Project 2, Group 11
Task 1

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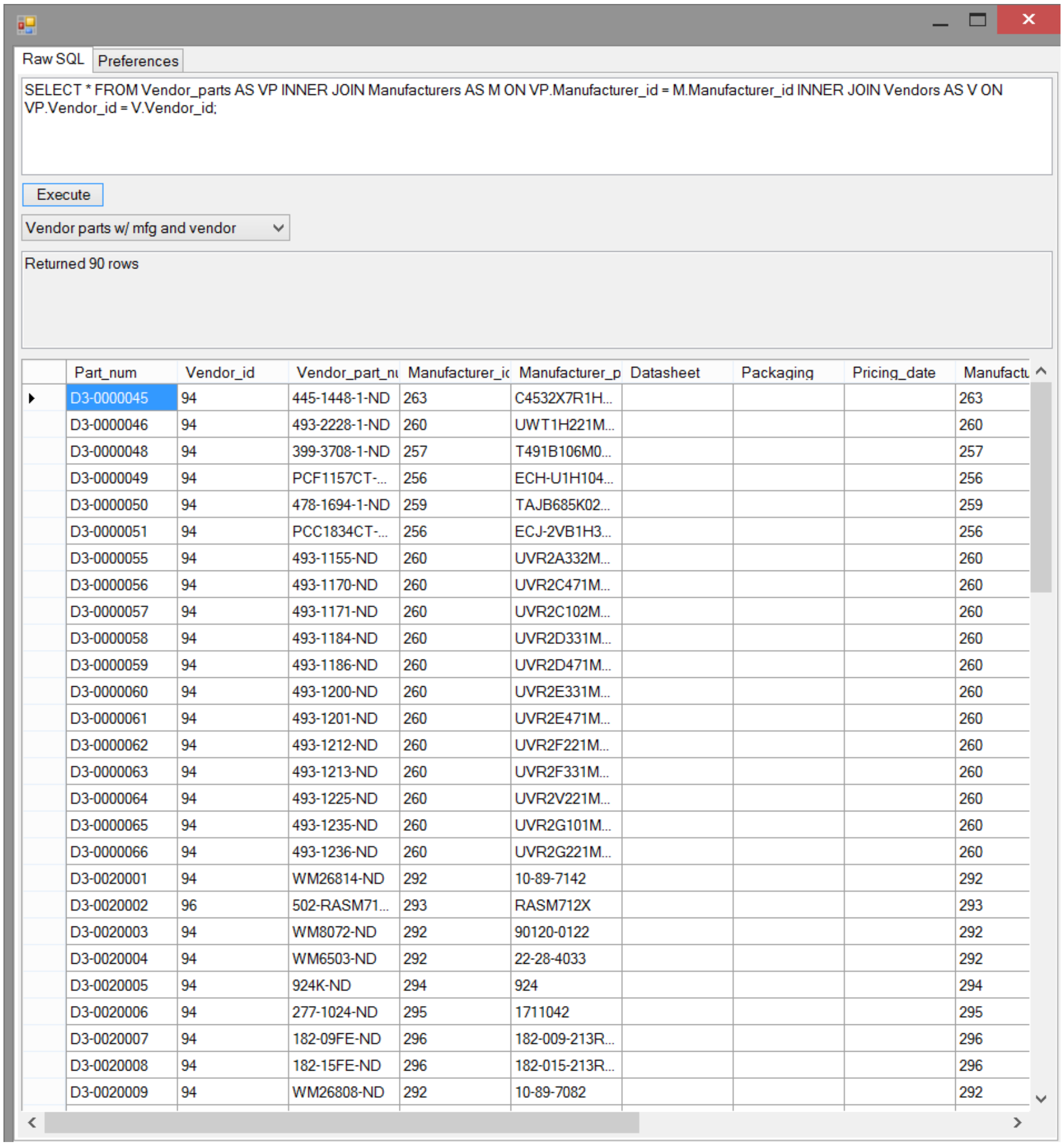
Inner Join

Select vendor parts with both mfg and vendor

SELECT * FROM Vendor_parts AS VP INNER JOIN Manufacturers AS M ON VP.Manufacturer_id = M.Manufacturer_id INNER JOIN Vendors AS V ON VP.Vendor_id = V.Vendor_id;



```
SELECT * FROM Vendor_parts AS VP INNER JOIN Manufacturers AS M ON VP.Manufacturer_id = M.Manufacturer_id INNER JOIN Vendors AS V ON
VP.Vendor_id = V.Vendor_id;
```

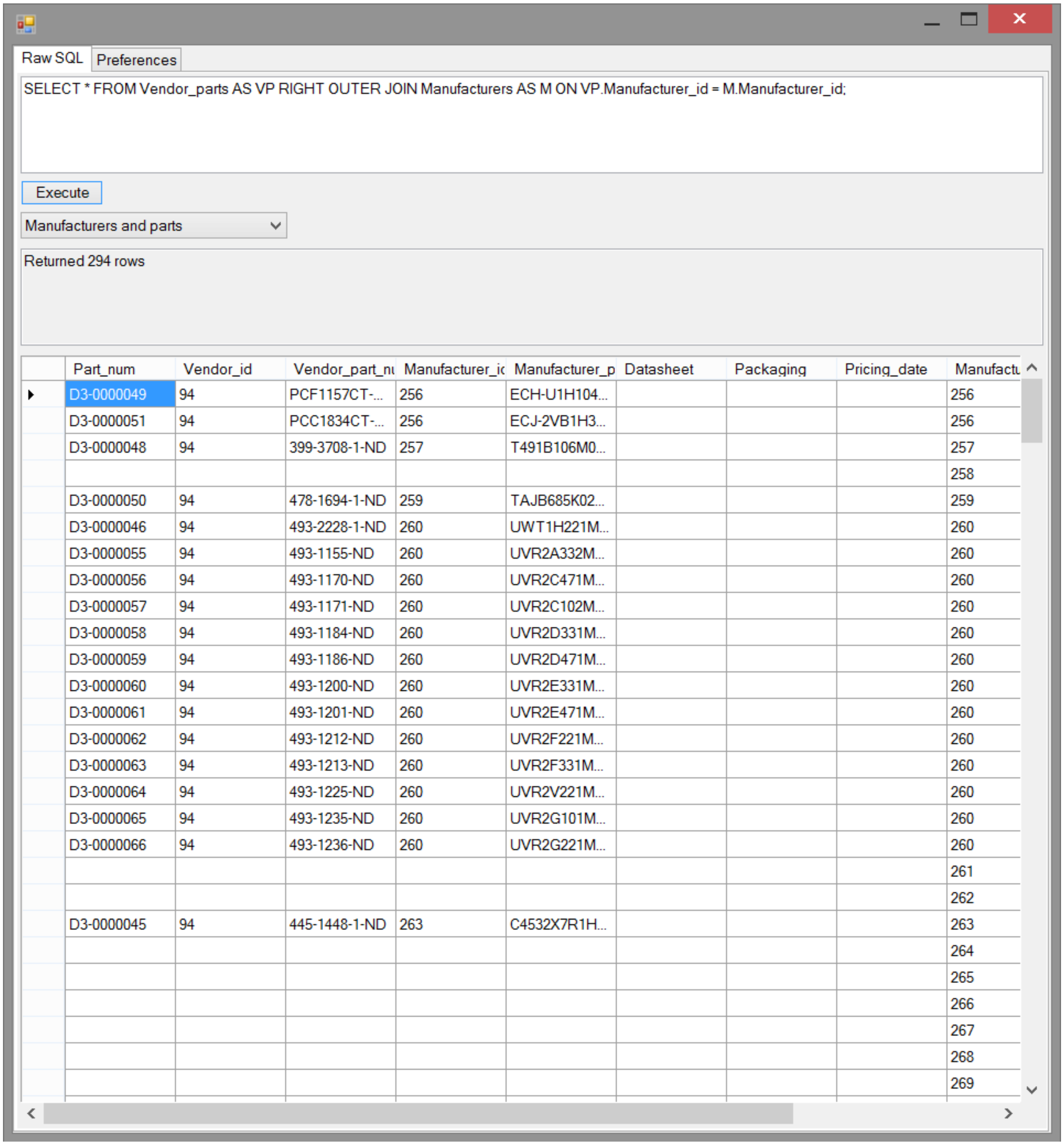
Returned 90 rows

	Part_num	Vendor_id	Vendor_part_nu	Manufacturer_ic	Manufacturer_p	Datasheet	Packaging	Pricing_date	Manufactu
▸	D3-0000045	94	445-1448-1-ND	263	C4532X7R1H...				263
	D3-0000046	94	493-2228-1-ND	260	UWT1H221M...				260
	D3-0000048	94	399-3708-1-ND	257	T491B106M0...				257
	D3-0000049	94	PCF1157CT-...	256	ECH-U1H104...				256
	D3-0000050	94	478-1694-1-ND	259	TAJB685K02...				259
	D3-0000051	94	PCC1834CT-...	256	ECJ-2VB1H3...				256
	D3-0000055	94	493-1155-ND	260	UVR2A332M...				260
	D3-0000056	94	493-1170-ND	260	UVR2C471M...				260
	D3-0000057	94	493-1171-ND	260	UVR2C102M...				260
	D3-0000058	94	493-1184-ND	260	UVR2D331M...				260
	D3-0000059	94	493-1186-ND	260	UVR2D471M...				260
	D3-0000060	94	493-1200-ND	260	UVR2E331M...				260
	D3-0000061	94	493-1201-ND	260	UVR2E471M...				260
	D3-0000062	94	493-1212-ND	260	UVR2F221M...				260
	D3-0000063	94	493-1213-ND	260	UVR2F331M...				260
	D3-0000064	94	493-1225-ND	260	UVR2V221M...				260
	D3-0000065	94	493-1235-ND	260	UVR2G101M...				260
	D3-0000066	94	493-1236-ND	260	UVR2G221M...				260
	D3-0020001	94	WM26814-ND	292	10-89-7142				292
	D3-0020002	96	502-RASM71...	293	RASM712X				293
	D3-0020003	94	WM8072-ND	292	90120-0122				292
	D3-0020004	94	WM6503-ND	292	22-28-4033				292
	D3-0020005	94	924K-ND	294	924				294
	D3-0020006	94	277-1024-ND	295	1711042				295
	D3-0020007	94	182-09FE-ND	296	182-009-213R...				296
	D3-0020008	94	182-15FE-ND	296	182-015-213R...				296
	D3-0020009	94	WM26808-ND	292	10-89-7082				292

Outer join

Select manufacturers and their parts, including those with no parts

SELECT * FROM Vendor_parts AS VP RIGHT OUTER JOIN Manufacturers AS M ON VP.Manufacturer_id = M.Manufacturer_id;



```
SELECT * FROM Vendor_parts AS VP RIGHT OUTER JOIN Manufacturers AS M ON VP.Manufacturer_id = M.Manufacturer_id;
```

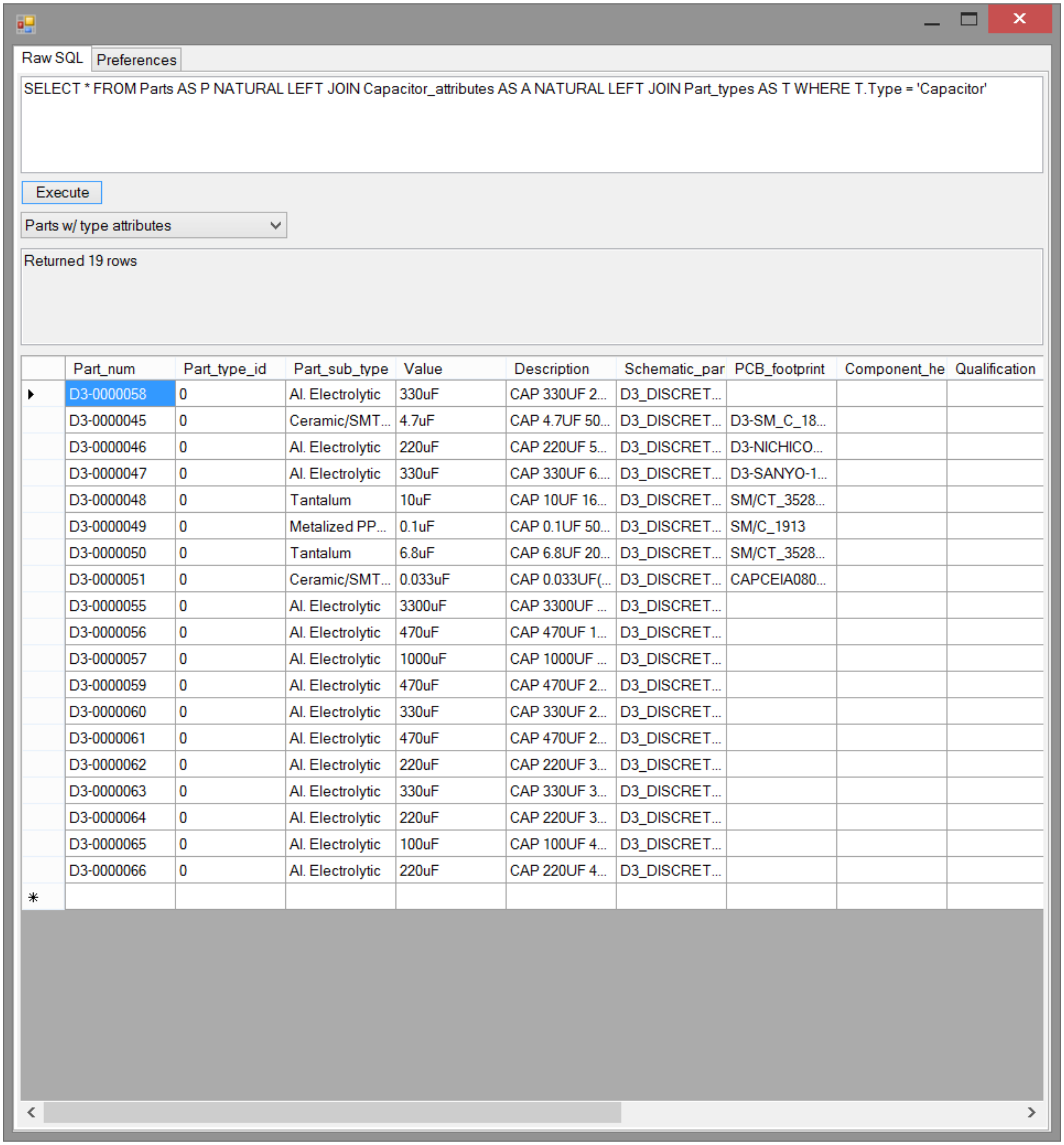
Returned 294 rows

	Part_num	Vendor_id	Vendor_part_nu	Manufacturer_ic	Manufacturer_p	Datasheet	Packaging	Pricing_date	Manufactu
▸	D3-0000049	94	PCF1157CT-...	256	ECH-U1H104...				256
	D3-0000051	94	PCC1834CT-...	256	ECJ-2VB1H3...				256
	D3-0000048	94	399-3708-1-ND	257	T491B106M0...				257
									258
	D3-0000050	94	478-1694-1-ND	259	TAJB685K02...				259
	D3-0000046	94	493-2228-1-ND	260	UWT1H221M...				260
	D3-0000055	94	493-1155-ND	260	UVR2A332M...				260
	D3-0000056	94	493-1170-ND	260	UVR2C471M...				260
	D3-0000057	94	493-1171-ND	260	UVR2C102M...				260
	D3-0000058	94	493-1184-ND	260	UVR2D331M...				260
	D3-0000059	94	493-1186-ND	260	UVR2D471M...				260
	D3-0000060	94	493-1200-ND	260	UVR2E331M...				260
	D3-0000061	94	493-1201-ND	260	UVR2E471M...				260
	D3-0000062	94	493-1212-ND	260	UVR2F221M...				260
	D3-0000063	94	493-1213-ND	260	UVR2F331M...				260
	D3-0000064	94	493-1225-ND	260	UVR2V221M...				260
	D3-0000065	94	493-1235-ND	260	UVR2G101M...				260
	D3-0000066	94	493-1236-ND	260	UVR2G221M...				260
									261
									262
	D3-0000045	94	445-1448-1-ND	263	C4532X7R1H...				263
									264
									265
									266
									267
									268
									269

Natural join

Natural join of parts / type_attributes

SELECT * FROM Parts AS P NATURAL LEFT JOIN Capacitor_attributes AS A NATURAL LEFT JOIN Part_types AS T WHERE T.Type = "Capacitor"



```
SELECT * FROM Parts AS P NATURAL LEFT JOIN Capacitor_attributes AS A NATURAL LEFT JOIN Part_types AS T WHERE T.Type = 'Capacitor'
```

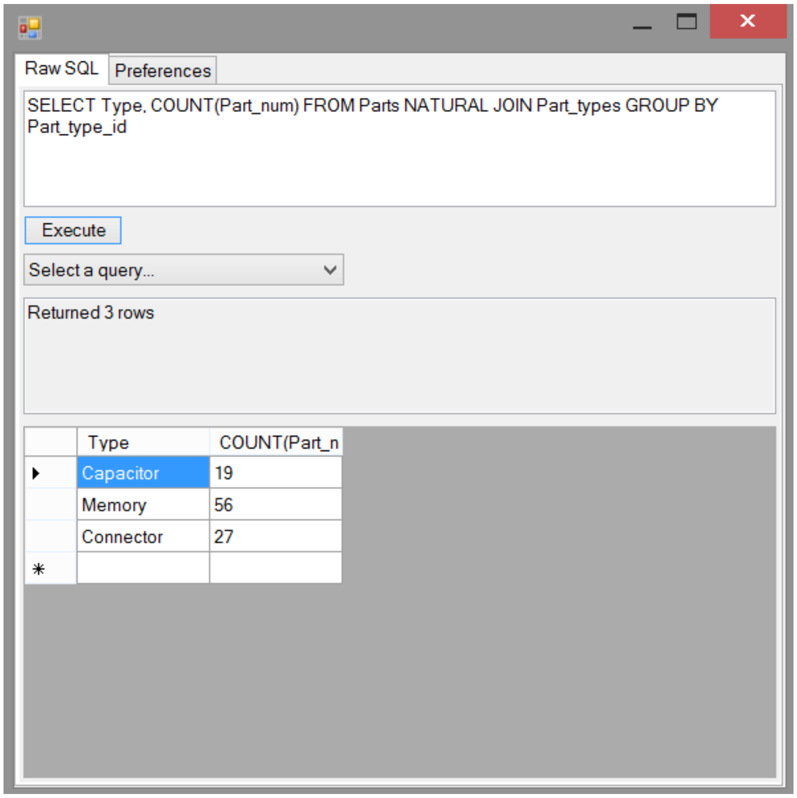
```
Returned 19 rows
```

	Part_num	Part_type_id	Part_sub_type	Value	Description	Schematic_par	PCB_footprint	Component_he	Qualification
▸	D3-0000058	0	Al. Electrolytic	330uF	CAP 330UF 2...	D3_DISCRET...			
	D3-0000045	0	Ceramic/SMT...	4.7uF	CAP 4.7UF 50...	D3_DISCRET...	D3-SM_C_18...		
	D3-0000046	0	Al. Electrolytic	220uF	CAP 220UF 5...	D3_DISCRET...	D3-NICHICO...		
	D3-0000047	0	Al. Electrolytic	330uF	CAP 330UF 6...	D3_DISCRET...	D3-SANYO-1...		
	D3-0000048	0	Tantalum	10uF	CAP 10UF 16...	D3_DISCRET...	SM/CT_3528...		
	D3-0000049	0	Metalized PP...	0.1uF	CAP 0.1UF 50...	D3_DISCRET...	SM/C_1913		
	D3-0000050	0	Tantalum	6.8uF	CAP 6.8UF 20...	D3_DISCRET...	SM/CT_3528...		
	D3-0000051	0	Ceramic/SMT...	0.033uF	CAP 0.033UF(...	D3_DISCRET...	CAPCEIA080...		
	D3-0000055	0	Al. Electrolytic	3300uF	CAP 3300UF ...	D3_DISCRET...			
	D3-0000056	0	Al. Electrolytic	470uF	CAP 470UF 1...	D3_DISCRET...			
	D3-0000057	0	Al. Electrolytic	1000uF	CAP 1000UF ...	D3_DISCRET...			
	D3-0000059	0	Al. Electrolytic	470uF	CAP 470UF 2...	D3_DISCRET...			
	D3-0000060	0	Al. Electrolytic	330uF	CAP 330UF 2...	D3_DISCRET...			
	D3-0000061	0	Al. Electrolytic	470uF	CAP 470UF 2...	D3_DISCRET...			
	D3-0000062	0	Al. Electrolytic	220uF	CAP 220UF 3...	D3_DISCRET...			
	D3-0000063	0	Al. Electrolytic	330uF	CAP 330UF 3...	D3_DISCRET...			
	D3-0000064	0	Al. Electrolytic	220uF	CAP 220UF 3...	D3_DISCRET...			
	D3-0000065	0	Al. Electrolytic	100uF	CAP 100UF 4...	D3_DISCRET...			
	D3-0000066	0	Al. Electrolytic	220uF	CAP 220UF 4...	D3_DISCRET...			
*									

Aggregate function

Count of each type of part

SELECT Type, COUNT(Part_num) FROM Parts NATURAL JOIN Part_types GROUP BY Part_type_id



```
SELECT Type, COUNT(Part_num) FROM Parts NATURAL JOIN Part_types GROUP BY
Part_type_id
```

Returned 3 rows

	Type	COUNT(Part_n
▸	Capacitor	19
	Memory	56
	Connector	27
*		

Commit and Rollback

```
begin
Insert part
if part_num match d3_% then commit
else rollback
```

Trigger

Add null attributes tuple upon new part?

```
DELIMITER $$
CREATE TRIGGER trgNewPart AFTER INSERT ON Parts
FOR EACH ROW
BEGIN
  CASE NEW.Part_type_id
    WHEN 0 THEN INSERT INTO Capacitor_attributes (Part_num) VALUES (NEW.Part_num);
    WHEN 1 THEN INSERT INTO Memory_attributes (Part_num) VALUES (NEW.Part_num);
    WHEN 2 THEN INSERT INTO Connector_attributes (Part_num) VALUES
(NEW.Part_num);
  END CASE;
END;$$
DELIMITER ;
```

Trigger (another trigger)

Delete attributes tuple upon deletion

```
DELIMITER $$
CREATE TRIGGER trgNewPart BEFORE DELETE ON Parts
FOR EACH ROW
BEGIN
  CASE NEW.Part_type_id
    WHEN 0 THEN DELETE FROM Capacitor_attributes WHERE Part_num =
NEW.Part_num;
    WHEN 1 THEN DELETE FROM Memory_attributes WHERE Part_num = NEW.Part_num;
    WHEN 2 THEN DELETE FROM Connector_attributes WHERE Part_num =
NEW.Part_num;
  END CASE;
END;$$
DELIMITER ;
```

Trigger demonstration

```
DROP TRIGGER IF EXISTS trgNewPart;
DROP TRIGGER IF EXISTS trgDeletedPart;
DELETE FROM Capacitor_attributes WHERE Part_num = "Rofl";
DELETE FROM Parts WHERE Part_num = "Rofl";

DELIMITER $$
CREATE TRIGGER trgNewPart AFTER INSERT ON Parts
FOR EACH ROW
BEGIN
    CASE NEW.Part_type_id
```

```
        WHEN 0 THEN INSERT INTO Capacitor_attributes (Part_num)
VALUES (NEW.Part_num);
        WHEN 1 THEN INSERT INTO Memory_attributes (Part_num)
VALUES (NEW.Part_num);
        WHEN 2 THEN INSERT INTO Connector_attributes (Part_num)
VALUES (NEW.Part_num);
    END CASE;
END;$$
DELIMITER ;

INSERT INTO Parts (Part_num, Part_type_id) VALUES ("Rofl", 0);
SELECT * FROM Parts WHERE Part_num = "Rofl";
+----------+--------------+---------------+-------+-------------
+----------------+---------------+------------------+-----------
----+----------------+-----------------+
| Part_num | Part_type_id | Part_sub_type | Value | Description
| Schematic_part | PCB_footprint | Component_height |
Qualification | Low_temp_range | High_temp_range |
+----------+--------------+---------------+-------+-------------
+----------------+---------------+------------------+-----------
----+----------------+-----------------+
| Rofl     |            0 |               | NULL  | NULL
| NULL           | NULL          | NULL             | NULL
| NULL           | NULL              |
+----------+--------------+---------------+-------+-------------
+----------------+---------------+------------------+-----------
----+----------------+-----------------+

SELECT * FROM Capacitor_attributes WHERE Part_num = "Rofl";
+----------+---------+-------+-----------+
| Part_num | Voltage | Power | Tolerance |
+----------+---------+-------+-----------+
| Rofl     | NULL    | NULL  | NULL      |
+----------+---------+-------+-----------+

DELETE FROM Parts WHERE Part_num = "Rofl";
ERROR 1451 (23000) at line 2: Cannot delete or update a parent
row: a foreign key constraint fails
(`PartsDB`.`Capacitor_attributes`, CONSTRAINT
`fk_Capacitor_attributes_Parts1` FOREIGN KEY (`Part_num`)
REFERENCES `Parts` (`Part_num`) ON DELETE NO ACTION ON UPDATE NO
ACTION)
```

```
DELIMITER $$
CREATE TRIGGER trgDeletedPart BEFORE DELETE ON Parts
FOR EACH ROW
BEGIN
    CASE OLD.Part_type_id
        WHEN 0 THEN DELETE FROM Capacitor_attributes WHERE
Part_num = OLD.Part_num;
        WHEN 1 THEN DELETE FROM Memory_attributes WHERE Part_num
= OLD.Part_num;
        WHEN 2 THEN DELETE FROM Connector_attributes WHERE
Part_num = OLD.Part_num;
    END CASE;
END;$$
DELIMITER ;

DELETE FROM Parts WHERE Part_num = "Rofl";
SELECT * FROM Capacitor_attributes WHERE Part_num = "Rofl";
```

Stored Procedure

Update bom cost with current pricing

```
DELIMITER $$
CREATE PROCEDURE updateBom(PCA_id VARCHAR(16), BOM_rev VARCHAR(5))
BEGIN
  DECLARE item_num INT;
  DECLARE Part_num CHAR(16);
  DECLARE done INT DEFAULT FALSE;
  DECLARE cBom CURSOR FOR SELECT BOM.Item_num,BOM.Part_num FROM
BillOfMaterials AS BOM WHERE BOM.PCA_id = PCA_id AND BOM.BOM_rev = BOM_rev;
  DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = TRUE;

 -- TODO: Price needs to be based on Vendor_part_num

  OPEN cBom;
  read_loop: LOOP
    FETCH cBom INTO item_num, Part_num;
    IF done THEN
      LEAVE read_loop;
    END IF;
    UPDATE BillOfMaterials AS BOM
      SET
        Price_qty_1 = (SELECT MAX(PB.Price) FROM Price_Break as PB WHERE
PB.Part_num = Part_num AND Break_num <= 1)
      WHERE
```

```
        BOM.PCA_id = PCA_id AND BOM.BOM_rev = BOM_rev AND BOM.Item_num =
item_num;
    UPDATE BillOfMaterials AS BOM
      SET
        Price_qty_1000 = (SELECT MAX(PB.Price) FROM Price_Break as PB WHERE
PB.Part_num = Part_num AND Break_num <= 1000)
      WHERE
        BOM.PCA_id = PCA_id AND BOM.BOM_rev = BOM_rev AND BOM.Item_num =
item_num;
  END LOOP;
  CLOSE cBom;
END;$$
DELIMITER ;
```

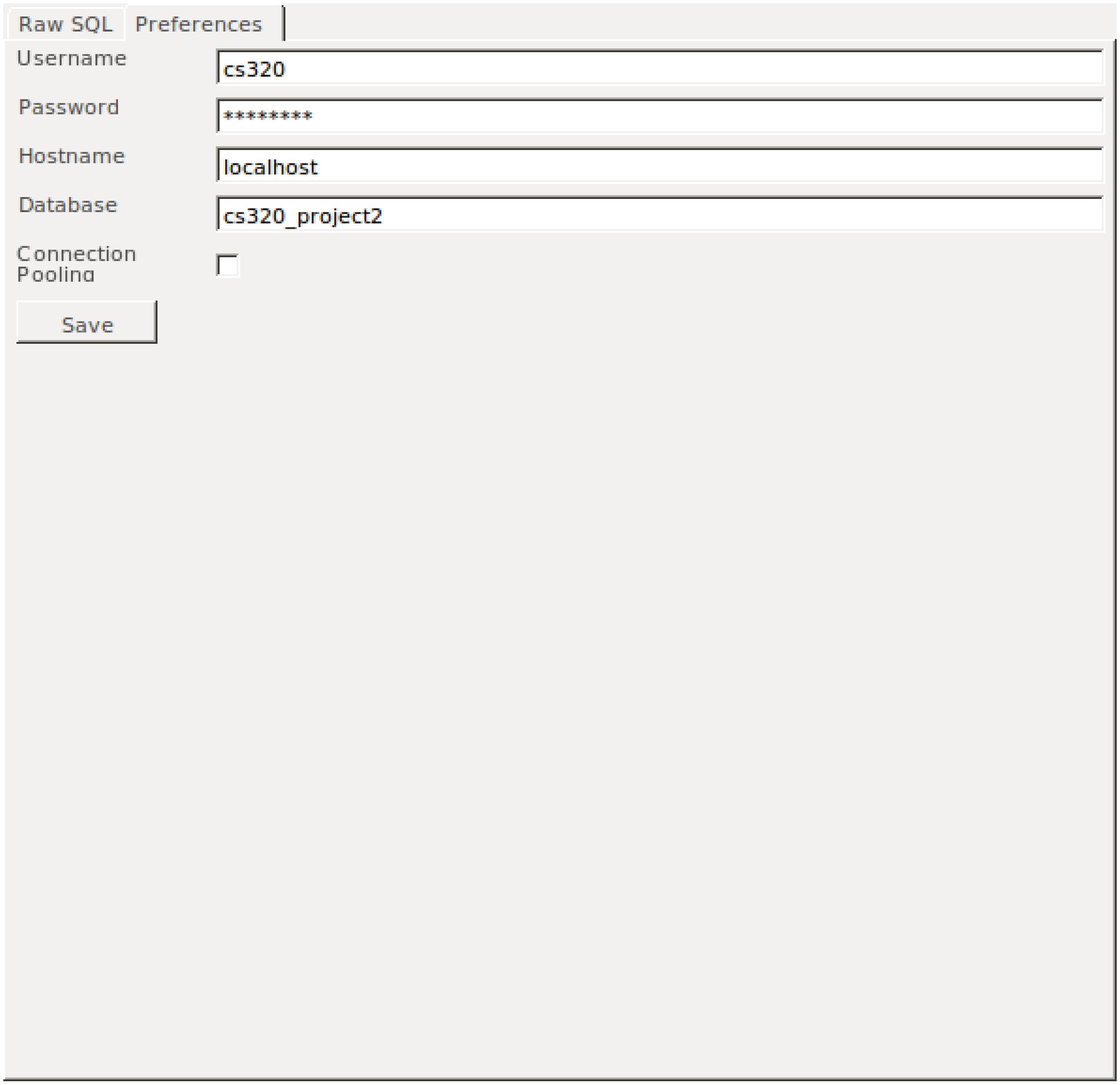
Stored Procedure Demonstration

```
DROP PROCEDURE IF EXISTS updateBom;

DELETE FROM Price_Break WHERE Part_num = "Test";
DELETE FROM Vendor_parts WHERE Part_num = "Test";
DELETE FROM Vendors WHERE Vendor_id = 999;
DELETE FROM Manufacturers WHERE Manufacturer_id = 999;
DELETE FROM Capacitor_attributes WHERE Part_num = "Test";
DELETE FROM Parts WHERE Part_num = "Test";
DELETE FROM BillOfMaterials WHERE Part_num = "Test";
DELETE FROM PCA WHERE PCA_id = "PCA0";
DELETE FROM Projects WHERE Project_id = "Prj";
DELETE FROM Customer WHERE Customer_id = "Cst";

DELIMITER $$
CREATE PROCEDURE updateBom(PCA_id VARCHAR(16), BOM_rev
VARCHAR(5))
BEGIN
    DECLARE item_num INT;
    DECLARE Part_num CHAR(16);
    DECLARE done INT DEFAULT FALSE;
    DECLARE cBom CURSOR FOR SELECT
BOM.Item_num,BOM.Part_num FROM BillOfMaterials AS BOM
WHERE BOM.PCA_id = PCA_id AND BOM.BOM_rev = BOM_rev;
```

```
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done =
TRUE;

    OPEN cBom;
    read_loop: LOOP
        FETCH cBom INTO item_num, Part_num;
        IF done THEN
            LEAVE read_loop;
        END IF;
        UPDATE BillOfMaterials AS BOM
            SET
                Price_qty_1 = (SELECT MAX(PB.Price) FROM
Price_Break as PB WHERE PB.Part_num = Part_num AND
Break_num <= 1)
            WHERE
                BOM.PCA_id = PCA_id AND BOM.BOM_rev =
BOM_rev AND BOM.Item_num = item_num;
        UPDATE BillOfMaterials AS BOM
            SET
                Price_qty_1000 = (SELECT MAX(PB.Price)
FROM Price_Break as PB WHERE PB.Part_num = Part_num AND
Break_num <= 1000)
            WHERE
                BOM.PCA_id = PCA_id AND BOM.BOM_rev =
BOM_rev AND BOM.Item_num = item_num;
    END LOOP;
    CLOSE cBom;
END;$$
DELIMITER ;

INSERT INTO Parts (Part_num, Part_type_id) VALUES
("Test", 0);
INSERT INTO Vendors (Vendor_id) VALUES (999);
INSERT INTO Manufacturers (Manufacturer_id) VALUES (999);
```

```sql
INSERT INTO Vendor_parts (Vendor_id, Vendor_part_num,
Manufacturer_id, Part_num) VALUES (999, "Test", 999,
"Test");
INSERT INTO Price_Break (Break_num, Part_num, Price)
VALUES (1, "Test", 1.23);
INSERT INTO Price_Break (Break_num, Part_num, Price)
VALUES (1000, "Test", 0.42);
INSERT INTO Customer (Customer_id) VALUES ("Cst");
INSERT INTO Projects (Project_id, Customer_id) VALUES
("Prj", "Cst");
INSERT INTO PCA (PCA_id, Project_id) VALUES ("PCA0",
"Prj");
INSERT INTO BillOfMaterials (PCA_id, BOM_rev, Item_num,
Part_num) VALUES ("PCA0", 1, 1, "Test");

SELECT Part_num, Price_qty_1, Price_qty_1000 FROM
BillOfMaterials;
CALL updateBom("PCA0", 1);
SELECT Part_num, Price_qty_1, Price_qty_1000 FROM
BillOfMaterials;
```

Other Screenshots



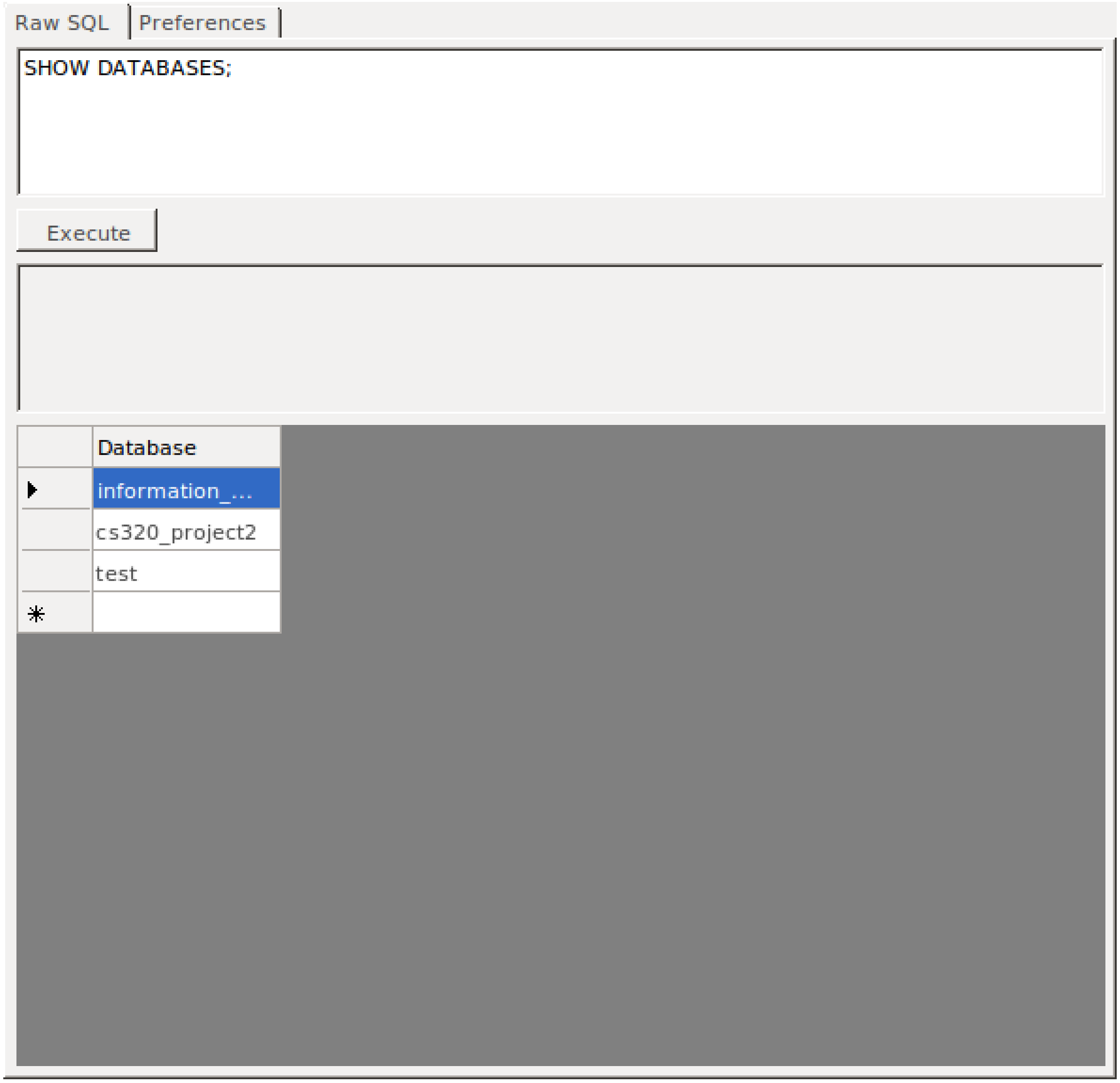
Username: cs320

Password: ********

Hostname: localhost

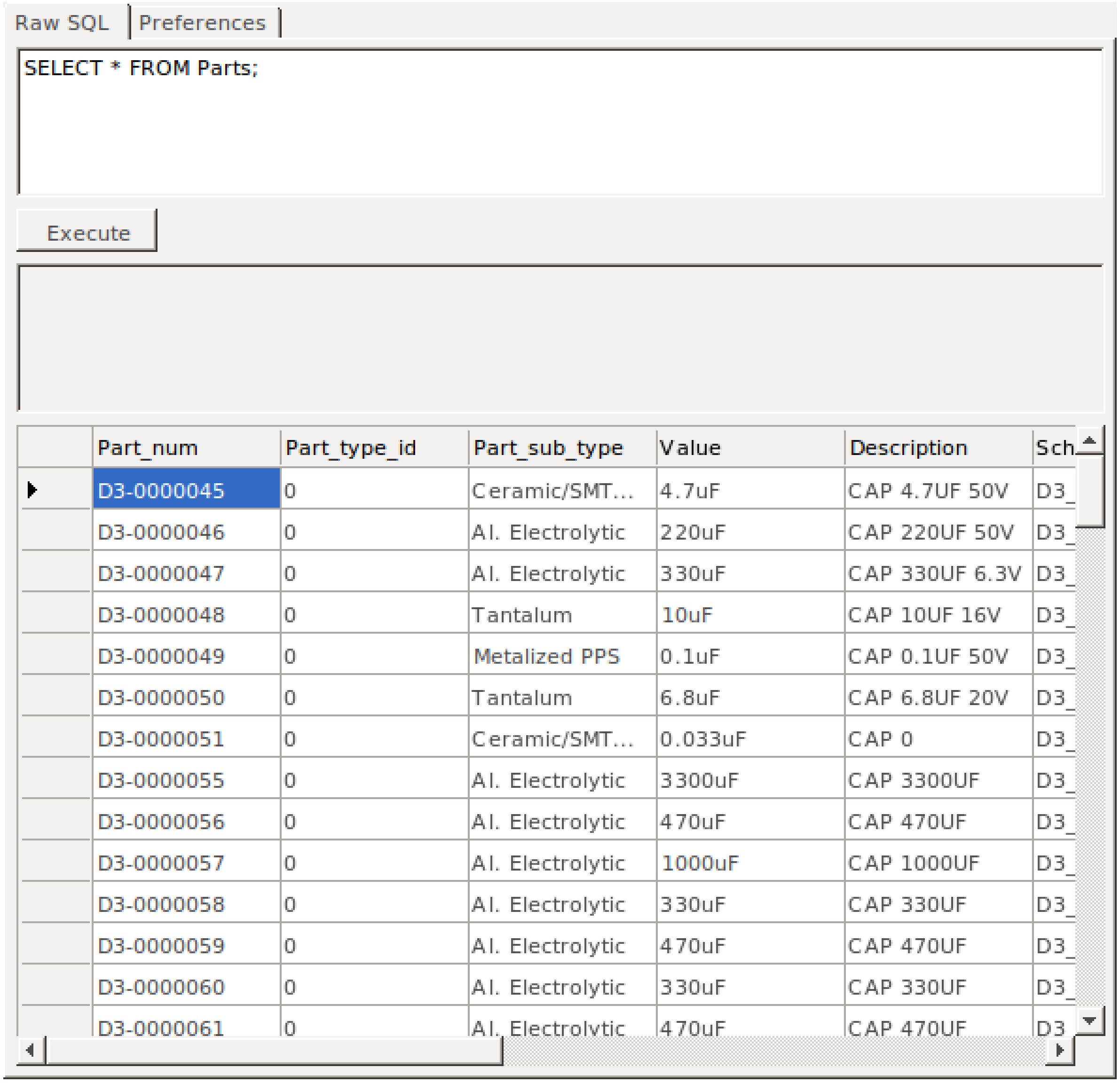
Database: cs320_project2

Connection Pooling: □



```
SHOW DATABASES;
```

	Database
▶	information_...
	cs320_project2
	test
✳	



```
SELECT * FROM Parts;
```

	Part_num	Part_type_id	Part_sub_type	Value	Description	Sch
▶	D3-0000045	0	Ceramic/SMT...	4.7uF	CAP 4.7UF 50V	D3_
	D3-0000046	0	Al. Electrolytic	220uF	CAP 220UF 50V	D3_
	D3-0000047	0	Al. Electrolytic	330uF	CAP 330UF 6.3V	D3_
	D3-0000048	0	Tantalum	10uF	CAP 10UF 16V	D3_
	D3-0000049	0	Metalized PPS	0.1uF	CAP 0.1UF 50V	D3_
	D3-0000050	0	Tantalum	6.8uF	CAP 6.8UF 20V	D3_
	D3-0000051	0	Ceramic/SMT...	0.033uF	CAP 0	D3_
	D3-0000055	0	Al. Electrolytic	3300uF	CAP 3300UF	D3_
	D3-0000056	0	Al. Electrolytic	470uF	CAP 470UF	D3_
	D3-0000057	0	Al. Electrolytic	1000uF	CAP 1000UF	D3_
	D3-0000058	0	Al. Electrolytic	330uF	CAP 330UF	D3_
	D3-0000059	0	Al. Electrolytic	470uF	CAP 470UF	D3_
	D3-0000060	0	Al. Electrolytic	330uF	CAP 330UF	D3_
	D3-0000061	0	Al. Electrolytic	470uF	CAP 470UF	D3