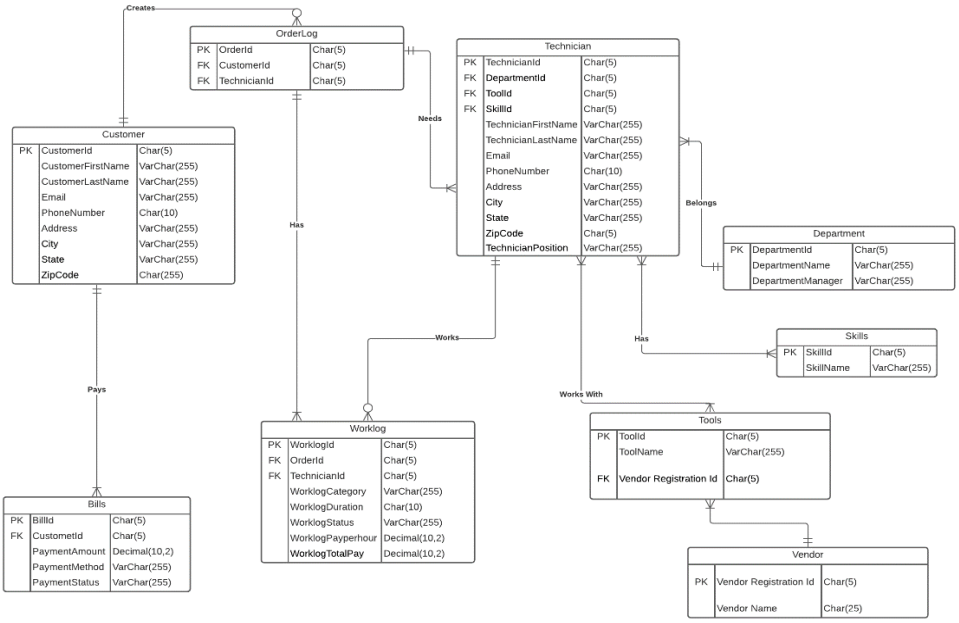
Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu

IPA 3

ERD Used



SQL: I have considered the ERD before normalization and written SQL queries using it.

<u>Note: All queries are attached in dbo file</u>

Part 1: Creating Database

```
create database ipafinal;
use ipafinal
go
```

Part 2: Creating tables and Inserting values

```
--- Create Vendor Table
 CREATE TABLE vendor
  (
  vendor_id    CHAR(5)     NOT NULL,
  vendor_name    VARCHAR(25)     NOT NULL,
  CONSTRAINT pk_vendor PRIMARY KEY (vendor_id)
  );
--- Insert values into vendors
   INSERT INTO vendor VALUES('V001','WestReg Tooling supply');
   INSERT INTO vendor VALUES('V002','Helly Tooling supply');
   INSERT INTO vendor VALUES('V003','Ria Tools');
```

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```
---- Create Tools table
       CREATE TABLE tool
  (
  tool_id    CHAR(5)     NOT NULL,
  tool_name    VARCHAR(255)     NOT NULL,
  vendor_id  CHAR(5)     NOT NULL,
  CONSTRAINT pk_tool PRIMARY KEY (tool_id),
  CONSTRAINT fk_tool_vendor FOREIGN KEY (vendor_id) REFERENCES vendor(vendor_id)
  );
  ----- Insert Values into Tools Table
   INSERT INTO tool VALUES('TK001','Shackle','V001');
   INSERT INTO tool VALUES('TK002','Rod','V002');
   INSERT INTO tool VALUES('TK003','Compass','V002');
   INSERT INTO tool VALUES('TK004','Twister','V001');
   INSERT INTO tool VALUES('TK005','Screwdriver','V003');
   INSERT INTO tool VALUES('TK006','Mop','V001');

----------- Create Skills table
CREATE TABLE skills
  (
  skill_id    CHAR(5)     NOT NULL,
  skill_name    VARCHAR(255)     NOT NULL,
  CONSTRAINT pk_skill PRIMARY KEY (skill_id)
  );
  ------- Insert Values into skills
  INSERT INTO skills VALUES('SK001','Electrician');
  INSERT INTO skills VALUES('SK002','Plumbing');
  INSERT INTO skills VALUES('SK003','Drawing');
  INSERT INTO skills VALUES('SK004','Assembling');
  INSERT INTO skills VALUES('SK005','Carpenting');
  INSERT INTO skills VALUES('SK006','Interior Designer');
  INSERT INTO skills VALUES('SK007','Flooring Expert');
  INSERT INTO skills VALUES('SK008','Lock Smith');

----- Create Department Table
CREATE TABLE department
   (
   department_id    CHAR(5)     NOT NULL,
   department_name    VARCHAR(255)     NOT NULL,
   department_manager   VARCHAR(255)     NOT NULL,
   CONSTRAINT pk_department PRIMARY KEY (department_id)
  );

  --------Insert values into department
  INSERT INTO department VALUES('D001','BasicHome','Chris');
  INSERT INTO department VALUES('D002','AdvanceHome','Stella');
  INSERT INTO department VALUES('D003','FineHome','Bonnie');
  INSERT INTO department VALUES('D004','Interiors','Micheal');

  ------- Create Technician Table
  CREATE TABLE technician
  (
  technician_id   CHAR(5)     NOT NULL,
  department_id    CHAR(5)     NOT NULL,
  tool_id    CHAR(5)     NOT NULL,
  skill_id    CHAR(5)     NOT NULL,
```

Name : Naina Chowdhary Vallurupalli
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```
  technician_fname VARCHAR(255) ,
  technician_lname VARCHAR(255) ,
  technician_email          VARCHAR(255)                ,
  technician_phone    VARCHAR(10)          ,
  technician_address  VARCHAR(255)          ,
  technician_city     VARCHAR(255)          ,
  technician_state    VARCHAR(255)              ,
  technician_zip      VARCHAR(5)              ,
  technician_designation varchar(255),
  CONSTRAINT pk_technician PRIMARY KEY (technician_id),
  CONSTRAINT fk_technician_department FOREIGN KEY (department_id) REFERENCES
department(department_id),
  CONSTRAINT fk_technician_tool FOREIGN KEY (tool_id) REFERENCES tool(tool_id),
  CONSTRAINT fk_technician_skills FOREIGN KEY (skill_id) REFERENCES skills(skill_id),
  );

  -----------Insert value into department
  INSERT INTO technician
VALUES('T001','D001','TK001','SK001','Harry','Potter','hp@gmail.com','6789875432','7431
frankford road','Dallas','Texas','75256','Electrician');
  INSERT INTO technician
VALUES('T002','D001','TK002','SK002','Emerald','Jade','ejade@gmail.com','6234567891','567
8 Frisco street','Dallas','Texas','75213','Plumber');
  INSERT INTO technician
VALUES('T003','D002','TK003','SK003','Emily','Kane','em@gmail.com','6724536789','6534
estates on back','Plano','Texas','76342','Architect');
  INSERT INTO technician
VALUES('T004','D003','TK004','SK004','Lara','Skaut','lsk@gmail.com','7534256789','5342
Mandrian Street','DFW','Texas','76345','Decorator');
  INSERT INTO technician
VALUES('T005','D002','TK005','SK005','Dia','Amen','da@gmail.com','5234567890','4213
Estaes on Pearl','Houston','Texas','73498','Floor Planner');
  INSERT INTO technician
VALUES('T006','D003','TK004','SK005','Diam','Mehta','dm@gmail.com','5234567111','7575
Estates','California','CA','76788','Floor maintanence');

 -------- Create Customer Table

 CREATE TABLE customer
 (
  customer_id    CHAR(5)     NOT NULL,
  customer_fname VARCHAR(255) NOT NULL,
  customer_lname VARCHAR(255) ,
  email             VARCHAR(255)               ,
  phone    VARCHAR(12)          ,
  address  VARCHAR(255)          ,
  city     VARCHAR(255)          ,
  state    CHAR(255)              ,
  zip      CHAR(5)              ,
  CONSTRAINT pk_customer PRIMARY KEY (customer_id),
 );

 -------Insert Values into customer
   INSERT INTO customer VALUES('C001','Jenny','Buchman','jb@gmail.com','718-496-7223','75
West 205 St','Bronx','NY','10468');
   INSERT INTO customer VALUES('C002','Wendy','Heydemark','wh@gmail.com','303-986-
7020','2922 Baseline Rd','Boulder','CO','80303');
```

Name : Naina Chowdhary Vallurupalli
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```
   INSERT INTO customer VALUES('C003','Hallie','Hull','hhull@gmail.com','415-549-
4278','3800 Waldo Ave, #14F','San Francisco','CA','94123');
INSERT INTO customer VALUES('C004','Klee','Hull','kh@gmail.com','415-549-4278','3800
Waldo Ave, #14F','San Francisco','CA','94123');
INSERT INTO customer VALUES('C005','Christian','Kells','ck@gmail.com','212-771-4680','114
Horatio St','New York','NY','10014');
INSERT INTO customer VALUES('C006','jane','Kellsey','jk@gmail.com','650-836-7128','390
Serra Mall','Palo Alto','CA','94305');
INSERT INTO customer VALUES('C007','Paddy','O''Furniture','pf@gmail.com','941-925-
0752','1442 Main St','Sarasota','FL','34236');
INSERT INTO customer VALUES('C008','Padmini','Helly',NULL,'941-925-0788','1991 Estate
St','Sarans','CA','67823');
INSERT INTO customer VALUES('C009','Damini','Malhotra','dm@gmail.com','678-092-
0987','7575 Frankford Road','Dallas','TX','75252');
INSERT INTO customer VALUES('C010','Priya','Desai','pd@gmail.com','941-925-1234','1235
nainital street','denvar','DN','34239');


---- Create Order Log table
CREATE TABLE orderlog
  (
  order_id   CHAR(5)     NOT NULL,
  customer_id    CHAR(5)     NOT NULL,
  technician_id    CHAR(5)     NOT NULL,
  CONSTRAINT pk_orderlog PRIMARY KEY (order_id),
  CONSTRAINT fk_orderlog_customer FOREIGN KEY (customer_id) REFERENCES
customer(customer_id),
  CONSTRAINT fk_orderlog_technician FOREIGN KEY (technician_id) REFERENCES
technician(technician_id)
  );
  --------insert values into orderlog
  INSERT INTO orderlog VALUES('OR001','C001','T001');
  INSERT INTO orderlog VALUES('OR002','C002','T002');
  INSERT INTO orderlog VALUES('OR003','C001','T003');
  INSERT INTO orderlog VALUES('OR004','C002','T003');
  INSERT INTO orderlog VALUES('OR005','C002','T003');
  INSERT INTO orderlog VALUES('OR006','C003','T004');
   INSERT INTO orderlog VALUES('OR007','C004','T005');
    INSERT INTO orderlog VALUES('OR007','C005','T001');

 -------------- Create Worklog table
  CREATE TABLE worklog
  (
  worklog_id    CHAR(5)     NOT NULL,
  order_id    CHAR(5)     NOT NULL,
  technician_id    CHAR(5)     ,
  worklog_category    VARCHAR(255)     ,
  worklog_duration   DECIMAL(10,2)   ,
  woklog_status   VARCHAR(255)     NOT NULL,
  worklogpay_perhour DECIMAL(10,2),
  worklogpay_total DECIMAL(10,2),
  CONSTRAINT pk_worklog PRIMARY KEY (worklog_id),
  CONSTRAINT fk_worklog_technician FOREIGN KEY (technician_id) REFERENCES
technician(technician_id)
  );

  -----Insert values into worklog table
```

Name : Naina Chowdhary Vallurupalli
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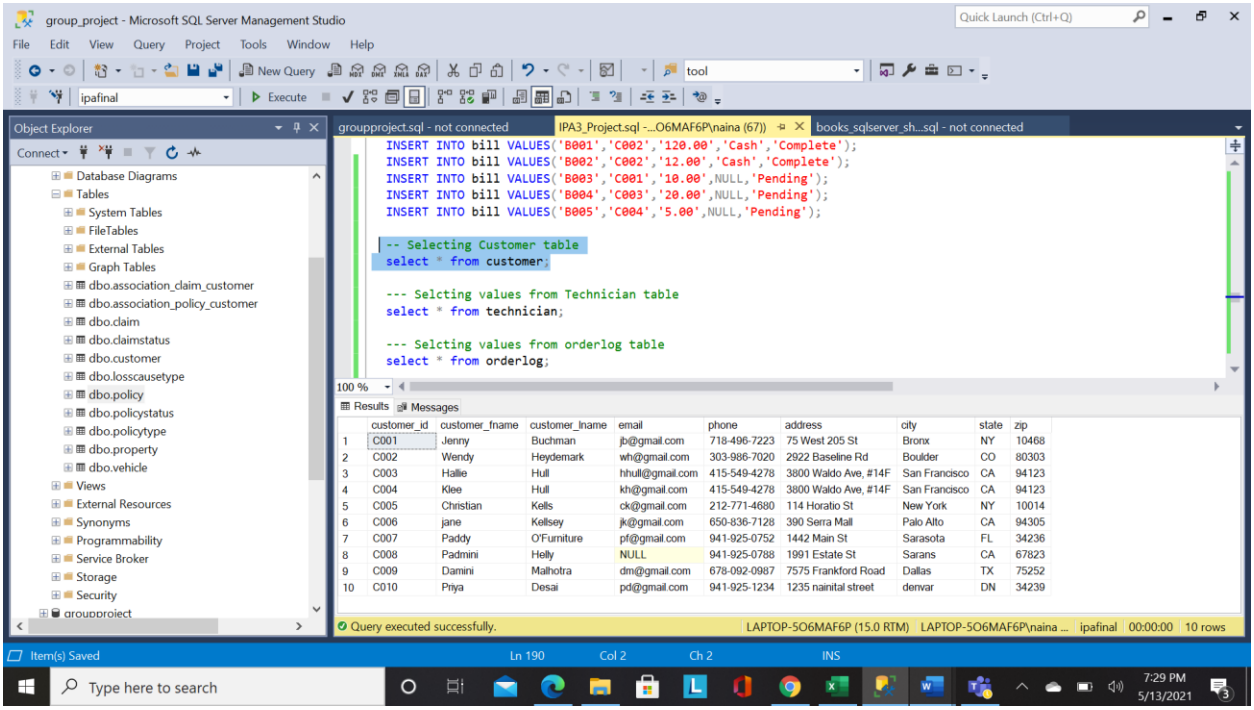
```
  INSERT INTO worklog
VALUES('WL001','OR001','T001','Housing','10.00','active','5.00','50.00');
  INSERT INTO worklog
VALUES('WL002','OR002','T002','Housing','15.00','active','5.00','75.00');
  INSERT INTO worklog
VALUES('WL003','OR003','T001','Housing','12.00','done','5.00','60.00');
  INSERT INTO worklog
VALUES('WL004','OR004','T003','Society','12.00','done','6.00','72.00');
  INSERT INTO worklog
VALUES('WL005','OR004','T004','Society','12.00','done','6.00','72.00');
  INSERT INTO worklog
VALUES('WL006','OR004','T005','Society','10.00','done','1.00','10.00');
  INSERT INTO worklog
VALUES('WL007','OR005','T001','Housing','12.00','done','5.00','60.00');
  INSERT INTO worklog
VALUES('WL008','OR006','T002','Housing','12.00','done','6.00','72.00');


  ----Create Bill table
  CREATE TABLE bill
  (
  bill_id    CHAR(5)     NOT NULL,
  customer_id    CHAR(5)     NOT NULL,
  payment_amount DECIMAL(10,2),
  payment_method VARCHAR(255),
  payment_status VARCHAR(255),
  CONSTRAINT pk_bill PRIMARY KEY (bill_id),
  CONSTRAINT fk_bill_customer FOREIGN KEY (customer_id) REFERENCES customer(customer_id)
  );
  --- Insert values into bill table
  INSERT INTO bill VALUES('B001','C002','120.00','Cash','Complete');
  INSERT INTO bill VALUES('B002','C002','12.00','Cash','Complete');
  INSERT INTO bill VALUES('B003','C001','10.00',NULL,'Pending');
  INSERT INTO bill VALUES('B004','C003','20.00',NULL,'Pending');
  INSERT INTO bill VALUES('B005','C004','5.00',NULL,'Pending');
```

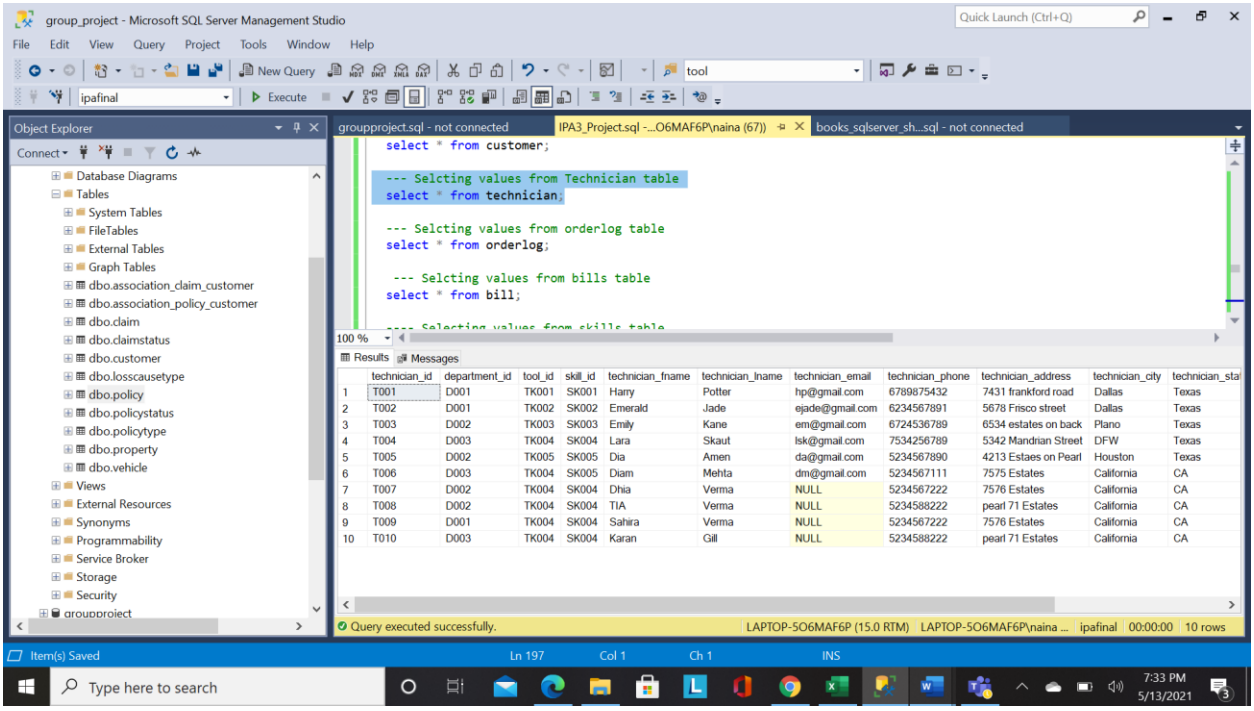
Part 3: Viewing the tables

A. Customer Table

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu

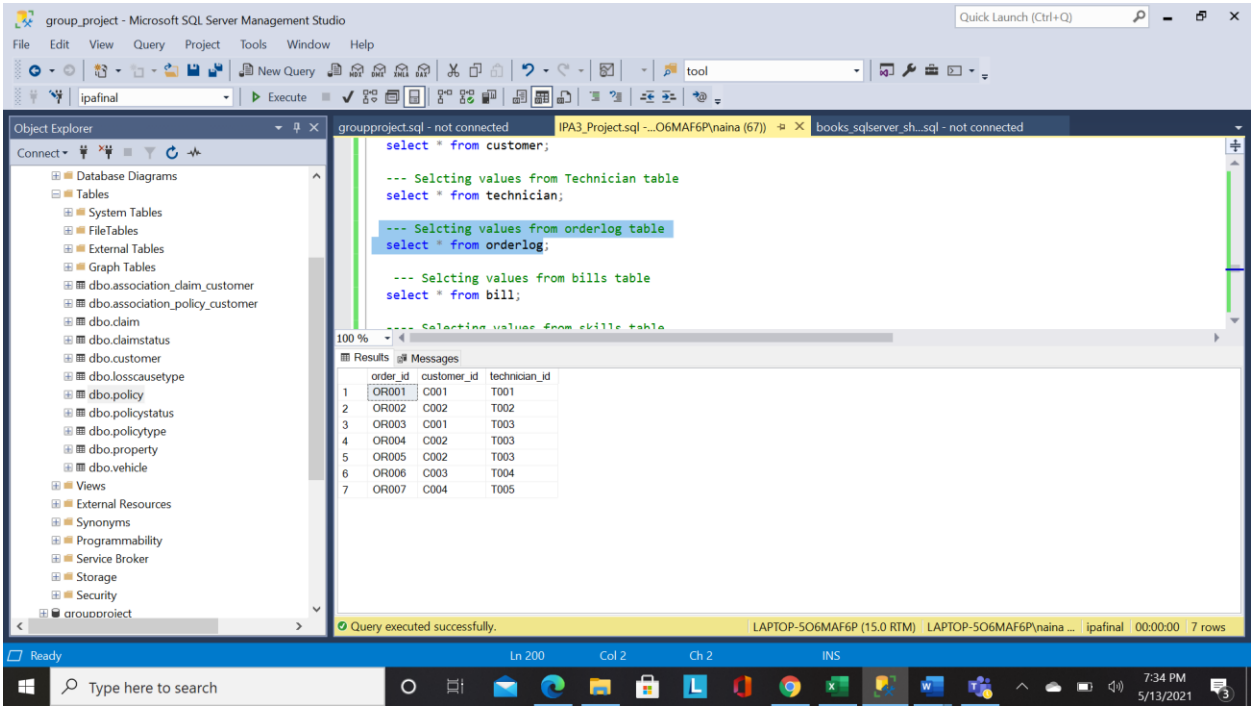


B. Technician Table

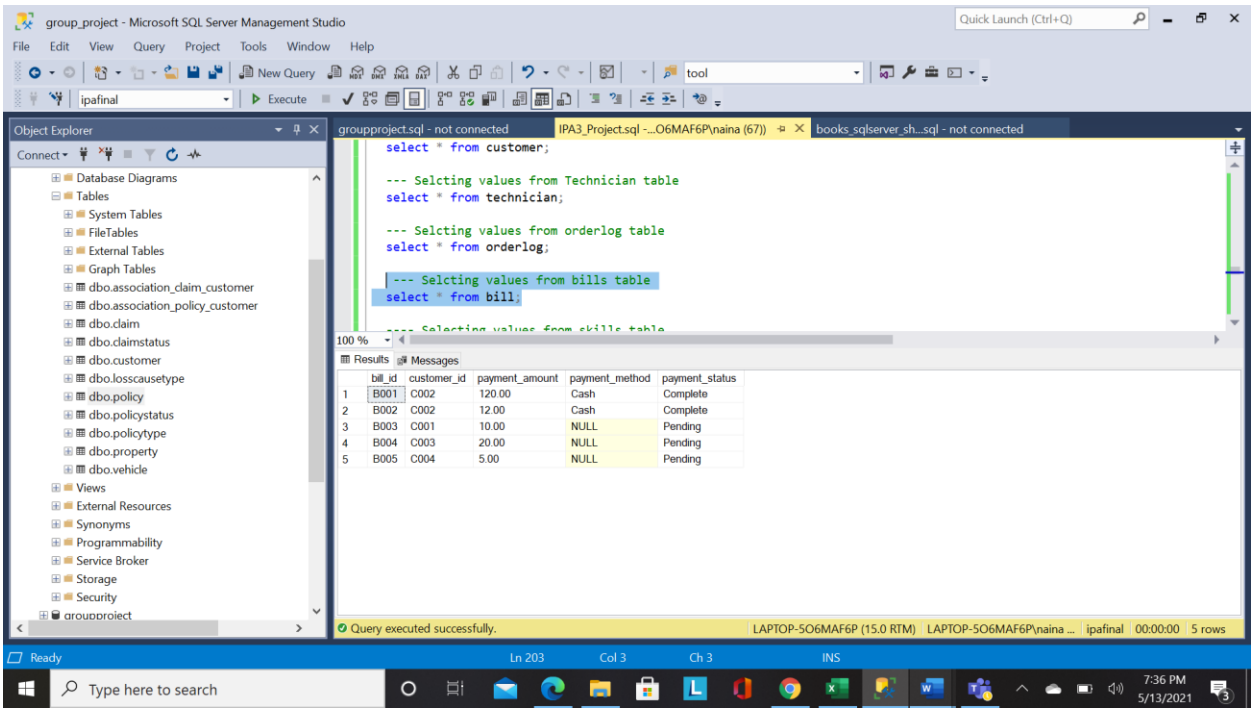


C. Order log table

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu

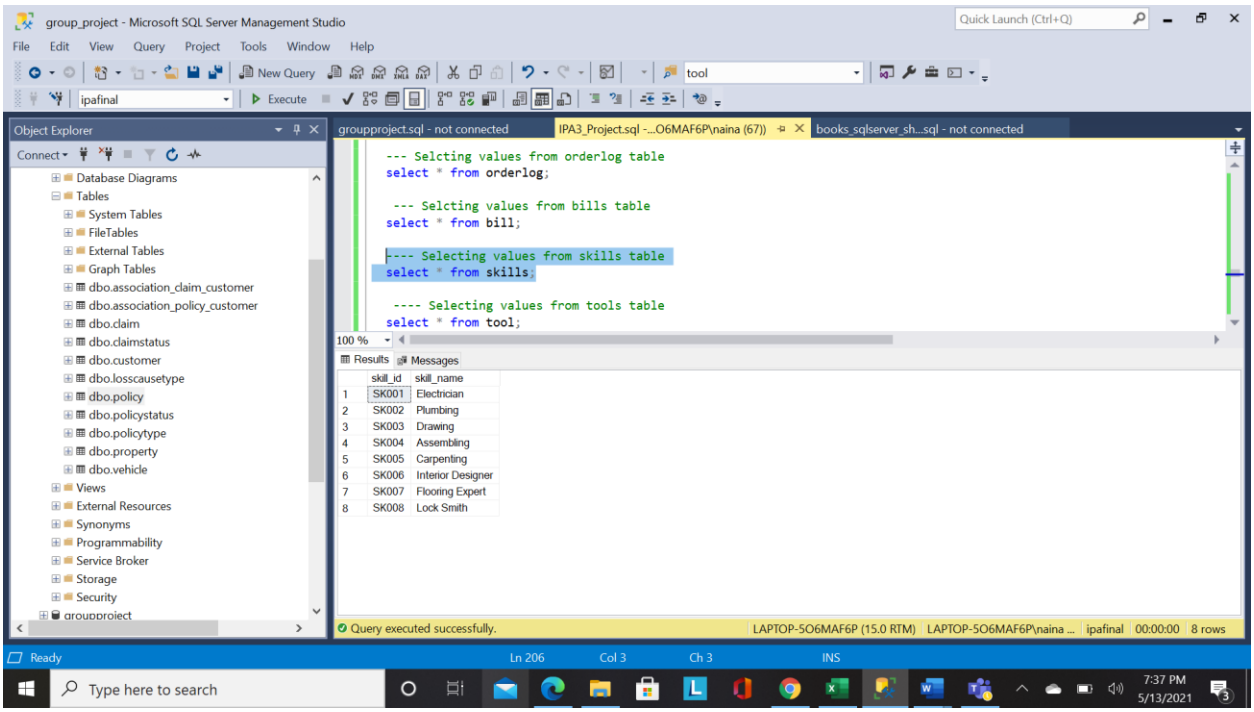


D. Bills Table

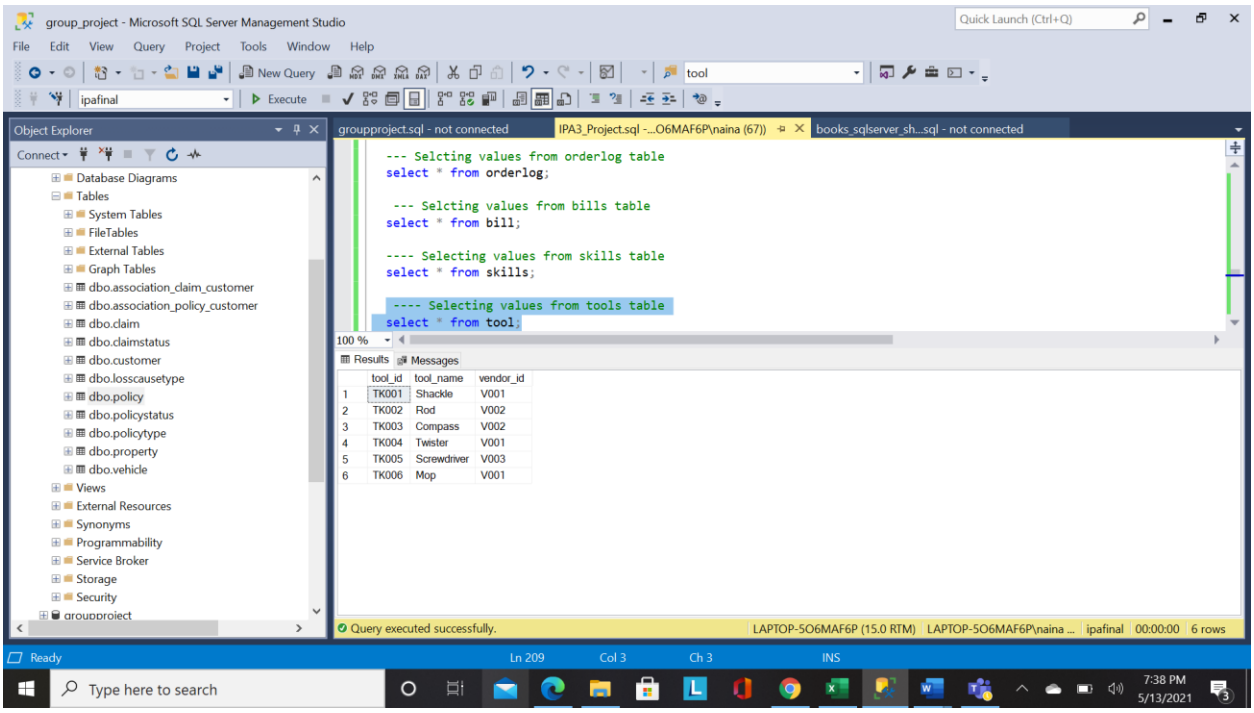


E. Skills Table

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu

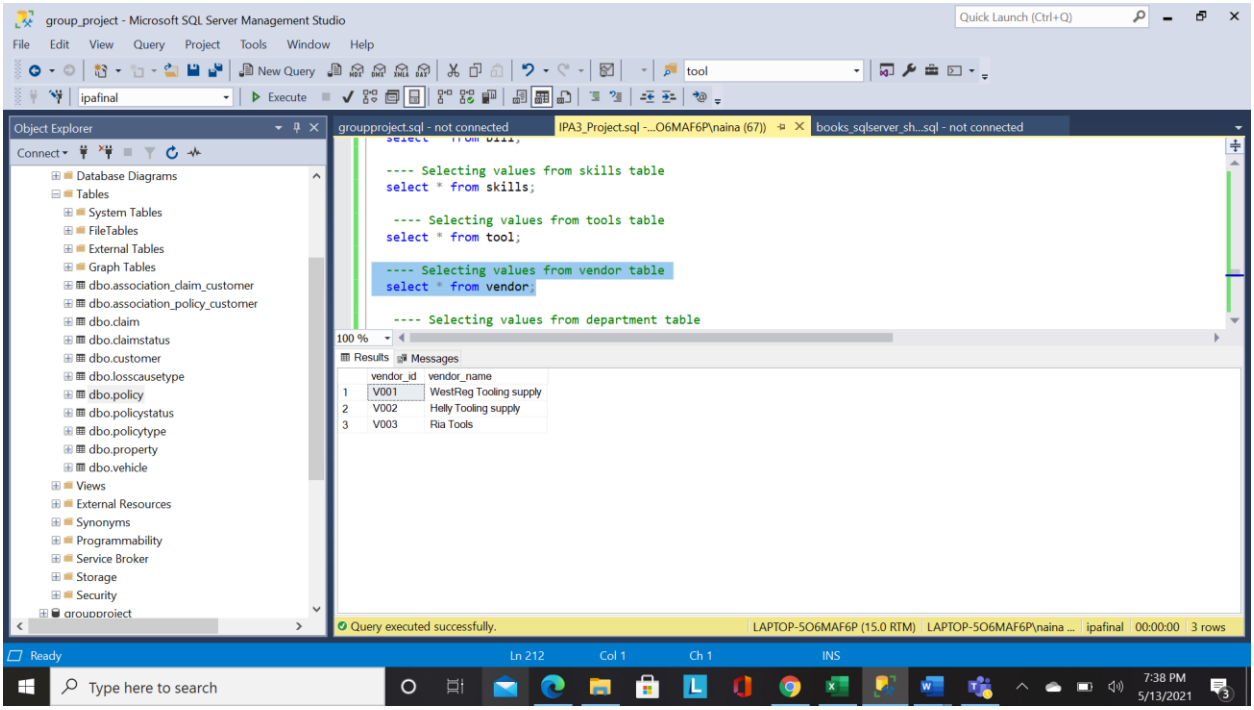


F. Tool Table

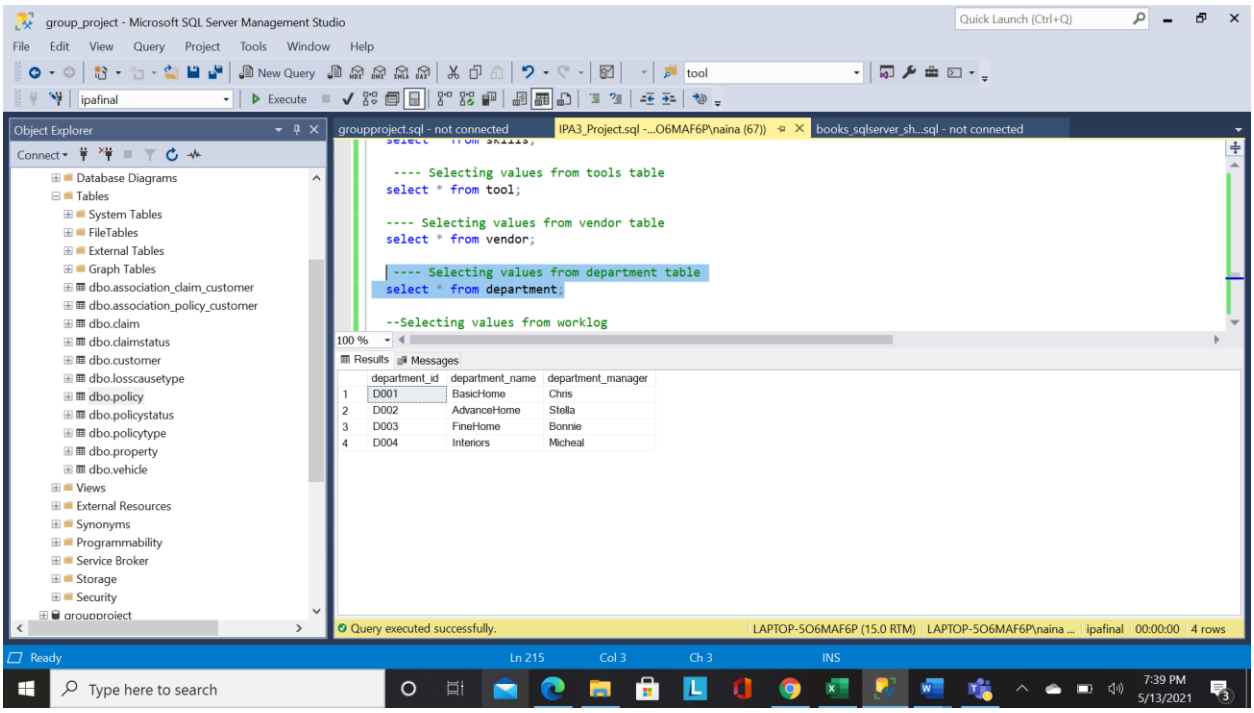


G. Vendor Table

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu

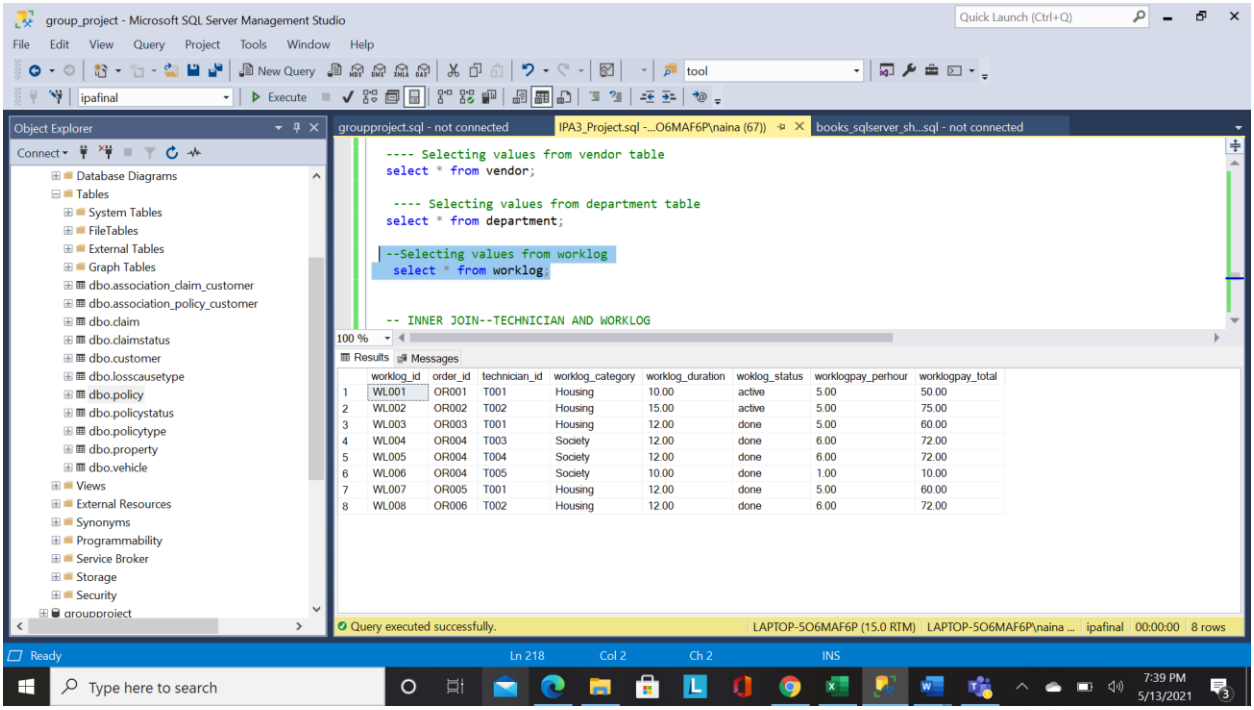


H. Department Table



I. Worklog Table

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu

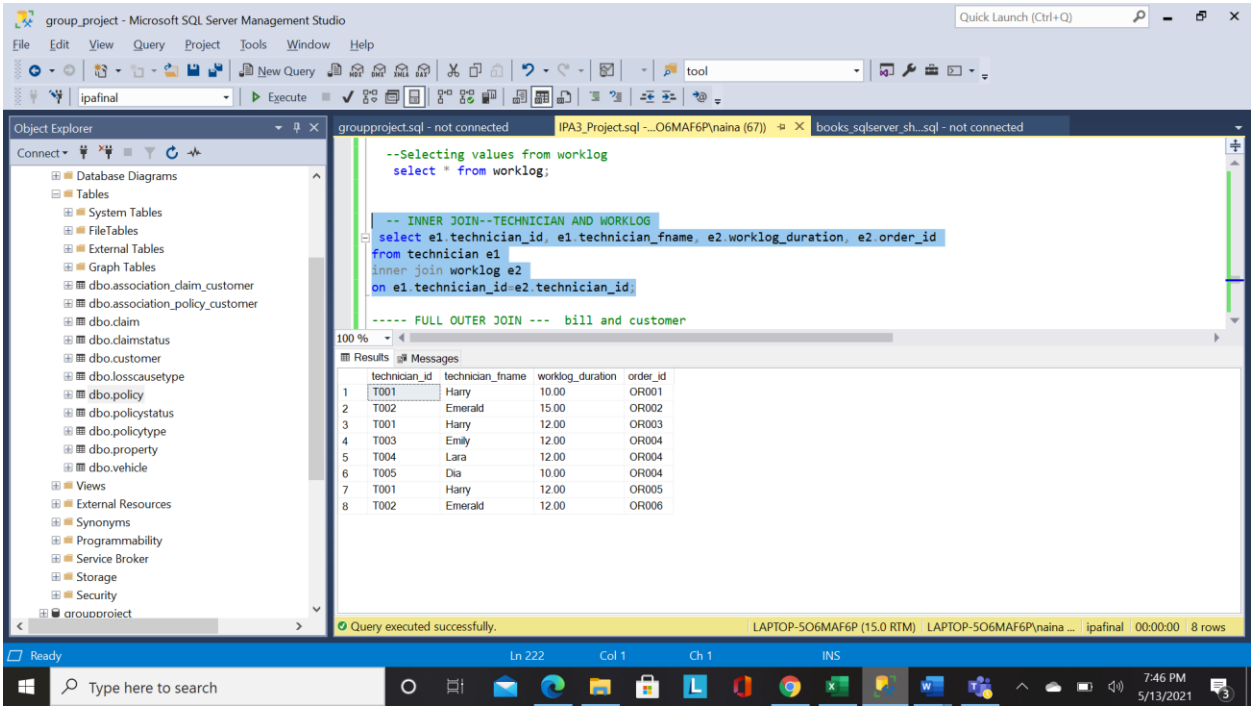


Joins

1. **INNER JOIN**

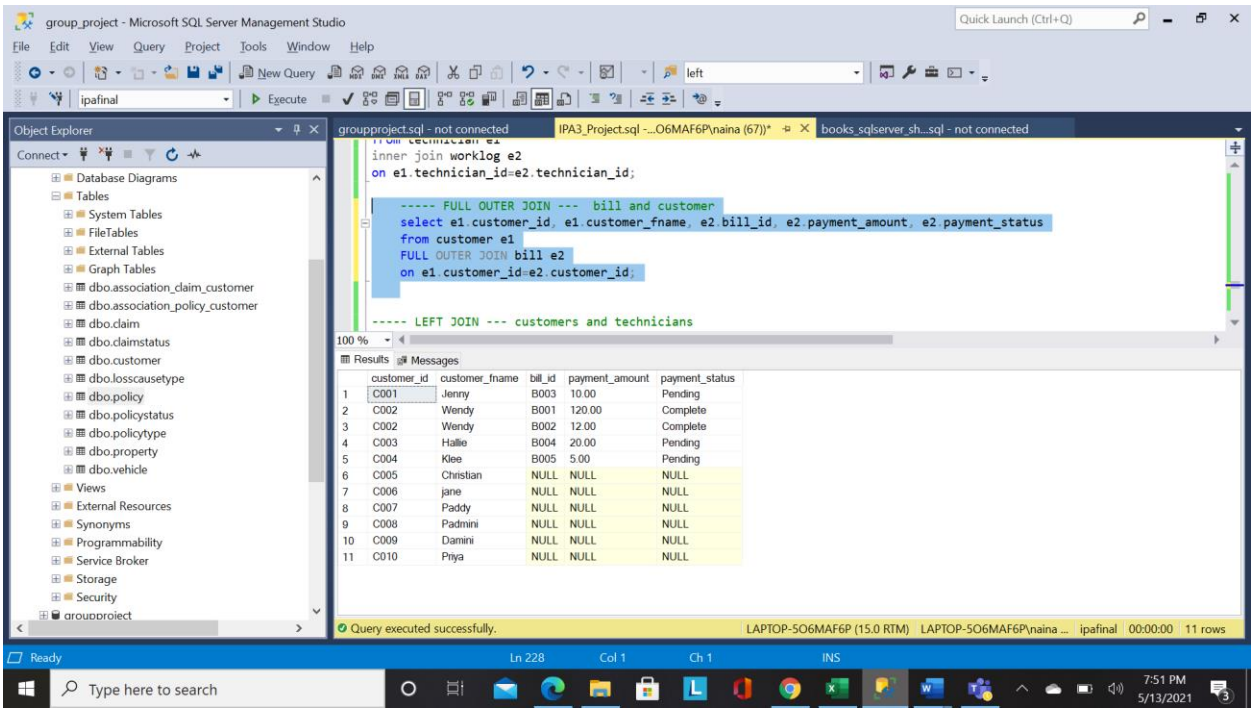
Ans: The inner join is taken on technician and worklog, it is used to know how many hours a technician has worked on which order**.**

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu



2. Full Outer Join

Ans: We are using this join to find out bills of all the customers which are completed, pending as well as customers who do not have any bills.



Name : Naina Chowdhary Vallurupalli
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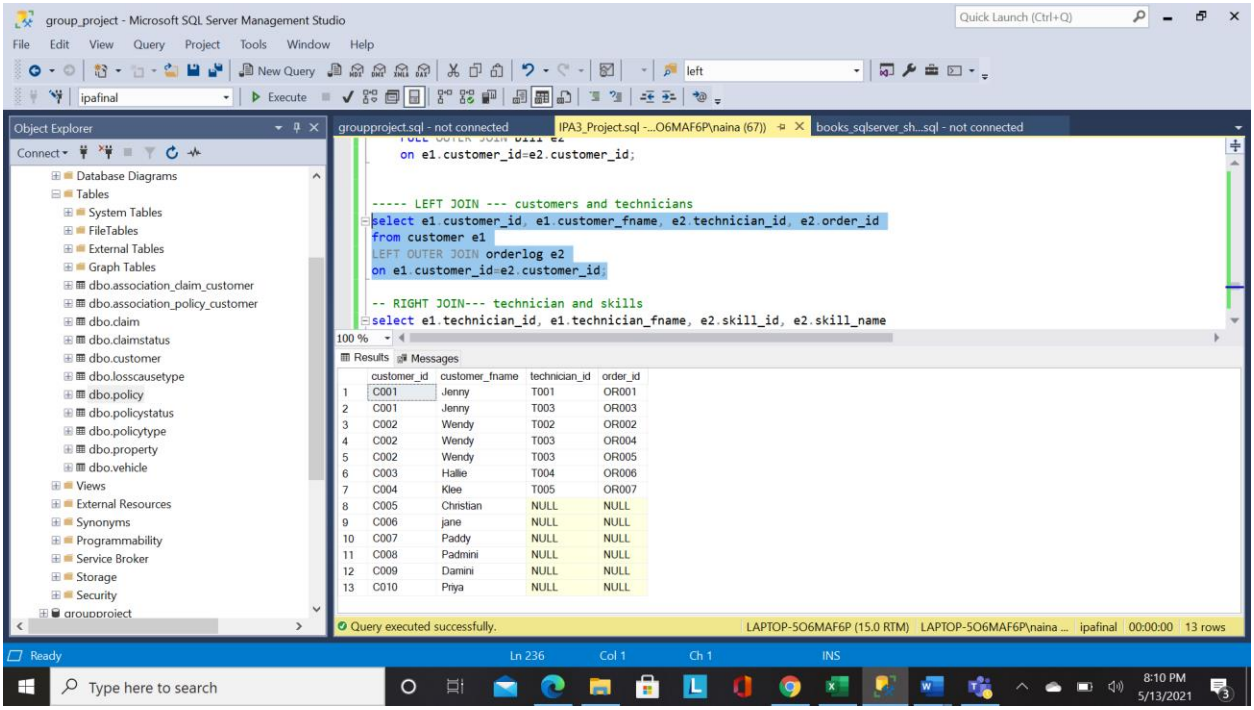
3. Left Join

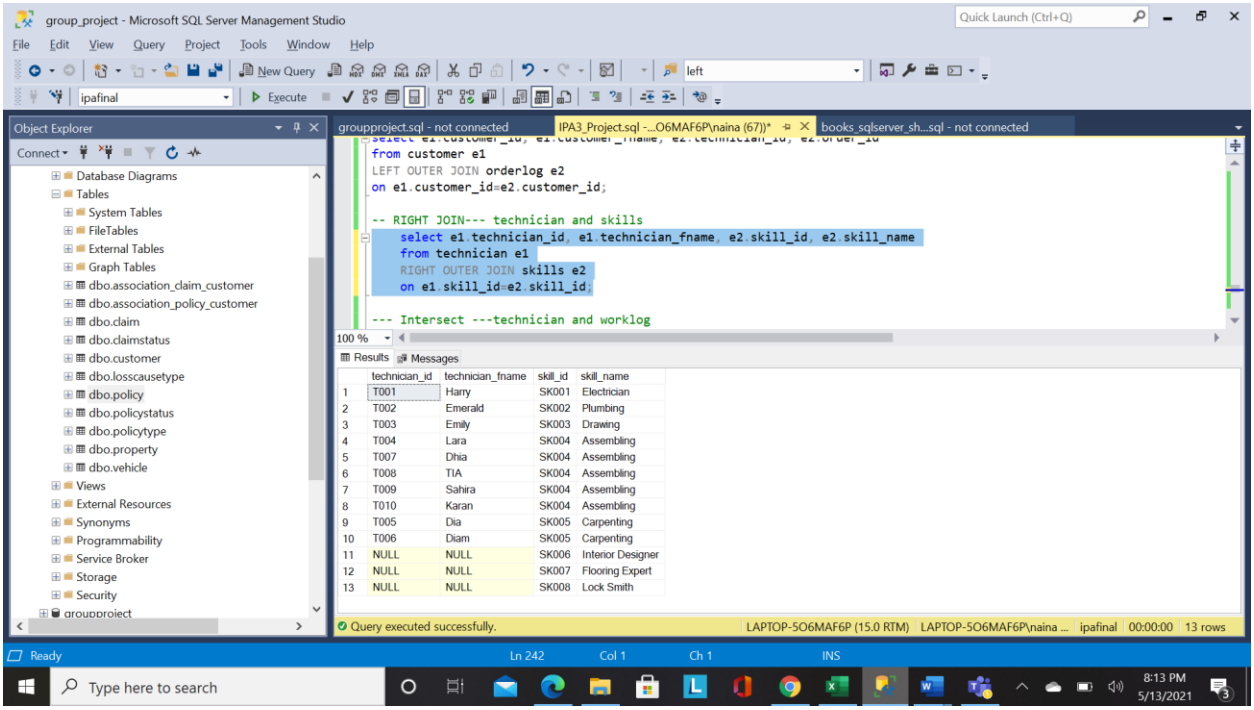
Ans: We are using a left join between customer and orderlog. It gives us all customers and any orders that they might have placed.



4. Right Join

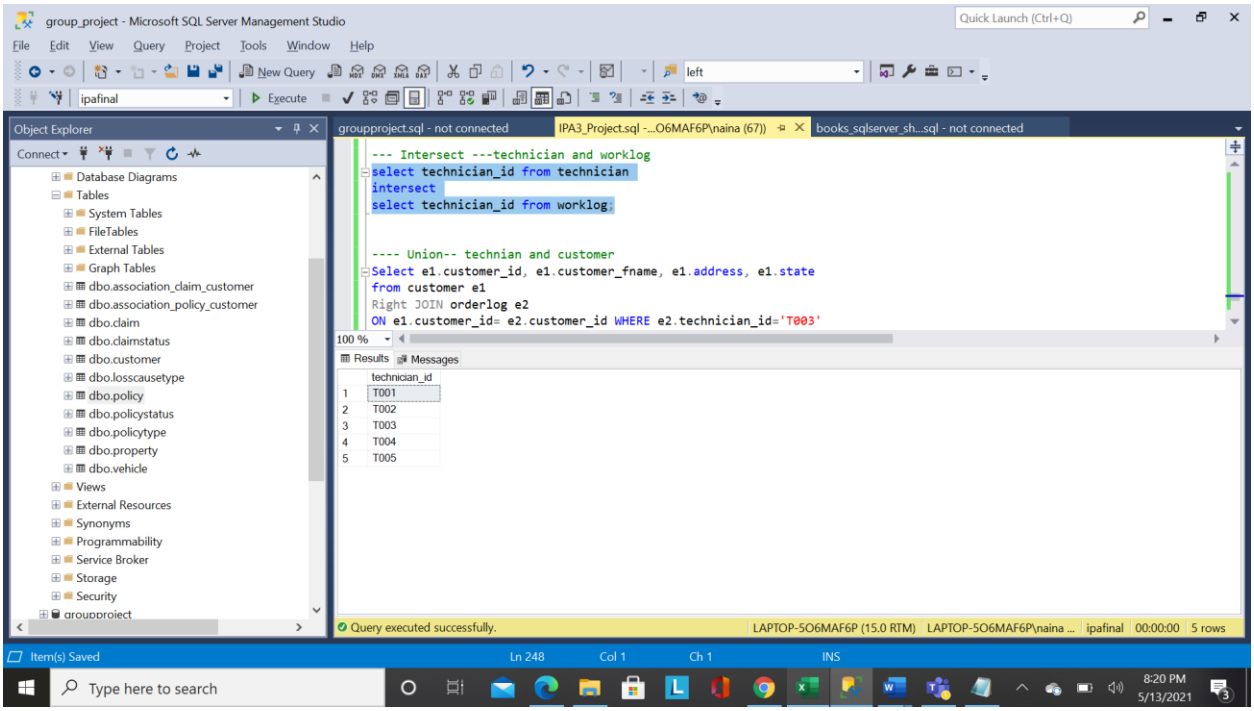
Ans: The table technician and skills are joined using a right join. It tells us that the skills used by technicians. It also gives the skills for which there are no technicians. This can help the handy company to recruit the personal with the specific skill set.

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu



5. Intersect Join

Ans: Intersect is used here to select technicians who have worked on some worklog. This can help to allocate work to other technicians too.



Name : Naina Chowdhary Vallurupalli
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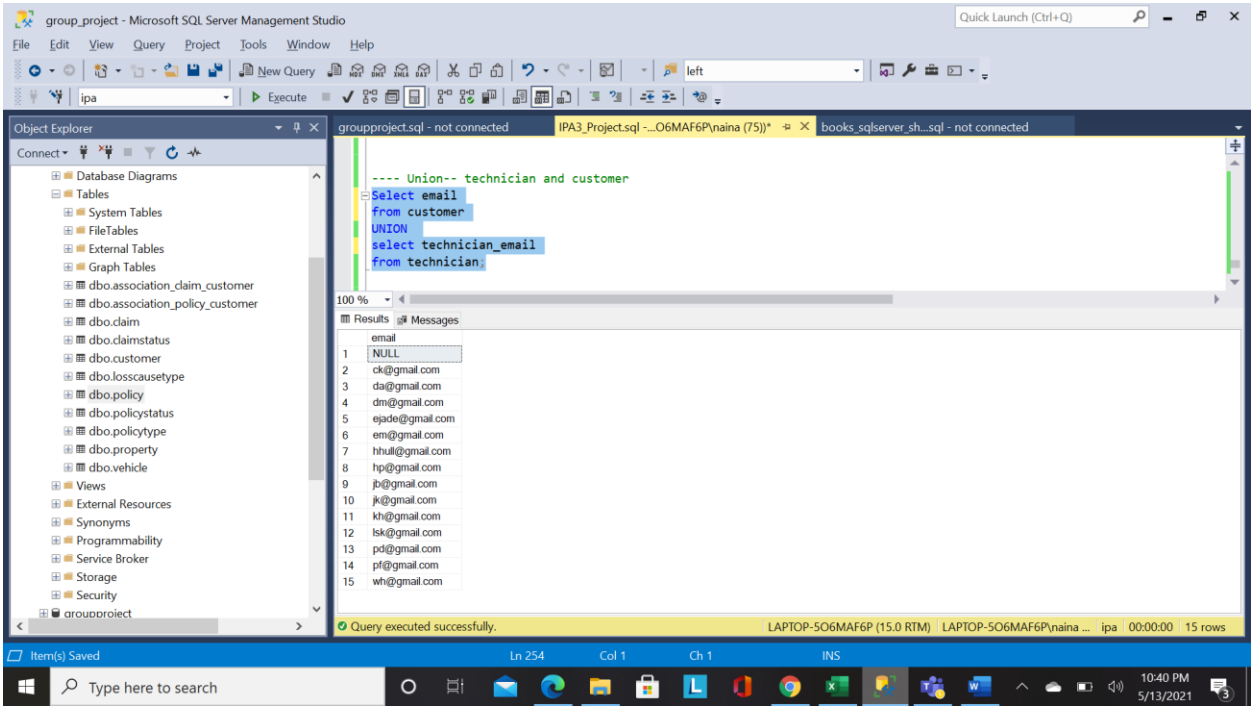
6. Union Join

Ans: This Union join is used here to fetch the email address of all customers and technicians. This can be used to used to send any combined mails like festival greetings to their Emails.



7. Except Join

Ans: Except Join is used here to fetch the details of Technicians who have not been associated with any worklog. These are basically those who have not been assigned any work till now. This would help the company to assigned work to new technicians.

Name : Naina Chowdhary Vallurupalli
Net Id: ncv200001@utdallas.edu