A **work order** can have one and many **work assignment**.
- A **work assignment** can have maximum one **work order**.
- A **proposal** can have zero or many **invoice**.
- An **invoice** can have maximum one **proposal**.
- A **task** can have zero or many **proposals**.
- A proposal can have one to many **tasks**.
- A **work assignment** can be assigned to one or many workers/**labors assignment**.
- A **labor assignment** is assigned to maximum one **work assignment**.
- A **work assignment** can have one or many **materials assignment**.
- A **material assignment** can have zero to many **work assignments**.
- A **work assignment** can have zero or many **crew**.
- A **crew** can have zero to many **work assignments.**
- A **labor assignment** can have maximum one **employee**.
- An **employee** can have one or many labor **assignments**.
- An **employee** might be in zero or one **crew**.
- A **crew** can have one to many **employees**.

Conceptual data model (ERD) :



SCHEMA:

- customer (customer_no, customer_name, customer_address, customer_type)
- task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
- proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
- work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, date_complete, manager_name, date_required)
- material_assignment (material_id, material, unit_cost, qty_sent, field)
- crew (crew_no, no_of_members, description)
- employee (employee_id, name, role, crew_no)
- labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
- work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, lobor_assignment_id)
- invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)

CREATING THE TABLES:

```
CREATE TABLE customer(
   customer_no NUMBER PRIMARY KEY,
   customer_name VARCHAR2(50),
   customer_address VARCHAR2(100),
   customer_type VARCHAR2(50)
);

CREATE TABLE task(
   task_id VARCHAR2(50) PRIMARY KEY,
   task_description VARCHAR2(250),
   date_completion DATE,
   square_feet NUMBER,
   pricepersqft FLOAT,
   amount FLOAT,
   status VARCHAR2(50),
   est_hours NUMBER
);

CREATE TABLE proposal(
   proposal_no NUMBER PRIMARY KEY,
   date_written DATE,
   customer_no NUMBER,
   CONSTRAINT customer_no FOREIGN KEY (customer_no) REFERENCES customer(customer_no),
   est_method VARCHAR2(50),
```

```
   status VARCHAR2(50),
   decision_date DATE,
   task_id VARCHAR2(50),
   CONSTRAINT task_id FOREIGN KEY (task_id) REFERENCES task(task_id)
);

CREATE TABLE work_order(
   work_order_no NUMBER PRIMARY KEY,
   proposal_no NUMBER,
   FOREIGN KEY (proposal_no) REFERENCES proposal(proposal_no),
   work_date DATE,
   notes VARCHAR(50),
   work_location_name VARCHAR(50),
   work_location_address VARCHAR(50),
   date_complete DATE,
   manager_name VARCHAR2(50),
   date_required DATE
);

CREATE TABLE material_assignment(
   material_id VARCHAR2(20) PRIMARY KEY,
   material VARCHAR2(20),
   unit_cost FLOAT,
   qty_sent NUMBER,
   field VARCHAR2(20)
);

CREATE TABLE crew(
   crew_no NUMBER PRIMARY KEY,
   no_of_members NUMBER,
   description VARCHAR(100)
);

CREATE TABLE employee(
   employee_id VARCHAR2(20) PRIMARY KEY,
   name VARCHAR2(20),
   role VARCHAR2(20),
   crew_no NUMBER,
   FOREIGN KEY (crew_no) REFERENCES crew(crew_no)
);

CREATE TABLE labor_assignment(
   labor_assignment_id NUMBER PRIMARY KEY,
   employee_id VARCHAR2(20),
   FOREIGN KEY (employee_id) REFERENCES employee(employee_id),
   rate FLOAT,
   hrs_est NUMBER,
   hrs_used NUMBER,
   authorization_date DATE,
   authorized_by VARCHAR2(20)
);
```

```
CREATE TABLE work_assignment(
   assignment_no NUMBER PRIMARY KEY,
   work_order_no NUMBER,
   FOREIGN KEY (work_order_no) REFERENCES work_order(work_order_no),
   start_date DATE,
   finish_date DATE,
   location_name VARCHAR2(50),
   location_address VARCHAR2(50),
   supervisor VARCHAR2(50),
   vehicle_no VARCHAR2(50),
   material_id VARCHAR2(20),
   FOREIGN KEY (material_id) REFERENCES material_assignment(material_id),
   crew_no NUMBER,
   FOREIGN KEY (crew_no) REFERENCES crew(crew_no),
   labor_assignment_id NUMBER,
   FOREIGN KEY (labor_assignment_id) REFERENCES labor_assignment(labor_assignment_id)
);

CREATE TABLE invoice(
   invoice_no VARCHAR2(50) PRIMARY KEY,
   proposal_no NUMBER,
   FOREIGN KEY (proposal_no) REFERENCES proposal(proposal_no),
   invoice_date DATE,
   start_date DATE,
   end_date DATE,
   location VARCHAR2(50),
   amount FLOAT,
   date_complete DATE,
   total_befor_tax FLOAT,
   tax FLOAT,
   total_after_tax FLOAT
);
```

INSERTING DATASETS:

For customer table:

```
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (1, 'Thomas Group','111 Oak Lane, Mountainside', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (2, 'Lewis', '888 Maple Street, Seaside', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (3, 'Smith', '789 Oak St, City, Country', 'Individual');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (4, 'Johnson Enterprises', '101 Pine St, City, Country', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (5, 'Mary Johnson', '321 Maple St, City, Country', 'Individual');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (6, 'ABC Plumbing', '555 Cedar St, City, Country', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (7, 'ACME Construction', '777 Walnut St, City, Country', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (8, 'John Doe', '999 Birch St, City, Country', 'Individual');
```

```
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (9, 'Jane Smith', '888 Spruce St, City, Country', 'Individual');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (10, 'Smith', '222 Pine St, City, Country', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (11, 'Miller Company', '789 Pine Road, Townburg', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (12, 'Brown Corporation', '101 Elm Lane, Villagetown', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (13, 'Wilson Industries', '321 Cedar Street, Hamlet City', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (14, 'Taylor', '555 Walnut Avenue, Countryside', 'Corporate');
INSERT INTO customer (customer_no, customer_name, customer_address, customer_type) VALUES (15, 'Clark Enterprises', '777 Birch Road, Lakeside', 'Corporate');
```

For task table:

```
-- Batch 1
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1001, 'Install new flooring in office area', TO_DATE('2024-03-20', 'YYYY-MM-DD'), 500, 3.5, NULL, 'In Progress', 10);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1002, 'Paint exterior walls of building', TO_DATE('2024-03-25', 'YYYY-MM-DD'), 700, 2.8, NULL, 'Scheduled', 15);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1003, 'Repair plumbing in restroom', TO_DATE('2024-03-18', 'YYYY-MM-DD'), 300, 4.2, NULL, 'Pending', 8);

-- Batch 2
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1004, 'Replace roof shingles', TO_DATE('2024-03-30', 'YYYY-MM-DD'), 800, 5.0, NULL, 'In Progress', 20);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1005, 'Install new lighting fixtures', TO_DATE('2024-03-22', 'YYYY-MM-DD'), 400, 6.0, NULL, 'Completed', 10);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1006, 'Renovate conference room', TO_DATE('2024-04-05', 'YYYY-MM-DD'), 600, 4.9, NULL, 'In Progress', 12);

-- Batch 3
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1007, 'Clean and maintain HVAC system', TO_DATE('2024-03-28', 'YYYY-MM-DD'), 900, 3.0, NULL, 'Scheduled', 25);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1008, 'Construct additional parking space', TO_DATE('2024-04-10', 'YYYY-MM-DD'), 1000, 7.5, NULL, 'In Progress', 30);
```

```
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1009, 'Install security cameras', TO_DATE('2024-03-24', 'YYYY-MM-DD'), 200, 4.5, NULL, 'Completed', 5);

-- Batch 4
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1010, 'Upgrade server infrastructure', TO_DATE('2024-04-15', 'YYYY-MM-DD'), 1200, 8.2, NULL, 'Scheduled', 35);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1011, 'Repair cracked pavement', TO_DATE('2024-03-26', 'YYYY-MM-DD'), 600, 3.2, NULL, 'Pending', 10);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1012, 'Paint interior walls of lobby', TO_DATE('2024-03-21', 'YYYY-MM-DD'), 800, 2.7, NULL, 'Completed', 20);

-- Batch 5
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1013, 'Install new windows', TO_DATE('2024-03-29', 'YYYY-MM-DD'), 400, 9.0, NULL, 'In Progress', 15);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1014, 'Upgrade network infrastructure', TO_DATE('2024-04-20', 'YYYY-MM-DD'), 1000, 6.5, NULL, 'Scheduled', 25);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1015, 'Replace office furniture', TO_DATE('2024-04-25', 'YYYY-MM-DD'), 700, 3.8, NULL, 'Pending', 20);
```

For proposal table:

```
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(1, TO_DATE('2024-03-01', 'YYYY-MM-DD'), 1, 'Standard', 'Pending', NULL, 1001);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(2, TO_DATE('2024-03-05', 'YYYY-MM-DD'), 2, 'Advanced', 'Approved', TO_DATE('2024-03-10', 'YYYY-MM-DD'), 1002);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(3, TO_DATE('2024-03-10', 'YYYY-MM-DD'), 3, 'Basic', 'Pending', NULL, 1003);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(4, TO_DATE('2024-03-15', 'YYYY-MM-DD'), 4, 'Standard', 'Rejected', TO_DATE('2024-03-20', 'YYYY-MM-DD'), 1004);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(5, TO_DATE('2024-03-20', 'YYYY-MM-DD'), 5, 'Advanced', 'Approved', TO_DATE('2024-03-25', 'YYYY-MM-DD'), 1005);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(6, TO_DATE('2024-03-25', 'YYYY-MM-DD'), 1, 'Standard', 'Pending', NULL, 1006);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
```

(7, TO_DATE('2024-03-30', 'YYYY-MM-DD'), 2, 'Advanced', 'Pending', NULL, 1007);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(8, TO_DATE('2024-04-01', 'YYYY-MM-DD'), 3, 'Basic', 'Approved', TO_DATE('2024-04-05', 'YYYY-MM-DD'), 1008);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(9, TO_DATE('2024-04-05', 'YYYY-MM-DD'), 4, 'Standard', 'Pending', NULL, 1009);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(10, TO_DATE('2024-04-10', 'YYYY-MM-DD'), 5, 'Advanced', 'Approved', TO_DATE('2024-04-15', 'YYYY-MM-DD'), 1010);

For work_order table:

INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(1, 1, TO_DATE('2024-03-05', 'YYYY-MM-DD'), 'Replace flooring in office area', 'Office Area', '123 Main Street', NULL,
'John Smith', TO_DATE('2024-03-15', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(2, 2, TO_DATE('2024-03-10', 'YYYY-MM-DD'), 'Paint exterior walls of building', 'Building Exterior', '456 Elm Street', NULL,
'Jane Doe', TO_DATE('2024-03-20', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(3, 3, TO_DATE('2024-03-15', 'YYYY-MM-DD'), 'Repair plumbing in restroom', 'Restroom', '789 Oak Avenue', NULL,
'Michael Johnson', TO_DATE('2024-03-25', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(4, 4, TO_DATE('2024-03-20', 'YYYY-MM-DD'), 'Replace roof shingles', 'Roof', '101 Pine Road', NULL, 'Emily Brown',
TO_DATE('2024-03-30', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(5, 5, TO_DATE('2024-03-25', 'YYYY-MM-DD'), 'Install new lighting fixtures', 'Office Area', '321 Cedar Lane', NULL, 'David
Wilson', TO_DATE('2024-04-05', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(6, 6, TO_DATE('2024-04-01', 'YYYY-MM-DD'), 'Renovate conference room', 'Conference Room', '555 Walnut Avenue',
NULL, 'Jennifer Taylor', TO_DATE('2024-04-10', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES
(7, 7, TO_DATE('2024-04-05', 'YYYY-MM-DD'), 'Clean and maintain HVAC system', 'HVAC System', '777 Birch Road', NULL,
'Christopher Clark', TO_DATE('2024-04-15', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name,
work_location_address, date_complete, manager_name, date_required)
VALUES

(8, 8, TO_DATE('2024-04-10', 'YYYY-MM-DD'), 'Construct additional parking space', 'Parking Area', '999 Pine Lane', NULL, 'Sarah Adams', TO_DATE('2024-04-20', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, date_complete, manager_name, date_required)
VALUES
(9, 9, TO_DATE('2024-04-15', 'YYYY-MM-DD'), 'Install security cameras', 'Security Area', '111 Oak Lane', NULL, 'Matthew Thomas', TO_DATE('2024-04-25', 'YYYY-MM-DD'));
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, date_complete, manager_name, date_required)
VALUES
(10, 10, TO_DATE('2024-04-20', 'YYYY-MM-DD'), 'Upgrade server infrastructure', 'Server Room', '888 Maple Street', NULL, 'Olivia Lewis', TO_DATE('2024-04-30', 'YYYY-MM-DD'));

For material_assignment table:

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES (1, 'Concrete', 50.00, 100, 'Construction');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(2, 'Bricks', 0.25, 5000, 'Construction');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(3, 'Paint', 20.00, 10, 'Painting');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(4, 'Nails', 0.05, 2000, 'Construction');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(5, 'Pipes', 10.00, 50, 'Plumbing');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(6, 'Wires', 15.00, 100, 'Electrical');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(7, 'Tiles', 2.50, 1000, 'Flooring');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(8, 'Insulation', 30.00, 50, 'Construction');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(9, 'Wood', 40.00, 200, 'Construction');

INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(10, 'Drywall', 8.00, 500, 'Construction');

For crew table:

INSERT INTO crew (crew_no, no_of_members, description) VALUES (1, 5, 'Construction crew for building construction');

INSERT INTO crew (crew_no, no_of_members, description)VALUES(2, 3, 'Painting crew for interior painting');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(3, 4, 'Plumbing crew for installing plumbing systems');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(4, 6, 'Electrical crew for wiring and installation');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(5, 8, 'Roofing crew for roof installation and repair');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(6, 4, 'Flooring crew for installing floor materials');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(7, 5, 'Landscaping crew for outdoor landscaping work');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(8, 7, 'HVAC crew for heating, ventilation, and air conditioning installation');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(9, 6, 'Demolition crew for tearing down structures');

INSERT INTO crew (crew_no, no_of_members, description) VALUES(10, 4, 'Maintenance crew for general maintenance tasks');

For employee table:

INSERT INTO employee (employee_id, name, role, crew_no) VALUES ('E001', 'John Doe', 'Foreman', 1);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E002', 'Jane Smith', 'Laborer', 1);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E003', 'David Johnson', 'Painter', 2);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E004', 'Sarah Williams', 'Plumber', 3);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E005', 'Michael Brown', 'Electrician', 4);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E006', 'Jennifer Lee', 'Laborer', 1);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E007', 'Christopher Davis', 'Carpenter', 1);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E008', 'Amanda Martinez', 'Painter', 2);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E009', 'James Wilson', 'Electrician', 4);

INSERT INTO employee (employee_id, name, role, crew_no) VALUES('E010', 'Emily Anderson', 'Laborer', 1);

For labor_assignment table:

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES (1, 'E001', 25.00, 40, 35, TO_DATE('2024-03-05', 'YYYY-MM-DD'), 'Manager1');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUE(2, 'E002', 20.00, 35, 30, TO_DATE('2024-03-06', 'YYYY-MM-DD'), 'Manager2');

```
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(3, 'E003', 30.00, 45, 40, TO_DATE('2024-03-07', 'YYYY-MM-DD'), 'Manager3');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(4, 'E004', 18.00, 30, 25, TO_DATE('2024-03-08', 'YYYY-MM-DD'), 'Manager1');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(5, 'E005', 22.00, 35, 30, TO_DATE('2024-03-09', 'YYYY-MM-DD'), 'Manager2');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(6, 'E006', 28.00, 40, 35, TO_DATE('2024-03-10', 'YYYY-MM-DD'), 'Manager3');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(7, 'E007', 18.00, 30, 25, TO_DATE('2024-03-11', 'YYYY-MM-DD'), 'Manager1');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(8, 'E008', 25.00, 40, 35, TO_DATE('2024-03-12', 'YYYY-MM-DD'), 'Manager2');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(9, 'E009', 20.00, 35, 30, TO_DATE('2024-03-13', 'YYYY-MM-DD'), 'Manager3');

INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date,
authorized_by)
VALUES(10, 'E010', 30.00, 45, 40, TO_DATE('2024-03-14', 'YYYY-MM-DD'), 'Manager1');
```

For work_assignment table:

```
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(1, 1, TO_DATE('2024-03-05', 'YYYY-MM-DD'), TO_DATE('2024-03-10', 'YYYY-MM-DD'), 'Construction Site A', '123 Main
Street', 'John Doe', 'V001', 1, 1, 'E001', 1);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(2, 2, TO_DATE('2024-03-10', 'YYYY-MM-DD'), TO_DATE('2024-03-15', 'YYYY-MM-DD'), 'Building Exterior', '456 Elm
Street', 'Jane Smith', 'V002', 2, 2, 'E002', 2);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(3, 3, TO_DATE('2024-03-15', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'), 'Restroom Area', '789 Oak
Avenue', 'David Johnson', 'V003', 3, 3, 'E003', 3);
```

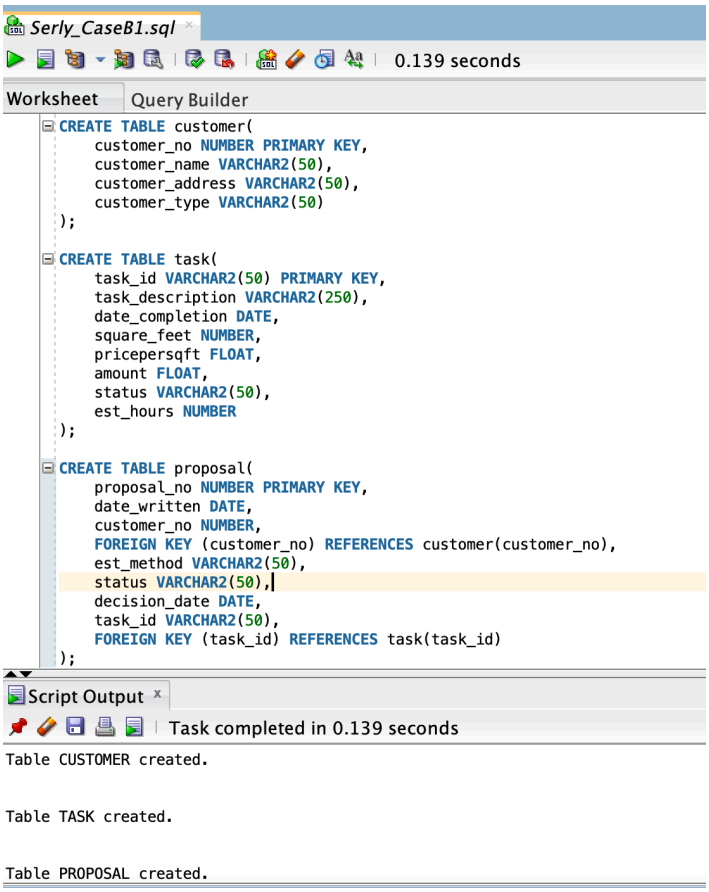
```
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(4, 4, TO_DATE('2024-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-25', 'YYYY-MM-DD'), 'Roofing Site', '101 Pine Road',
'Sarah Williams', 'V004', 4, 4, 'E004', 4);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(5, 5, TO_DATE('2024-03-25', 'YYYY-MM-DD'), TO_DATE('2024-03-30', 'YYYY-MM-DD'), 'Office Area', '321 Cedar Lane',
'Michael Brown', 'V005', 5, 1, 'E005', 5);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(6, 6, TO_DATE('2024-03-30', 'YYYY-MM-DD'), TO_DATE('2024-04-05', 'YYYY-MM-DD'), 'Conference Room', '555 Walnut
Avenue', 'Jennifer Lee', 'V006', 6, 2, 'E006', 6);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(7, 7, TO_DATE('2024-04-05', 'YYYY-MM-DD'), TO_DATE('2024-04-10', 'YYYY-MM-DD'), 'HVAC System', '777 Birch Road',
'Christopher Davis', 'V007', 7, 3, 'E007', 7);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(8, 8, TO_DATE('2024-04-10', 'YYYY-MM-DD'), TO_DATE('2024-04-15', 'YYYY-MM-DD'), 'Parking Area', '999 Pine Lane',
'Amanda Martinez', 'V008', 8, 4, 'E008', 8);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(9, 9, TO_DATE('2024-04-15', 'YYYY-MM-DD'), TO_DATE('2024-04-20', 'YYYY-MM-DD'), 'Security Area', '111 Oak Lane',
'James Wilson', 'V009', 9, 5, 'E009', 9);

INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name,
location_address, supervisor, vehicle_no, material_id, crew_no, employee_id, labor_assignment_id)
VALUES
(10, 10, TO_DATE('2024-04-20', 'YYYY-MM-DD'), TO_DATE('2024-04-25', 'YYYY-MM-DD'), 'Server Room', '888 Maple
Street', 'Emily Anderson', 'V010', 10, 1, 'E010', 10);
```

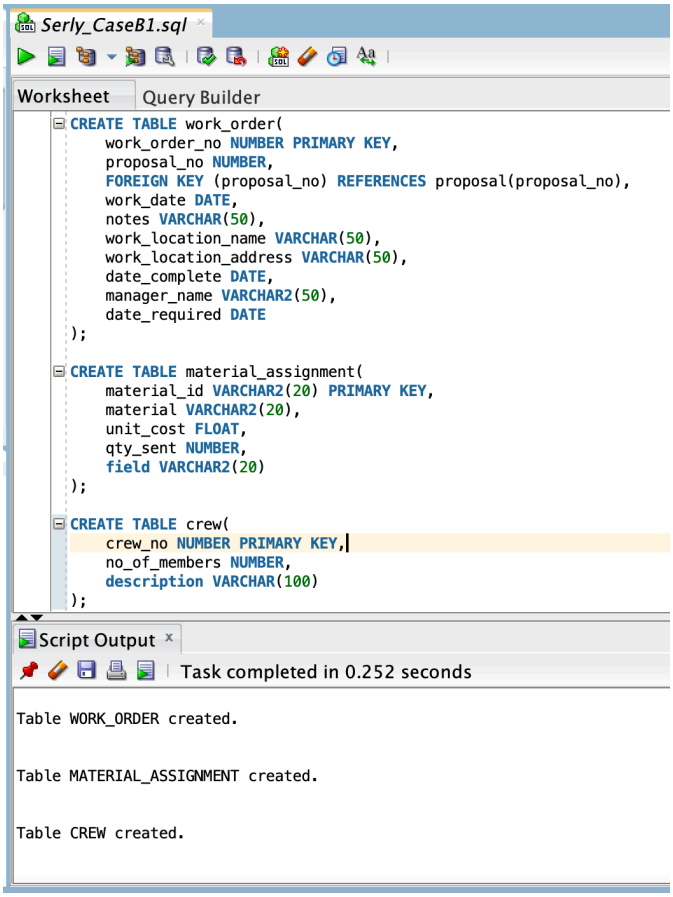
For invoice table:

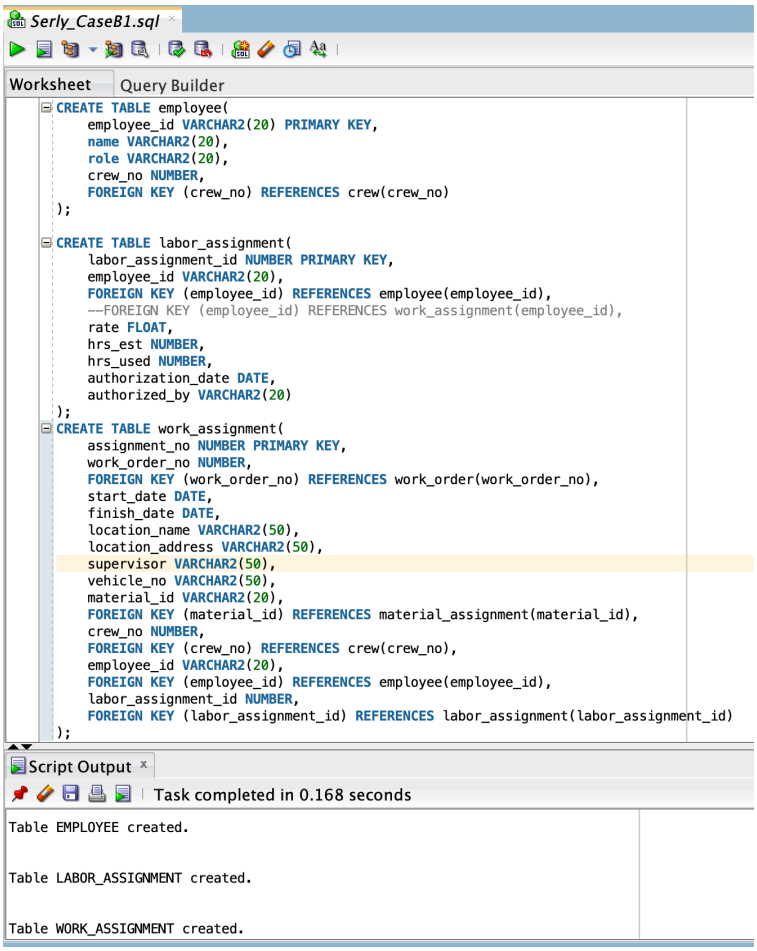
```
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete,
total_before_tax, tax, total_after_tax)
VALUES
('INV001', 1, TO_DATE('2024-03-10', 'YYYY-MM-DD'), TO_DATE('2024-03-01', 'YYYY-MM-DD'), TO_DATE('2024-03-15',
'YYYY-MM-DD'), 'Construction Site A', 5000.00, TO_DATE('2024-03-15', 'YYYY-MM-DD'), 4500.00, 450.00, 4950.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete,
total_before_tax, tax, total_after_tax)
```

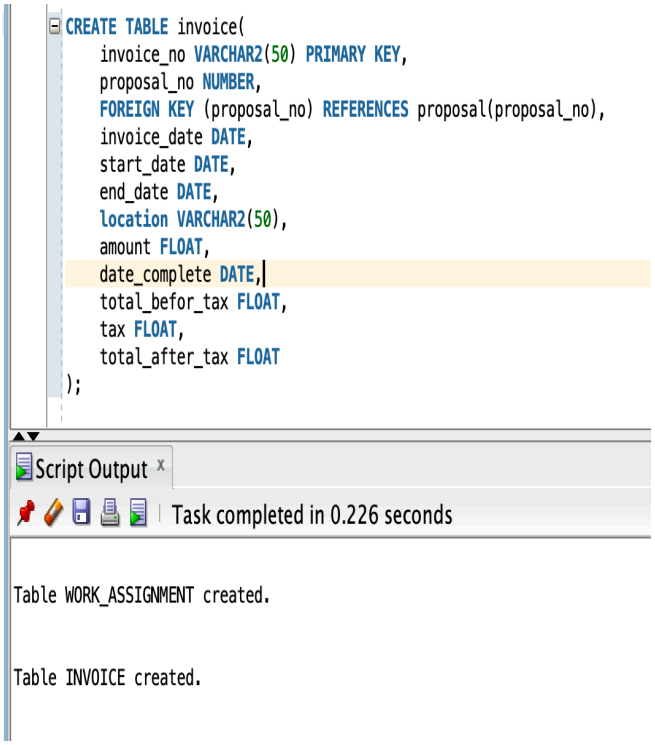
```
VALUES
('INV002', 2, TO_DATE('2024-03-15', 'YYYY-MM-DD'), TO_DATE('2024-03-10', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'), 'Building Exterior', 3000.00, TO_DATE('2024-03-20', 'YYYY-MM-DD'), 2700.00, 270.00, 2970.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV003', 3, TO_DATE('2024-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-15', 'YYYY-MM-DD'), TO_DATE('2024-03-25', 'YYYY-MM-DD'), 'Restroom Area', 4000.00, TO_DATE('2024-03-25', 'YYYY-MM-DD'), 3600.00, 360.00, 3960.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV004', 4, TO_DATE('2024-03-25', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-30', 'YYYY-MM-DD'), 'Roofing Site', 6000.00, TO_DATE('2024-03-30', 'YYYY-MM-DD'), 5400.00, 540.00, 5940.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV005', 5, TO_DATE('2024-03-30', 'YYYY-MM-DD'), TO_DATE('2024-03-25', 'YYYY-MM-DD'), TO_DATE('2024-04-05', 'YYYY-MM-DD'), 'Office Area', 5500.00, TO_DATE('2024-04-05', 'YYYY-MM-DD'), 4950.00, 495.00, 5445.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV006', 6, TO_DATE('2024-04-05', 'YYYY-MM-DD'), TO_DATE('2024-03-30', 'YYYY-MM-DD'), TO_DATE('2024-04-10', 'YYYY-MM-DD'), 'Conference Room', 3500.00, TO_DATE('2024-04-10', 'YYYY-MM-DD'), 3150.00, 315.00, 3465.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV007', 7, TO_DATE('2024-04-10', 'YYYY-MM-DD'), TO_DATE('2024-04-05', 'YYYY-MM-DD'), TO_DATE('2024-04-15', 'YYYY-MM-DD'), 'HVAC System', 4800.00, TO_DATE('2024-04-15', 'YYYY-MM-DD'), 4320.00, 432.00, 4752.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV008', 8, TO_DATE('2024-04-15', 'YYYY-MM-DD'), TO_DATE('2024-04-10', 'YYYY-MM-DD'), TO_DATE('2024-04-20', 'YYYY-MM-DD'), 'Parking Area', 5100.00, TO_DATE('2024-04-20', 'YYYY-MM-DD'), 4590.00, 459.00, 5049.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV009', 9, TO_DATE('2024-04-20', 'YYYY-MM-DD'), TO_DATE('2024-04-15', 'YYYY-MM-DD'), TO_DATE('2024-04-25', 'YYYY-MM-DD'), 'Security Area', 4300.00, TO_DATE('2024-04-25', 'YYYY-MM-DD'), 3870.00, 387.00, 4263.00);

INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV010', 10, TO_DATE('2024-04-25', 'YYYY-MM-DD'), TO_DATE('2024-04-20', 'YYYY-MM-DD'), TO_DATE('2024-04-30', 'YYYY-MM-DD'), 'Server Room', 6000.00, TO_DATE('2024-04-30', 'YYYY-MM-DD'), 5400.00, 540.00, 5940.00);
```

Screenshots for table creation and inserting data sets:

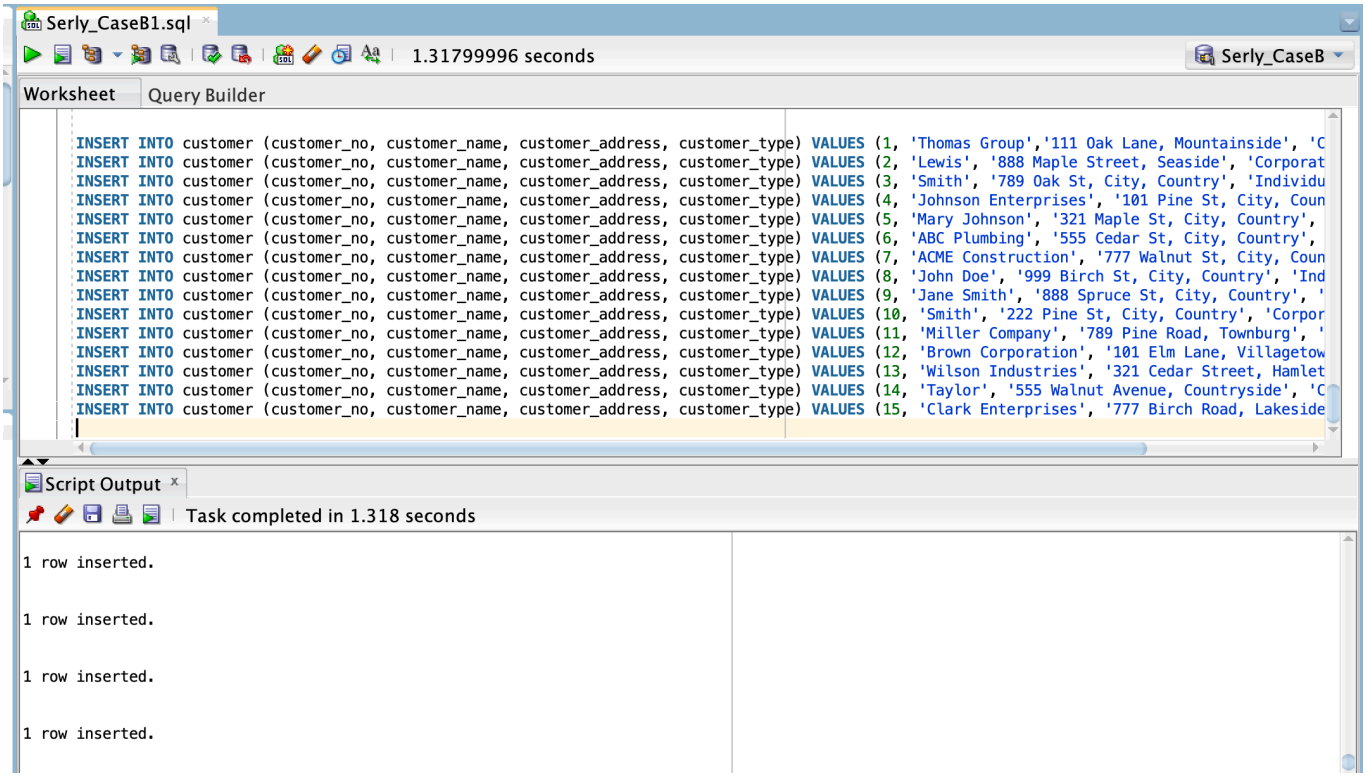








Screenshots for inserting data sets:



Serly_CaseB1.sql

Worksheet | Query Builder

```
-- Batch 1
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1001, 'Install new flooring in office area', TO_DATE('2024-03-20', 'YYYY-MM-DD'), 500, 3.5, NULL, 'In Progress', 10);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1002, 'Paint exterior walls of building', TO_DATE('2024-03-25', 'YYYY-MM-DD'), 700, 2.8, NULL, 'Scheduled', 15);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1003, 'Repair plumbing in restroom', TO_DATE('2024-03-18', 'YYYY-MM-DD'), 300, 4.2, NULL, 'Pending', 8);

-- Batch 2
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1004, 'Replace roof shingles', TO_DATE('2024-03-30', 'YYYY-MM-DD'), 800, 5.0, NULL, 'In Progress', 20);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1005, 'Install new lighting fixtures', TO_DATE('2024-03-22', 'YYYY-MM-DD'), 400, 6.0, NULL, 'Completed', 10);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1006, 'Renovate conference room', TO_DATE('2024-04-05', 'YYYY-MM-DD'), 600, 4.9, NULL, 'In Progress', 12);

-- Batch 3
INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1007, 'Clean and maintain HVAC system', TO_DATE('2024-03-28', 'YYYY-MM-DD'), 900, 3.0, NULL, 'Scheduled', 25);

INSERT INTO task (task_id, task_description, date_completion, square_feet, pricepersqft, amount, status, est_hours)
VALUES
(1008, 'Construct additional parking space', TO_DATE('2024-04-10', 'YYYY-MM-DD'), 1000, 7.5, NULL, 'In Progress', 30);
```

Script Output

Task completed in 1.158 seconds

```
1 row inserted.


1 row inserted.


1 row inserted.


1 row inserted.
```

Serly_CaseB1.sql | Welcome Page | Serly_CaseB | Serly_CaseB~2

Serly_CaseB

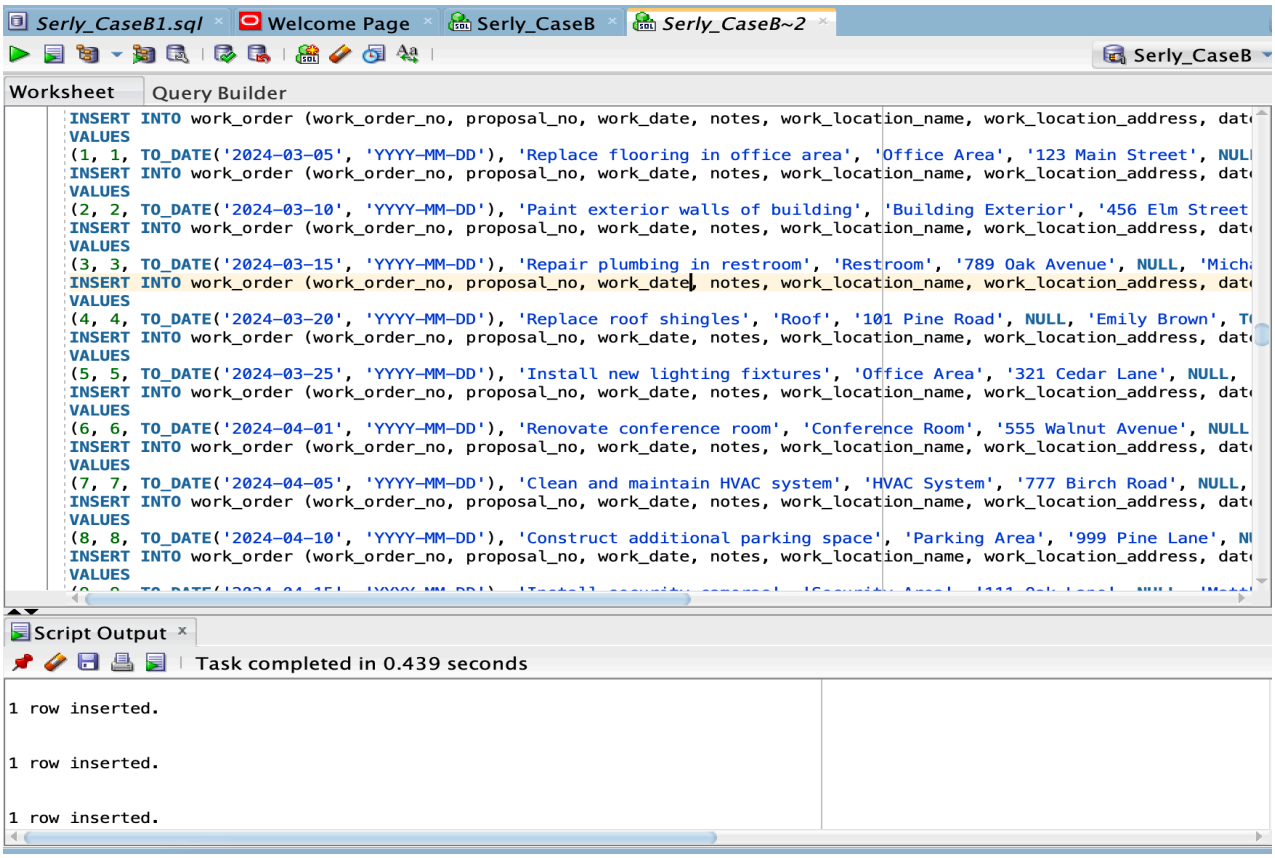
Worksheet | Query Builder

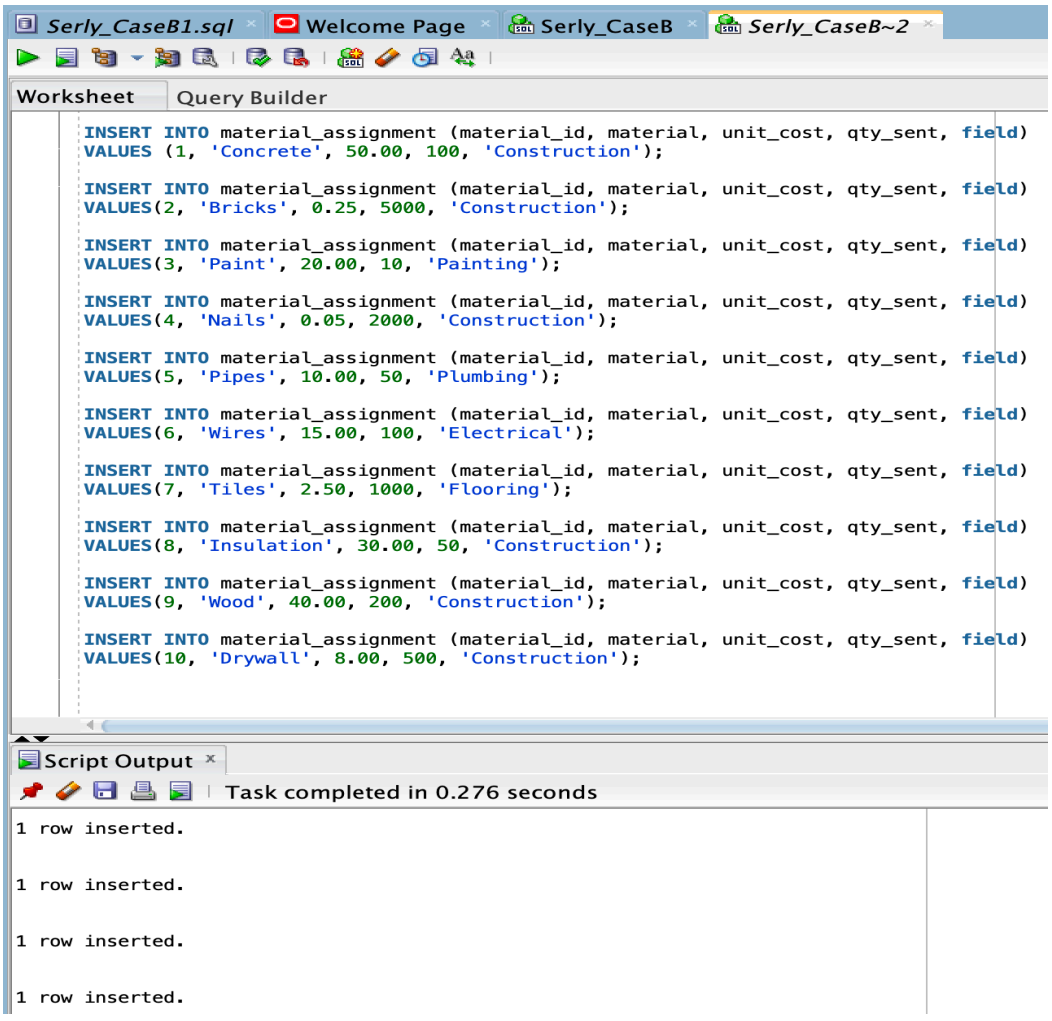
```
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(1, TO_DATE('2024-03-01', 'YYYY-MM-DD'), 1, 'Standard', 'Pending', NULL, 1001);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(2, TO_DATE('2024-03-05', 'YYYY-MM-DD'), 2, 'Advanced', 'Approved', TO_DATE('2024-03-10', 'YYYY-MM-DD'), 1002);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(3, TO_DATE('2024-03-10', 'YYYY-MM-DD'), 3, 'Basic', 'Pending', NULL, 1003);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(4, TO_DATE('2024-03-15', 'YYYY-MM-DD'), 4, 'Standard', 'Rejected', TO_DATE('2024-03-20', 'YYYY-MM-DD'), 1004);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(5, TO_DATE('2024-03-20', 'YYYY-MM-DD'), 5, 'Advanced', 'Approved', TO_DATE('2024-03-25', 'YYYY-MM-DD'), 1005);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(6, TO_DATE('2024-03-25', 'YYYY-MM-DD'), 1, 'Standard', 'Pending', NULL, 1006);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(7, TO_DATE('2024-03-30', 'YYYY-MM-DD'), 2, 'Advanced', 'Pending', NULL, 1007);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
VALUES
(8, TO_DATE('2024-04-01', 'YYYY-MM-DD'), 3, 'Basic', 'Approved', TO_DATE('2024-04-05', 'YYYY-MM-DD'), 1008);
INSERT INTO proposal (proposal_no, date_written, customer_no, est_method, status, decision_date, task_id)
```

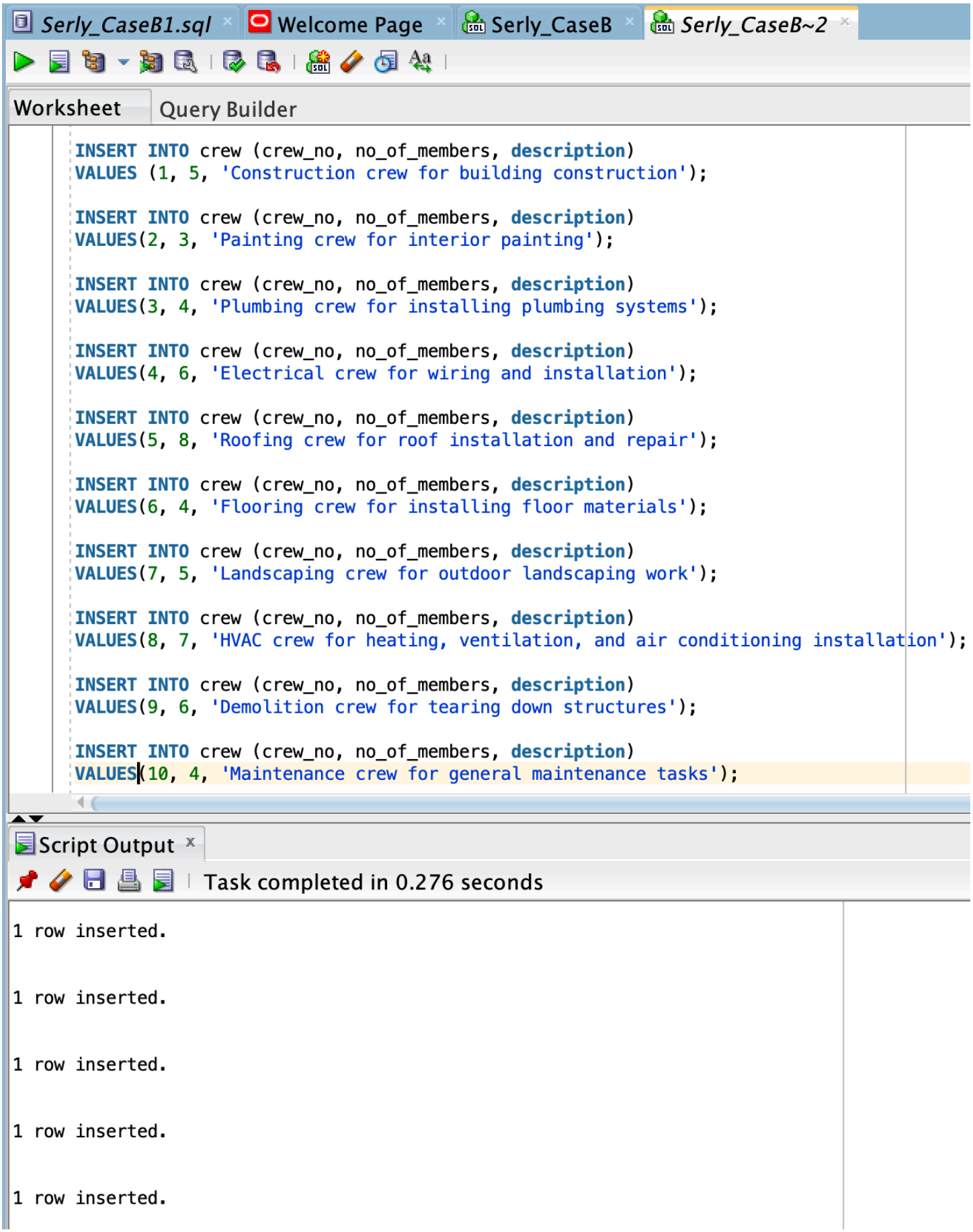
Script Output

Task completed in 0.439 seconds

```
1 row inserted.


1 row inserted.


1 row inserted.
```


Serly_CaseB1.sql
Welcome Page
Serly_CaseB
Serly_CaseB~2
Serly_CaseB
Worksheet
Query Builder
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(1, 1, TO_DATE('2024-03-05', 'YYYY-MM-DD'), 'Replace flooring in office area', 'Office Area', '123 Main Street', NUL
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(2, 2, TO_DATE('2024-03-10', 'YYYY-MM-DD'), 'Paint exterior walls of building', 'Building Exterior', '456 Elm Street
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(3, 3, TO_DATE('2024-03-15', 'YYYY-MM-DD'), 'Repair plumbing in restroom', 'Restroom', '789 Oak Avenue', NULL, 'Micha
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(4, 4, TO_DATE('2024-03-20', 'YYYY-MM-DD'), 'Replace roof shingles', 'Roof', '101 Pine Road', NULL, 'Emily Brown', T
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(5, 5, TO_DATE('2024-03-25', 'YYYY-MM-DD'), 'Install new lighting fixtures', 'Office Area', '321 Cedar Lane', NULL,
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(6, 6, TO_DATE('2024-04-01', 'YYYY-MM-DD'), 'Renovate conference room', 'Conference Room', '555 Walnut Avenue', NULL
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(7, 7, TO_DATE('2024-04-05', 'YYYY-MM-DD'), 'Clean and maintain HVAC system', 'HVAC System', '777 Birch Road', NULL,
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
(8, 8, TO_DATE('2024-04-10', 'YYYY-MM-DD'), 'Construct additional parking space', 'Parking Area', '999 Pine Lane', N
INSERT INTO work_order (work_order_no, proposal_no, work_date, notes, work_location_name, work_location_address, dat
VALUES
Script Output
Task completed in 0.439 seconds
1 row inserted.
1 row inserted.
1 row inserted.


Serly_CaseB1.sql
Welcome Page
Serly_CaseB
Serly_CaseB~2
Worksheet
Query Builder
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES (1, 'Concrete', 50.00, 100, 'Construction');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(2, 'Bricks', 0.25, 5000, 'Construction');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(3, 'Paint', 20.00, 10, 'Painting');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(4, 'Nails', 0.05, 2000, 'Construction');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(5, 'Pipes', 10.00, 50, 'Plumbing');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(6, 'Wires', 15.00, 100, 'Electrical');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(7, 'Tiles', 2.50, 1000, 'Flooring');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(8, 'Insulation', 30.00, 50, 'Construction');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(9, 'Wood', 40.00, 200, 'Construction');
INSERT INTO material_assignment (material_id, material, unit_cost, qty_sent, field)
VALUES(10, 'Drywall', 8.00, 500, 'Construction');
Script Output
Task completed in 0.276 seconds
1 row inserted.
1 row inserted.
1 row inserted.
1 row inserted.


Serly_CaseB1.sql
Welcome Page
Serly_CaseB
Serly_CaseB~2
Worksheet
Query Builder
INSERT INTO crew (crew_no, no_of_members, description)
VALUES (1, 5, 'Construction crew for building construction');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(2, 3, 'Painting crew for interior painting');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(3, 4, 'Plumbing crew for installing plumbing systems');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(4, 6, 'Electrical crew for wiring and installation');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(5, 8, 'Roofing crew for roof installation and repair');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(6, 4, 'Flooring crew for installing floor materials');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(7, 5, 'Landscaping crew for outdoor landscaping work');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(8, 7, 'HVAC crew for heating, ventilation, and air conditioning installation');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(9, 6, 'Demolition crew for tearing down structures');
INSERT INTO crew (crew_no, no_of_members, description)
VALUES(10, 4, 'Maintenance crew for general maintenance tasks');
Script Output
Task completed in 0.276 seconds
1 row inserted.
1 row inserted.
1 row inserted.
1 row inserted.
1 row inserted.

Serly_CaseB1.sql | Welcome Page | Serly_CaseB | Serly_CaseB~2

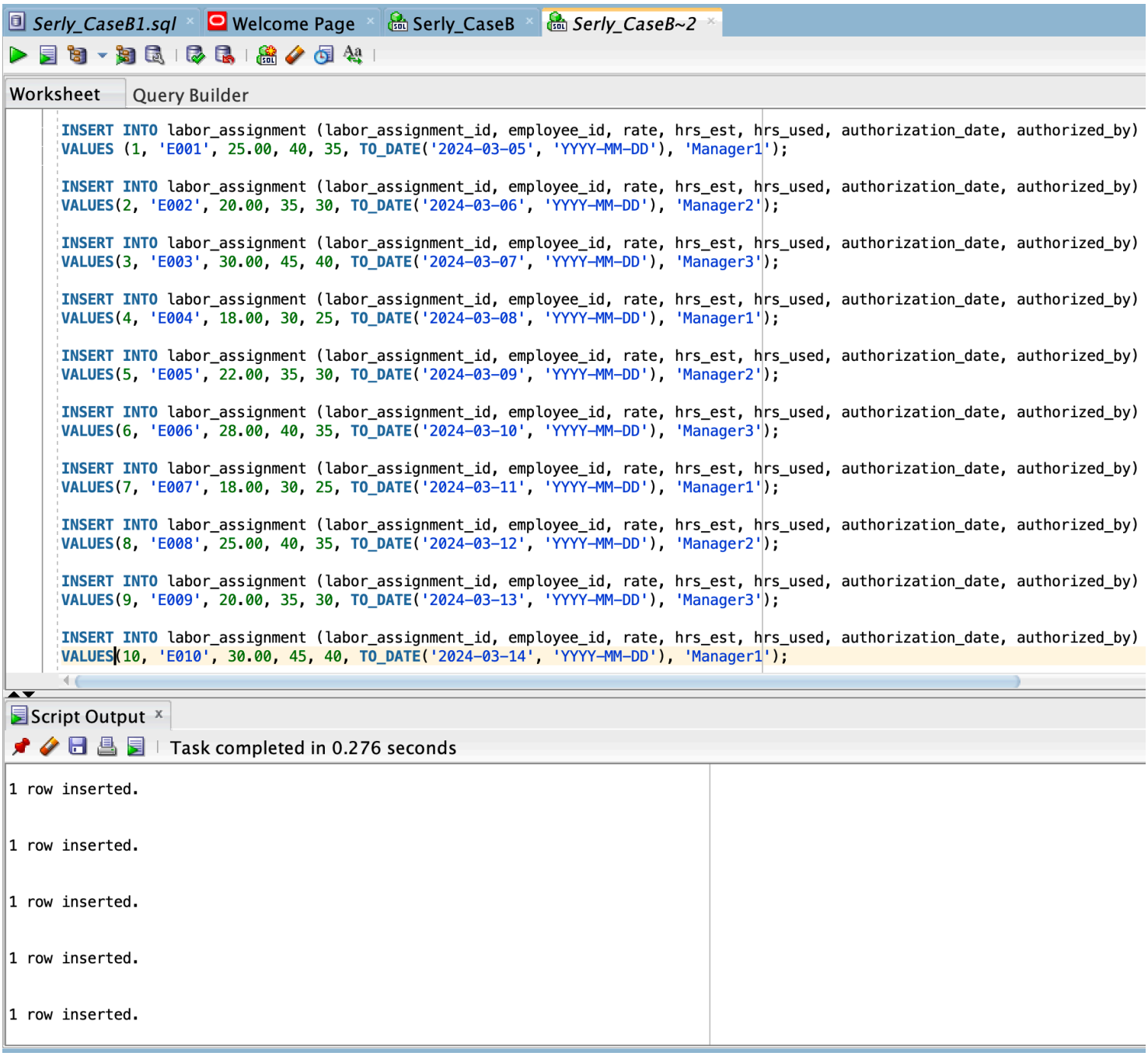
Worksheet | Query Builder

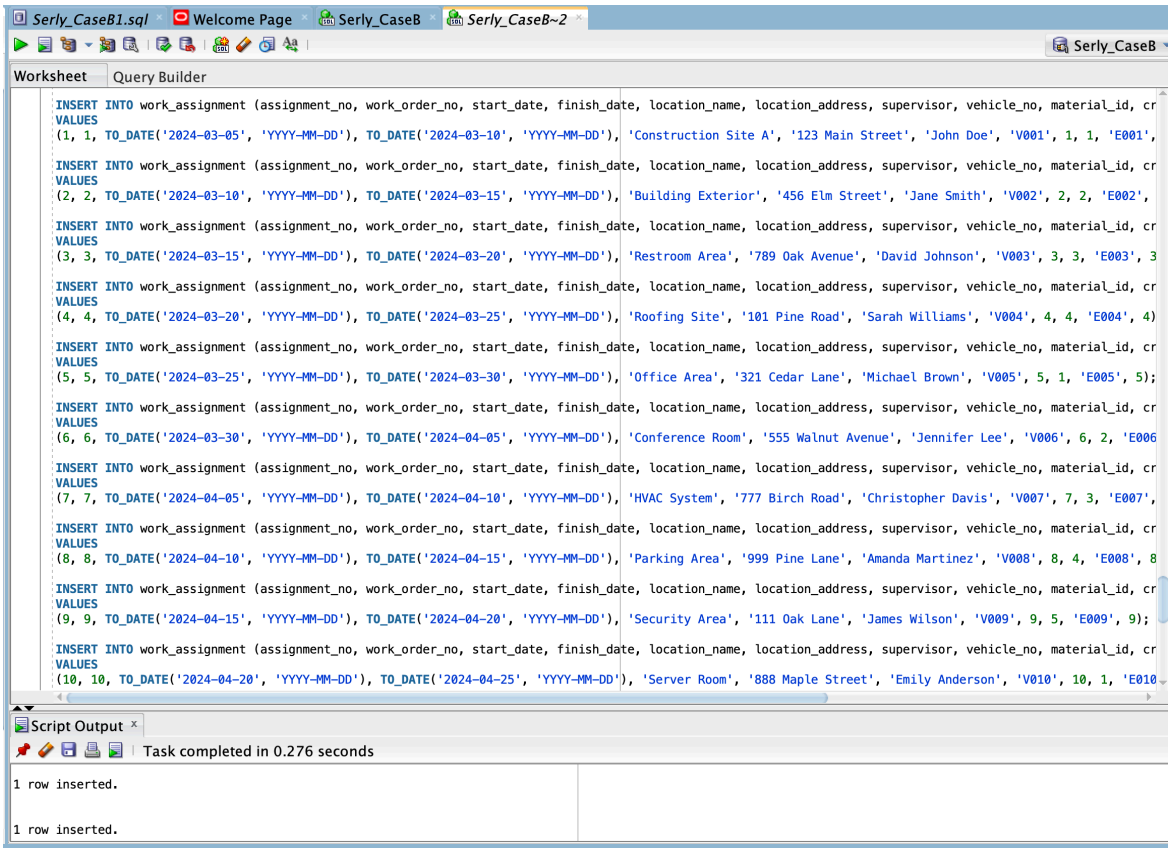
```
INSERT INTO employee (employee_id, name, role, crew_no)
VALUES ('E001', 'John Doe', 'Foreman', 1);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E002', 'Jane Smith', 'Laborer', 1);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E003', 'David Johnson', 'Painter', 2);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E004', 'Sarah Williams', 'Plumber', 3);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E005', 'Michael Brown', 'Electrician', 4);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E006', 'Jennifer Lee', 'Laborer', 1);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E007', 'Christopher Davis', 'Carpenter', 1);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E008', 'Amanda Martinez', 'Painter', 2);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E009', 'James Wilson', 'Electrician', 4);

INSERT INTO employee (employee_id, name, role, crew_no)
VALUES('E010', 'Emily Anderson', 'Laborer', 1);
```

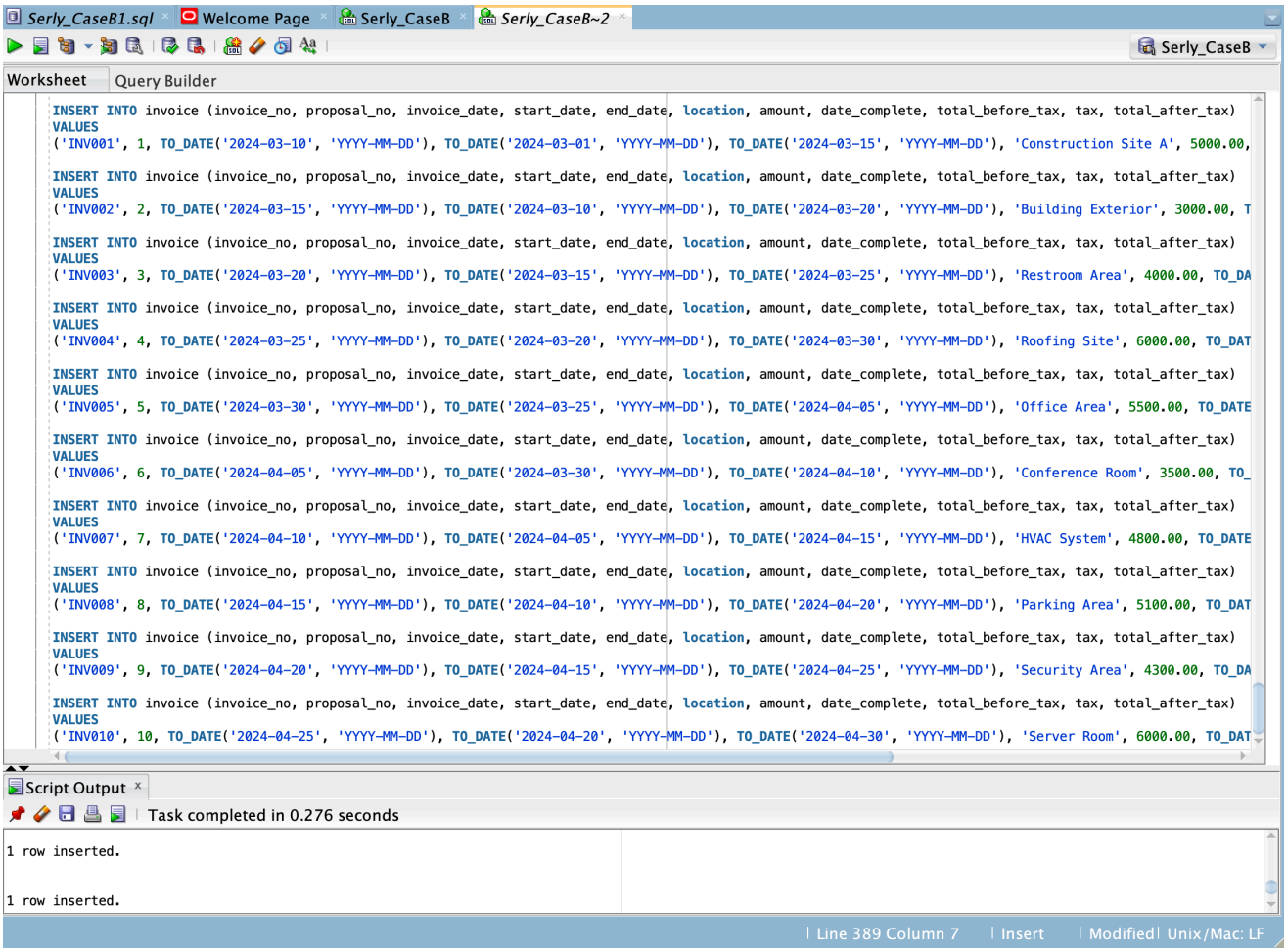
Script Output

Task completed in 0.276 seconds

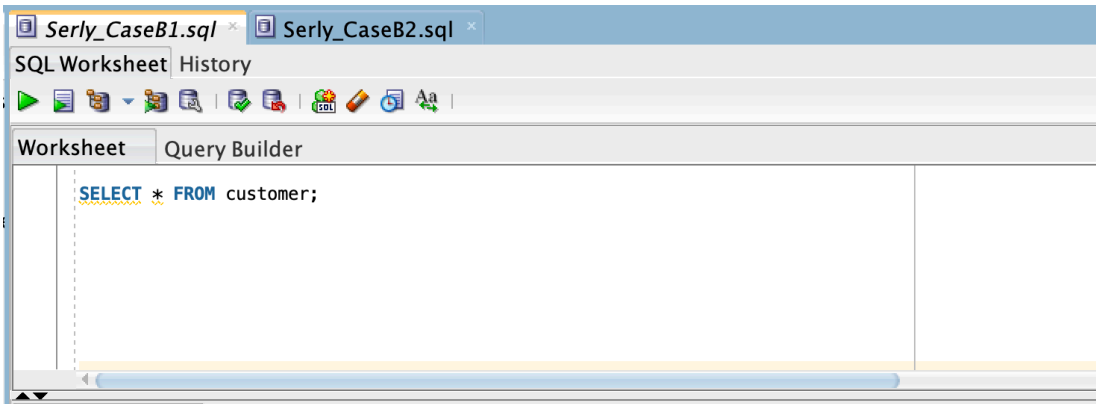
```
1 row inserted.


1 row inserted.


1 row inserted.


1 row inserted.


1 row inserted.
```


Serly_CaseB1.sql
Welcome Page
Serly_CaseB
Serly_CaseB~2
Worksheet
Query Builder
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES (1, 'E001', 25.00, 40, 35, TO_DATE('2024-03-05', 'YYYY-MM-DD'), 'Manager1');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(2, 'E002', 20.00, 35, 30, TO_DATE('2024-03-06', 'YYYY-MM-DD'), 'Manager2');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(3, 'E003', 30.00, 45, 40, TO_DATE('2024-03-07', 'YYYY-MM-DD'), 'Manager3');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(4, 'E004', 18.00, 30, 25, TO_DATE('2024-03-08', 'YYYY-MM-DD'), 'Manager1');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(5, 'E005', 22.00, 35, 30, TO_DATE('2024-03-09', 'YYYY-MM-DD'), 'Manager2');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(6, 'E006', 28.00, 40, 35, TO_DATE('2024-03-10', 'YYYY-MM-DD'), 'Manager3');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(7, 'E007', 18.00, 30, 25, TO_DATE('2024-03-11', 'YYYY-MM-DD'), 'Manager1');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(8, 'E008', 25.00, 40, 35, TO_DATE('2024-03-12', 'YYYY-MM-DD'), 'Manager2');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(9, 'E009', 20.00, 35, 30, TO_DATE('2024-03-13', 'YYYY-MM-DD'), 'Manager3');
INSERT INTO labor_assignment (labor_assignment_id, employee_id, rate, hrs_est, hrs_used, authorization_date, authorized_by)
VALUES(10, 'E010', 30.00, 45, 40, TO_DATE('2024-03-14', 'YYYY-MM-DD'), 'Manager1');
Script Output
Task completed in 0.276 seconds
1 row inserted.
1 row inserted.
1 row inserted.
1 row inserted.
1 row inserted.


Serly_CaseB1.sql
Welcome Page
Serly_CaseB
Serly_CaseB~2
Serly_CaseB
Worksheet
Query Builder
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(1, 1, TO_DATE('2024-03-05', 'YYYY-MM-DD'), TO_DATE('2024-03-10', 'YYYY-MM-DD'), 'Construction Site A', '123 Main Street', 'John Doe', 'V001', 1, 'E001',
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(2, 2, TO_DATE('2024-03-10', 'YYYY-MM-DD'), TO_DATE('2024-03-15', 'YYYY-MM-DD'), 'Building Exterior', '456 Elm Street', 'Jane Smith', 'V002', 2, 'E002',
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(3, 3, TO_DATE('2024-03-15', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'), 'Restroom Area', '789 Oak Avenue', 'David Johnson', 'V003', 3, 'E003', 3
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(4, 4, TO_DATE('2024-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-25', 'YYYY-MM-DD'), 'Roofing Site', '101 Pine Road', 'Sarah Williams', 'V004', 4, 'E004', 4)
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(5, 5, TO_DATE('2024-03-25', 'YYYY-MM-DD'), TO_DATE('2024-03-30', 'YYYY-MM-DD'), 'Office Area', '321 Cedar Lane', 'Michael Brown', 'V005', 5, 1, 'E005', 5);
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(6, 6, TO_DATE('2024-03-30', 'YYYY-MM-DD'), TO_DATE('2024-04-05', 'YYYY-MM-DD'), 'Conference Room', '555 Walnut Avenue', 'Jennifer Lee', 'V006', 6, 2, 'E006
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(7, 7, TO_DATE('2024-04-05', 'YYYY-MM-DD'), TO_DATE('2024-04-10', 'YYYY-MM-DD'), 'HVAC System', '777 Birch Road', 'Christopher Davis', 'V007', 7, 3, 'E007',
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(8, 8, TO_DATE('2024-04-10', 'YYYY-MM-DD'), TO_DATE('2024-04-15', 'YYYY-MM-DD'), 'Parking Area', '999 Pine Lane', 'Amanda Martinez', 'V008', 8, 4, 'E008', 8
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(9, 9, TO_DATE('2024-04-15', 'YYYY-MM-DD'), TO_DATE('2024-04-20', 'YYYY-MM-DD'), 'Security Area', '111 Oak Lane', 'James Wilson', 'V009', 9, 5, 'E009', 9);
INSERT INTO work_assignment (assignment_no, work_order_no, start_date, finish_date, location_name, location_address, supervisor, vehicle_no, material_id, cr
VALUES
(10, 10, TO_DATE('2024-04-20', 'YYYY-MM-DD'), TO_DATE('2024-04-25', 'YYYY-MM-DD'), 'Server Room', '888 Maple Street', 'Emily Anderson', 'V010', 10, 1, 'E010
Script Output
Task completed in 0.276 seconds
1 row inserted.
1 row inserted.


Serly_CaseB1.sql
Welcome Page
Serly_CaseB
Serly_CaseB~2
Serly_CaseB
Worksheet
Query Builder
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV001', 1, TO_DATE('2024-03-10', 'YYYY-MM-DD'), TO_DATE('2024-03-01', 'YYYY-MM-DD'), TO_DATE('2024-03-15', 'YYYY-MM-DD'), 'Construction Site A', 5000.00,
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV002', 2, TO_DATE('2024-03-15', 'YYYY-MM-DD'), TO_DATE('2024-03-10', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'), 'Building Exterior', 3000.00, T
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV003', 3, TO_DATE('2024-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-15', 'YYYY-MM-DD'), TO_DATE('2024-03-25', 'YYYY-MM-DD'), 'Restroom Area', 4000.00, TO_DA
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV004', 4, TO_DATE('2024-03-25', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-30', 'YYYY-MM-DD'), 'Roofing Site', 6000.00, TO_DAT
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV005', 5, TO_DATE('2024-03-30', 'YYYY-MM-DD'), TO_DATE('2024-03-25', 'YYYY-MM-DD'), TO_DATE('2024-04-05', 'YYYY-MM-DD'), 'Office Area', 5500.00, TO_DATE
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV006', 6, TO_DATE('2024-04-05', 'YYYY-MM-DD'), TO_DATE('2024-03-30', 'YYYY-MM-DD'), TO_DATE('2024-04-10', 'YYYY-MM-DD'), 'Conference Room', 3500.00, TO_
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV007', 7, TO_DATE('2024-04-10', 'YYYY-MM-DD'), TO_DATE('2024-04-05', 'YYYY-MM-DD'), TO_DATE('2024-04-15', 'YYYY-MM-DD'), 'HVAC System', 4800.00, TO_DATE
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV008', 8, TO_DATE('2024-04-15', 'YYYY-MM-DD'), TO_DATE('2024-04-10', 'YYYY-MM-DD'), TO_DATE('2024-04-20', 'YYYY-MM-DD'), 'Parking Area', 5100.00, TO_DAT
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV009', 9, TO_DATE('2024-04-20', 'YYYY-MM-DD'), TO_DATE('2024-04-15', 'YYYY-MM-DD'), TO_DATE('2024-04-25', 'YYYY-MM-DD'), 'Security Area', 4300.00, TO_DA
INSERT INTO invoice (invoice_no, proposal_no, invoice_date, start_date, end_date, location, amount, date_complete, total_before_tax, tax, total_after_tax)
VALUES
('INV010', 10, TO_DATE('2024-04-25', 'YYYY-MM-DD'), TO_DATE('2024-04-20', 'YYYY-MM-DD'), TO_DATE('2024-04-30', 'YYYY-MM-DD'), 'Server Room', 6000.00, TO_DAT
Script Output
Task completed in 0.276 seconds
1 row inserted.
1 row inserted.
Line 389 Column 7
Insert
Modified
Unix/Mac: LF

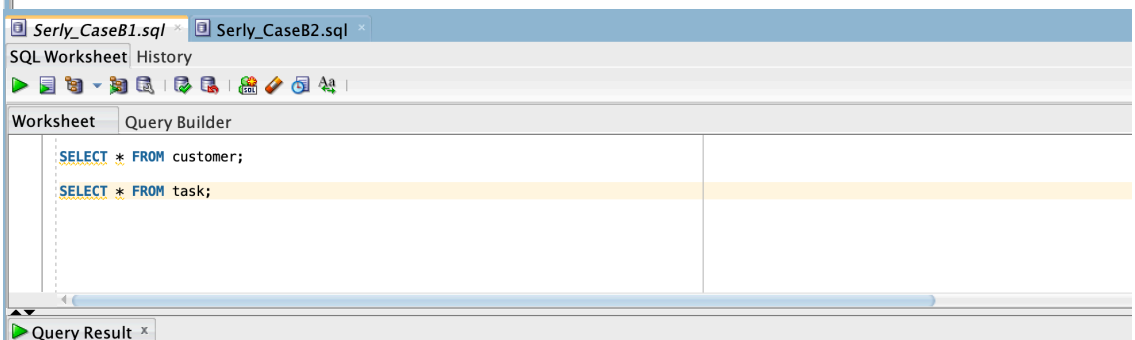
Populated data in tables:



Query Result

SQL | All Rows Fetched: 15 in 0.173 seconds

	CUSTOMER_NO	CUSTOMER_NAME	CUSTOMER_ADDRESS	CUSTOMER_TYPE
1	1	Thomas Group	111 Oak Lane, Mountainside	Corporate
2	2	Lewis	888 Maple Street, Seaside	Corporate
3	3	Smith	789 Oak St, City, Country	Individual
4	4	Johnson Enterprises	101 Pine St, City, Country	Corporate
5	5	Mary Johnson	321 Maple St, City, Country	Individual
6	6	ABC Plumbing	555 Cedar St, City, Country	Corporate
7	7	ACME Construction	777 Walnut St, City, Country	Corporate
8	8	John Doe	999 Birch St, City, Country	Individual
9	9	Jane Smith	888 Spruce St, City, Country	Individual
10	10	Smith	222 Pine St, City, Country	Corporate
11	11	Miller Company	789 Pine Road, Townburg	Corporate
12	12	Brown Corporation	101 Elm Lane, Villagetown	Corporate
13	13	Wilson Industries	321 Cedar Street, Hamlet City	Corporate
14	14	Taylor	555 Walnut Avenue, Countryside	Corporate
15	15	Clark Enterprises	777 Birch Road, Lakeside	Corporate



Query Result

SQL | All Rows Fetched: 15 in 0.147 seconds

	TASK_ID	TASK_DESCRIPTION	DATE_COMP...	SQUARE_F...	PRICEPERS...	AMOUNT	STATUS	EST_HOURS
1	1001	Install new flooring in office area	20-MAR-24	500	3.5	(null)	In Progress	10
2	1002	Paint exterior walls of building	25-MAR-24	700	2.8	(null)	Scheduled	15
3	1003	Repair plumbing in restroom	18-MAR-24	300	4.2	(null)	Pending	8
4	1004	Replace roof shingles	30-MAR-24	800	5	(null)	In Progress	20
5	1005	Install new lighting fixtures	22-MAR-24	400	6	(null)	Completed	10
6	1006	Renovate conference room	05-APR-24	600	4.9	(null)	In Progress	12
7	1007	Clean and maintain HVAC system	28-MAR-24	900	3	(null)	Scheduled	25
8	1008	Construct additional parking space	10-APR-24	1000	7.5	(null)	In Progress	30
9	1009	Install security cameras	24-MAR-24	200	4.5	(null)	Completed	5
10	1010	Upgrade server infrastructure	15-APR-24	1200	8.2	(null)	Scheduled	35
11	1011	Repair cracked pavement	26-MAR-24	600	3.2	(null)	Pending	10
12	1012	Paint interior walls of lobby	21-MAR-24	800	2.7	(null)	Completed	20
13	1013	Install new windows	29-MAR-24	400	9	(null)	In Progress	15
14	1014	Upgrade network infrastructure	20-APR-24	1000	6.5	(null)	Scheduled	25
15	1015	Replace office furniture	25-APR-24	700	3.8	(null)	Pending	20

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Worksheet | Query Builder

```
SELECT * FROM customer;

SELECT * FROM task;

SELECT * FROM proposal;
```

Query Result

SQL | All Rows Fetched: 10 in 0.133 seconds

	PROPOSAL_NO	DATE_WRITTEN	CUSTOMER_NO	EST_METHOD	STATUS	DECISION_DATE	TASK_ID
1	1	01-MAR-24	1	Standard	Pending	(null)	1001
2	2	05-MAR-24	2	Advanced	Approved	10-MAR-24	1002
3	3	10-MAR-24	3	Basic	Pending	(null)	1003
4	4	15-MAR-24	4	Standard	Rejected	20-MAR-24	1004
5	5	20-MAR-24	5	Advanced	Approved	25-MAR-24	1005
6	6	25-MAR-24	1	Standard	Pending	(null)	1006
7	7	30-MAR-24	2	Advanced	Pending	(null)	1007
8	8	01-APR-24	3	Basic	Approved	05-APR-24	1008
9	9	05-APR-24	4	Standard	Pending	(null)	1009
10	10	10-APR-24	5	Advanced	Approved	15-APR-24	1010

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Serly_CaseB

Worksheet | Query Builder

```
SELECT * FROM customer;

SELECT * FROM task;

SELECT * FROM proposal;

SELECT * FROM work_order;
```

Query Result

SQL | All Rows Fetched: 10 in 0.135 seconds

	WORK...	PRO...	WORK_DATE	NOTES	WORK_LOCATION_N...	WORK_LOCATION_A...	DATE_CO...	MANAGER_NAME	DATE_REQUIRED
1	1	1	05-MAR-24	Replace flooring in of...	Office Area	123 Main Street	(null)	John Smith	15-MAR-24
2	2	2	10-MAR-24	Paint exterior walls o...	Building Exterior	456 Elm Street	(null)	Jane Doe	20-MAR-24
3	3	3	15-MAR-24	Repair plumbing in res...	Restroom	789 Oak Avenue	(null)	Michael Johnson	25-MAR-24
4	4	4	20-MAR-24	Replace roof shingles	Roof	101 Pine Road	(null)	Emily Brown	30-MAR-24
5	5	5	25-MAR-24	Install new lighting f...	Office Area	321 Cedar Lane	(null)	David Wilson	05-APR-24
6	6	6	01-APR-24	Renovate conference room	Conference Room	555 Walnut Avenue	(null)	Jennifer Taylor	10-APR-24
7	7	7	05-APR-24	Clean and maintain HVA...	HVAC System	777 Birch Road	(null)	Christopher Clark	15-APR-24
8	8	8	10-APR-24	Construct additional p...	Parking Area	999 Pine Lane	(null)	Sarah Adams	20-APR-24
9	9	9	15-APR-24	Install security cameras	Security Area	111 Oak Lane	(null)	Matthew Thomas	25-APR-24
10	10	10	20-APR-24	Upgrade server infrast...	Server Room	888 Maple Street	(null)	Olivia Lewis	30-APR-24

Serly_CaseB1.sql | Serly_CaseB2.sql

QL Worksheet | History

Worksheet | Query Builder

```
SELECT * FROM task;

SELECT * FROM proposal;

SELECT * FROM work_order;

SELECT * FROM material_assignment;
```

Query Result

SQL | All Rows Fetched: 10 in 0.166 seconds

	MATERIAL_ID	MATERIAL	UNIT_COST	QTY_SENT	FIELD
1	1	Concrete	50	100	Construction
2	2	Bricks	0.25	5000	Construction
3	3	Paint	20	10	Painting
4	4	Nails	0.05	2000	Construction
5	5	Pipes	10	50	Plumbing
6	6	Wires	15	100	Electrical
7	7	Tiles	2.5	1000	Flooring
8	8	Insulation	30	50	Construction
9	9	Wood	40	200	Construction
10	10	Drywall	8	500	Construction

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Worksheet | Query Builder

```
SELECT * FROM proposal;

SELECT * FROM work_order;

SELECT * FROM material_assignment;

SELECT * FROM crew;
```

Query Result

SQL | All Rows Fetched: 10 in 0.136 seconds

	CREW_NO	NO_OF_MEMBERS	DESCRIPTION
1	1	5	Construction crew for building construction
2	2	3	Painting crew for interior painting
3	3	4	Plumbing crew for installing plumbing systems
4	4	6	Electrical crew for wiring and installation
5	5	8	Roofing crew for roof installation and repair
6	6	4	Flooring crew for installing floor materials
7	7	5	Landscaping crew for outdoor landscaping work
8	8	7	HVAC crew for heating, ventilation, and air conditioning installation
9	9	6	Demolition crew for tearing down structures
10	10	4	Maintenance crew for general maintenance tasks

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Worksheet | Query Builder

```
SELECT * FROM work_order;

SELECT * FROM material_assignment;

SELECT * FROM crew;

SELECT * FROM employee;
```

Query Result

SQL | All Rows Fetched: 10 in 0.161 seconds

	EMPLOYEE_ID	NAME	ROLE	CREW_NO
1	E001	John Doe	Foreman	1
2	E002	Jane Smith	Laborer	1
3	E003	David Johnson	Painter	2
4	E004	Sarah Williams	Plumber	3
5	E005	Michael Brown	Electrician	4
6	E006	Jennifer Lee	Laborer	1
7	E007	Christopher Davis	Carpenter	1
8	E008	Amanda Martinez	Painter	2
9	E009	James Wilson	Electrician	4
10	E010	Emily Anderson	Laborer	1

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Worksheet | Query Builder

```
SELECT * FROM material_assignment;

SELECT * FROM crew;

SELECT * FROM employee;

SELECT * FROM labor_assignment;
```

Query Result

SQL | All Rows Fetched: 10 in 0.137 seconds

	LABOR_ASSIGNMENT_ID	EMPLOYEE_ID	RATE	HRS_EST	HRS_USED	AUTHORIZATION_DATE	AUTHORIZED_BY
1	1	E001	25	40	35	05-MAR-24	Manager1
2	2	E002	20	35	30	06-MAR-24	Manager2
3	3	E003	30	45	40	07-MAR-24	Manager3
4	4	E004	18	30	25	08-MAR-24	Manager1
5	5	E005	22	35	30	09-MAR-24	Manager2
6	6	E006	28	40	35	10-MAR-24	Manager3
7	7	E007	18	30	25	11-MAR-24	Manager1
8	8	E008	25	40	35	12-MAR-24	Manager2
9	9	E009	20	35	30	13-MAR-24	Manager3
10	10	E010	30	45	40	14-MAR-24	Manager1

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Serly_CaseB

Worksheet | Query Builder

```
SELECT * FROM crew;

SELECT * FROM employee;

SELECT * FROM labor_assignment;

SELECT * FROM work_assignment;
```

Query Result

SQL | All Rows Fetched: 10 in 0.205 seconds

	ASSIGNMENT_NO	WORK_ORDER_NO	START_DATE	FINISH_DATE	LOCATION_NAME	LOCATION_ADDRESS	SUPERVISOR	VEHICLE_NO	MAT
1	1	1	05-MAR-24	10-MAR-24	Construction Site A	123 Main Street	John Doe	V001	1
2	2	2	10-MAR-24	15-MAR-24	Building Exterior	456 Elm Street	Jane Smith	V002	2
3	3	3	15-MAR-24	20-MAR-24	Restroom Area	789 Oak Avenue	David Johnson	V003	3
4	4	4	20-MAR-24	25-MAR-24	Roofing Site	101 Pine Road	Sarah Williams	V004	4
5	5	5	25-MAR-24	30-MAR-24	Office Area	321 Cedar Lane	Michael Brown	V005	5
6	6	6	30-MAR-24	05-APR-24	Conference Room	555 Walnut Avenue	Jennifer Lee	V006	6
7	7	7	05-APR-24	10-APR-24	HVAC System	777 Birch Road	Christopher Davis	V007	7
8	8	8	10-APR-24	15-APR-24	Parking Area	999 Pine Lane	Amanda Martinez	V008	8
9	9	9	15-APR-24	20-APR-24	Security Area	111 Oak Lane	James Wilson	V009	9
10	10	10	20-APR-24	25-APR-24	Server Room	888 Maple Street	Emily Anderson	V010	10

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

Serly_CaseB

Worksheet | Query Builder

```
SELECT * FROM employee;

SELECT * FROM labor_assignment;

SELECT * FROM work_assignment;

SELECT * FROM invoice;
```

Query Result

SQL | All Rows Fetched: 10 in 0.209 seconds

	INVOICE_NO	PR...	INVOICE_DATE	START_DATE	END_DATE	LOCATION	AMOUNT	DATE_COMPLETE	TOTAL_B...	TAX	TOTAL_A...
1	INV001	1	10-MAR-24	01-MAR-24	15-MAR-24	Construction Site A	5000	15-MAR-24	4500	450	4950
2	INV002	2	15-MAR-24	10-MAR-24	20-MAR-24	Building Exterior	3000	20-MAR-24	2700	270	2970
3	INV003	3	20-MAR-24	15-MAR-24	25-MAR-24	Restroom Area	4000	25-MAR-24	3600	360	3960
4	INV004	4	25-MAR-24	20-MAR-24	30-MAR-24	Roofing Site	6000	30-MAR-24	5400	540	5940
5	INV005	5	30-MAR-24	25-MAR-24	05-APR-24	Office Area	5500	05-APR-24	4950	495	5445
6	INV006	6	05-APR-24	30-MAR-24	10-APR-24	Conference Room	3500	10-APR-24	3150	315	3465
7	INV007	7	10-APR-24	05-APR-24	15-APR-24	HVAC System	4800	15-APR-24	4320	432	4752
8	INV008	8	15-APR-24	10-APR-24	20-APR-24	Parking Area	5100	20-APR-24	4590	459	5049
9	INV009	9	20-APR-24	15-APR-24	25-APR-24	Security Area	4300	25-APR-24	3870	387	4263
10	INV010	10	25-APR-24	20-APR-24	30-APR-24	Server Room	6000	30-APR-24	5400	540	5940

Technical Manual (report) for DB backend:

Single table query:

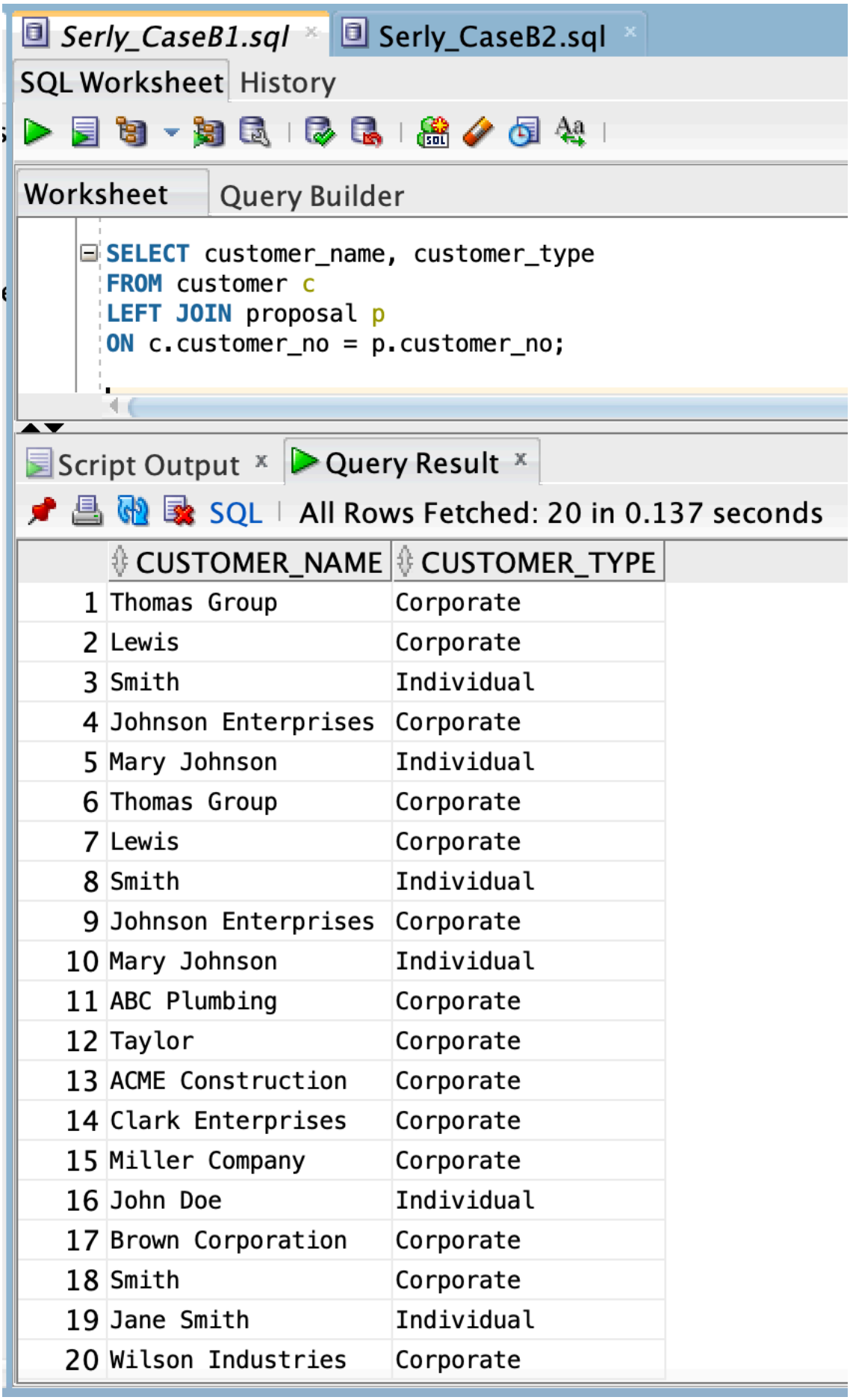
```
SELECT * FROM customer;
```

2- table query:

```
SELECT customer_name, customer_type
FROM customer c
LEFT JOIN proposal p
ON c.customer_no = p.customer_no;

SELECT task_description, amount,est_hours
FROM task t
FULL OUTER JOIN proposal p
ON t.task_id = p.task_id;

SELECT material_id, start_date, finish_date
FROM work_assignment ma
FULL OUTER JOIN work_assignment wa
ON ma.material_id = wa.material_id;
```

3- table query:

```
SELECT wa.start_date, wa.finish_date, e.employee_id, wa.location_name,cr.crew_no
FROM work_assignment wa
JOIN labor_assignment la
ON la.labor_assignment_id = wa.labor_assignment_id
JOIN employee e
ON e.employee_id = la.employee_id
JOIN crew cr
ON cr.crew_no = e.crew_no;
```



	CUSTOMER_NAME	CUSTOMER_TYPE
1	Thomas Group	Corporate
2	Lewis	Corporate
3	Smith	Individual
4	Johnson Enterprises	Corporate
5	Mary Johnson	Individual
6	Thomas Group	Corporate
7	Lewis	Corporate
8	Smith	Individual
9	Johnson Enterprises	Corporate
10	Mary Johnson	Individual
11	ABC Plumbing	Corporate
12	Taylor	Corporate
13	ACME Construction	Corporate
14	Clark Enterprises	Corporate
15	Miller Company	Corporate
16	John Doe	Individual
17	Brown Corporation	Corporate
18	Smith	Corporate
19	Jane Smith	Individual
20	Wilson Industries	Corporate

Serly_CaseB1.sql | Serly_CaseB2.sql

SQL Worksheet | History

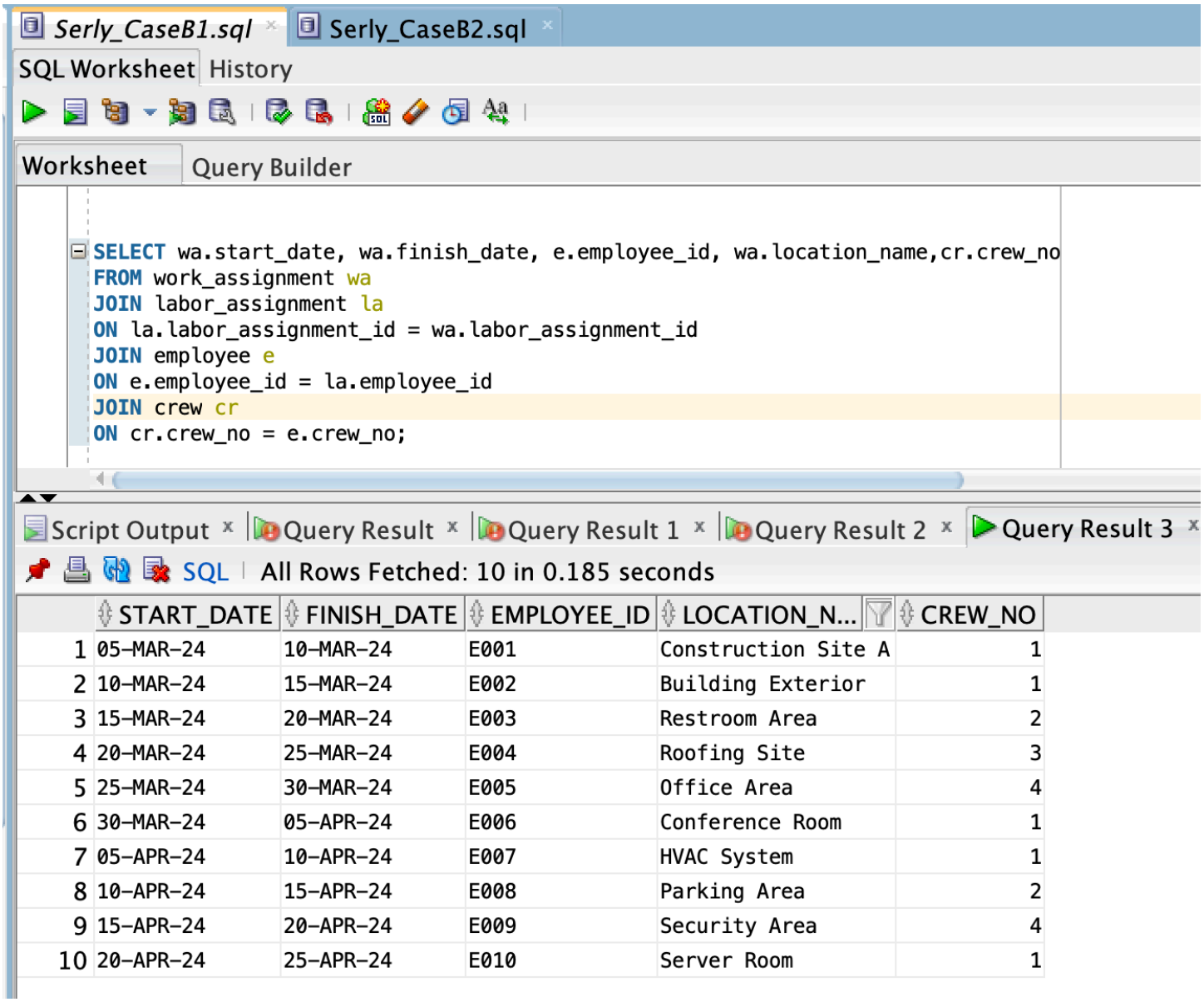
Worksheet | Query Builder

```
SELECT customer_name, customer_type
FROM customer c
LEFT JOIN proposal p
ON c.customer_no = p.customer_no;

SELECT task_description, amount,est_hours
FROM task t
FULL OUTER JOIN proposal p
ON t.task_id = p.task_id;
```

Script Output | Query Result

SQL | All Rows Fetched: 15 in 0.18 seconds

	TASK_DESCRIPTION	AMOUNT	EST_HOURS
1	Upgrade network infrastructure	(null)	25
2	Repair cracked pavement	(null)	10
3	Repair plumbing in restroom	(null)	8
4	Install new lighting fixtures	(null)	10
5	Clean and maintain HVAC system	(null)	25
6	Upgrade server infrastructure	(null)	35
7	Paint interior walls of lobby	(null)	20
8	Construct additional parking space	(null)	30
9	Install new windows	(null)	15
10	Install security cameras	(null)	5
11	Install new flooring in office area	(null)	10
12	Replace roof shingles	(null)	20
13	Renovate conference room	(null)	12
14	Paint exterior walls of building	(null)	15
15	Replace office furniture	(null)	20



	START_DATE	FINISH_DATE	EMPLOYEE_ID	LOCATION_N...	CREW_NO
1	05-MAR-24	10-MAR-24	E001	Construction Site A	1
2	10-MAR-24	15-MAR-24	E002	Building Exterior	1
3	15-MAR-24	20-MAR-24	E003	Restroom Area	2
4	20-MAR-24	25-MAR-24	E004	Roofing Site	3
5	25-MAR-24	30-MAR-24	E005	Office Area	4
6	30-MAR-24	05-APR-24	E006	Conference Room	1
7	05-APR-24	10-APR-24	E007	HVAC System	1
8	10-APR-24	15-APR-24	E008	Parking Area	2
9	15-APR-24	20-APR-24	E009	Security Area	4
10	20-APR-24	25-APR-24	E010	Server Room	1