

CIS 551 Final Project

Fall 21

Brad Bailey

Title:

Larry's Hardware

Connection info

Port number: 3745

Hostname: ix.cs.uoregon.edu

Guest login: un - guest, pw - guest

Database Name: larrys

URL: <https://ix.cs.uoregon.edu/~bbailey7/551-project/larrys.html>

Overview:

Database for a regional retail hardware chain.

Customer and employee portals with apps for product lookup,

Employee pay, time detail, sales, and vendor fulfillment.

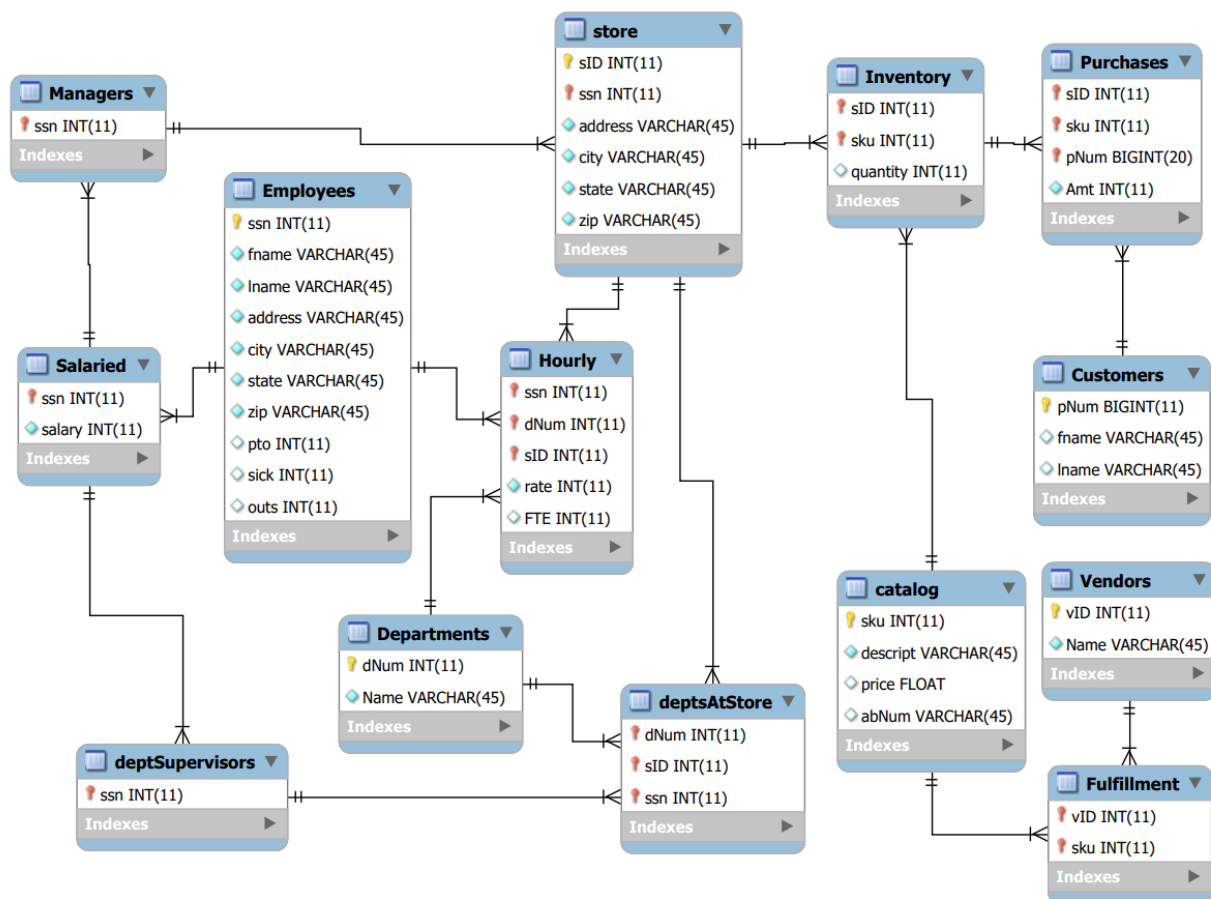
Summary:

The database models a hardware company with two stores. Stores each have a manager and are subdivided into departments. Each department has a department supervisor and two employees (an opener and a closer). The company tracks employee's pay, accrued PTO, sick time, and absences ('outs').

The store offers a catalog of items, all of which are sold at either store. Information is kept on prices, store inventory, locations within the store(s), and fulfillment by vendors.

The company also tracks purchases by customer's phone numbers via an interface with the store's inventory table.

Logical design:



Physical Design:

| Info | Tables | Columns | Indexes | Triggers | Views | Stored Procedures | Functions | Grants | Events | |
|-----------------|----------|-------------|---------------|----------|---------------|-------------------|---------------------------------|------------------|--------|--|
| Table | Column | Type | Default Value | Nullable | Character Set | Collation | Privileges | Extra | | |
| catalog | sku | int(11) | | NO | | | select,insert,update,references | | | |
| catalog | price | float | | YES | | | select,insert,update,references | | | |
| catalog | abNum | varchar(45) | | YES | utf8 | utf8_general_ci | select,insert,update,references | | | |
| catalog | descript | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Customers | pNum | bigint(11) | | NO | | | select,insert,update,references | | | |
| Customers | fname | varchar(45) | | YES | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Customers | lname | varchar(45) | | YES | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Departments | Name | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Departments | dNum | int(11) | | NO | | | select,insert,update,references | | | |
| deptsAtStore | dNum | int(11) | | NO | | | select,insert,update,references | | | |
| deptsAtStore | sID | int(11) | | NO | | | select,insert,update,references | | | |
| deptsAtStore | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| deptSupervisors | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| Employees | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| Employees | outs | int(11) | | YES | | | select,insert,update,references | | | |
| Employees | pto | int(11) | | YES | | | select,insert,update,references | | | |
| Employees | zip | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Employees | state | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Employees | city | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Employees | address | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Employees | lname | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Employees | fname | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Employees | sick | int(11) | | YES | | | select,insert,update,references | | | |
| Fulfillment | vID | int(11) | | NO | | | select,insert,update,references | | | |
| Fulfillment | sku | int(11) | | NO | | | select,insert,update,references | | | |
| Hourly | dNum | int(11) | | NO | | | select,insert,update,references | | | |
| Hourly | sID | int(11) | | NO | | | select,insert,update,references | | | |
| Hourly | rate | int(11) | | NO | | | select,insert,update,references | | | |
| Hourly | FTE | int(11) | | YES | | | select,insert,update,references | VIRTUAL GENER... | | |
| Hourly | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| Inventory | sku | int(11) | | NO | | | select,insert,update,references | | | |
| Inventory | quantity | int(11) | | YES | | | select,insert,update,references | | | |
| Inventory | sID | int(11) | | NO | | | select,insert,update,references | | | |
| Managers | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| Purchases | Amt | int(11) | | NO | | | select,insert,update,references | | | |
| Purchases | pNum | bigint(20) | | NO | | | select,insert,update,references | | | |
| Purchases | sku | int(11) | | NO | | | select,insert,update,references | | | |
| Purchases | sID | int(11) | | NO | | | select,insert,update,references | | | |
| Salaried | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| Salaried | salary | int(11) | | NO | | | select,insert,update,references | | | |
| store | state | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| store | sID | int(11) | | NO | | | select,insert,update,references | | | |
| store | ssn | int(11) | | NO | | | select,insert,update,references | | | |
| store | address | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| store | city | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| store | zip | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |
| Vendors | vID | int(11) | | NO | | | select,insert,update,references | | | |
| Vendors | Name | varchar(45) | | NO | utf8 | utf8_general_ci | select,insert,update,references | | | |

List of Applications:

1. Customer Search:

Via the customer portal, users can search for an item by its description.

The resulting query displays information on price, availability, and location across stores.

2. Employee Search:

Under the employee portal, a user can search by department to see

employees and their pay. Hourly employees have their hourly rate(s)

converted into a full-time-equivalent (FTE) by the formula: hourly rate * 40 * 52, so as to be compared directly with salaried employees.

3. Time Detail:

By entering their ssn, employees can view their accrued PTO, sick time, and number of absences.

4. Sales search:

A user can view the sales breakdown by store. Total sales per item (sku) are displayed.

5. Vendor Search:

A user can enter any sku in the catalog to view which vendors supply it.

One may also view all skus by department or the entire fulfillment table.

User's Guide:

Elaborated in website pages.

Departments:

1. Lumber
2. Hardware
3. Plumbing
4. Electrical
5. Lawn & Garden

Example Products:

| | |
|--------|---------|
| 2x4x8 | sku: 11 |
| Saw | sku: 24 |
| Toilet | sku: 35 |
| Outlet | sku: 44 |
| Mulch | sku: 52 |

User guide cont.:

Sku's are two digits, the first for department, and the second increments by item. In other words, each sku begins with its department's number and has a second digit to track products. There are currently five products per department and five departments.

There are two stores, with numbers 1 and 2, respectively.

Ssn's were randomly generated so it is difficult to give a guide on looking up specific employees. It is assumed in a real world implementation each employee would know their ssn and use it in conjunction with a password to access their time detail, and only HR/management would have access to the entirety of employee data. That said, the implementation of the sql query regarding ssn lookups allows for all employees to be displayed, after which ssns of interest may be picked out for testing.

Table contents:

Catalog:

```
1 • SELECT * FROM larrys.catalog;
```

| < | | | | |
|--------------|------|-----------------|-------|-------|
| Result Grid | | | | |
| Filter Rows: | | | | |
| | sku | descript | price | abNum |
| | 11 | 2x4x8 | 2.49 | 1-1 |
| | 12 | 4x4x8 | 3.49 | 1-2 |
| | 13 | Fence Picket | 2.99 | 1-3 |
| | 14 | Concrete 50lbs. | 3.75 | 2-1 |
| | 15 | 1/2x4x8 Drywall | 12.49 | 2-2 |
| | 21 | Hammer | 3.99 | 3-1 |
| | 22 | Screwdriver | 1.99 | 3-1 |
| | 23 | Wrench | 2.49 | 3-1 |
| | 24 | Saw | 4.99 | 3-2 |
| | 25 | Measuring Tape | 4.99 | 3-2 |
| | 31 | Copper Pipe | 6.25 | 4-1 |
| | 32 | Pipe Fitting | 1.25 | 4-2 |
| ▶ | 33 | Wax Ring | 7.5 | 4-3 |
| | 34 | Supply Line | 6.49 | 4-3 |
| | 35 | Toilet | 89.99 | 4-4 |
| | 41 | Lightbulb | 4.99 | 5-1 |
| | 42 | Outlet Box | 3.7 | 5-1 |
| | 43 | Switch | 1.25 | 5-2 |
| | 44 | Outlet | 1.5 | 5-2 |
| | 45 | PVC Pipe | 5.99 | 5-3 |
| | 51 | Sod | 3.99 | 6-1 |
| | 52 | Mulch | 2.99 | 6-2 |
| | 53 | Topsoil | 7.99 | 6-2 |
| | 54 | Clay Pot | 0.99 | 6-3 |
| | 55 | Garden Hose | 14.99 | 6-3 |
| * | NULL | NULL | NULL | NULL |

Customers:

```
1 • SELECT * FROM larrys.Customers;
```

| < | | | |
|--------------|-----------|----------|---|
| Result Grid | | | |
| Filter Rows: | | | |
| pNum | fName | lName | |
| 5411848274 | Mary | Stewart | |
| 5412094974 | Douglas | Miles | |
| 5414598769 | Catherine | Lutz | |
| 5416137271 | Thomas | Howard | |
| 5416305126 | Nancy | Vasquez | |
| 5416487660 | Jean | Talbot | |
| 5417311832 | Joyce | Hardy | |
| 5417452778 | Bradley | Smith | |
| 5419293359 | Thomas | Wells | |
| 5419511479 | Heather | Campbell | |
| NULL | NULL | NULL | * |

Departments:

```
1 • SELECT * FROM larrys.Departments;
```

| < | | |
|--------------|---------------|---|
| Result Grid | | |
| Filter Rows: | | |
| dNum | Name | |
| 1 | Lumber | |
| 2 | Hardware | |
| 3 | Plumbing | |
| 4 | Electrical | |
| 5 | Lawn & Garden | |
| NULL | NULL | * |

deptsAtStore:

```
1 • SELECT * FROM larrys.deptsAtStore;
```

| | dNum | sID | ssn |
|---|------|------|----------|
| ▶ | 1 | 1 | 22410665 |
| | 2 | 1 | 33844634 |
| | 3 | 1 | 94069813 |
| | 4 | 1 | 73201835 |
| | 5 | 1 | 91985441 |
| | 1 | 2 | 16547951 |
| | 2 | 2 | 11248895 |
| | 3 | 2 | 42374778 |
| | 4 | 2 | 47195860 |
| | 5 | 2 | 45162810 |
| * | NULL | NULL | NULL |

deptSupervisors:

```
1 • SELECT * FROM larrys.deptSupervisors;
```

| | ssn |
|---|----------|
| ▶ | 11248895 |
| | 16547951 |
| | 22410665 |
| | 33844634 |
| | 42374778 |
| | 45162810 |
| | 47195860 |
| | 73201835 |
| | 91985441 |
| | 94069813 |
| * | NULL |

Employees:

1 • `SELECT * FROM larrys.Employees;`

| | | | | | | | | | | |
|--|----------|-----------|------------|----------------------------|-------------|-------|-------|------|------|------|
| <div><div><div>Result Grid</div><div><div><div></div><div></div><div></div></div><div>Filter Rows:</div><div></div></div><div><div>Edit:</div><div><div><div></div><div></div><div></div></div><div></div><div></div></div><div>Export/Import:</div><div><div><div></div><div></div><div></div></div><div></div><div></div></div><div>Wrap Cell Content:</div><div><div></div><div></div><div></div></div></div></div></div> | | | | | | | | | | |
| | ssn | fname | lname | address | city | state | zip | pto | sick | outs |
| ▶ | 11248895 | Edward | Spencer | 1081 Boring Lane | Springfield | OR | 97477 | 2 | 16 | 1 |
| | 12345678 | Brad | Bailey | 3243 Firwood Way | Eugene | OR | 97401 | 8 | 4 | 0 |
| | 16547951 | Lloyd | Martinez | 1656 Alexander Avenue | Springfield | OR | 97477 | 24 | 12 | 4 |
| | 17888796 | William | Burgess | 43 Nicholas Street | Springfield | OR | 97478 | 12 | 8 | 2 |
| | 19634202 | Regina | Santiago | 2680 Henery Street | Springfield | OR | 97477 | 16 | 2 | 0 |
| | 22410665 | George | Vargas | 873 Woodlawn Drive | Eugene | OR | 97403 | 48 | 8 | 0 |
| | 22553394 | Mona | King | 1843 Meadowbrook Mall Road | Eugene | OR | 97401 | 5 | 3 | 0 |
| | 26657975 | Joseph | Riley | 998 Ashford Drive | Eugene | OR | 97404 | 4 | 16 | 1 |
| | 33844634 | Becky | Tiedemann | 2843 Skinner Hollow Road | Eugene | OR | 97403 | 32 | 22 | 2 |
| | 34809404 | Daniel | Mader | 879 Woodstock Drive | Eugene | OR | 97401 | 5 | 3 | 0 |
| | 38168571 | Christine | Elser | 1758 Rainy Day Drive | Springfield | OR | 97477 | 21 | 18 | 1 |
| | 41290871 | Savann... | Bryan | 2182 Crowfield Road | Eugene | OR | 97404 | 23 | 19 | 0 |
| | 41699394 | Bennie | Medrano | 1068 Tori Lane | Eugene | OR | 97404 | 56 | 12 | 0 |
| | 42374778 | Charles | Pantoja | 1363 Chicago Avenue | Springfield | OR | 97477 | 0 | 0 | 6 |
| | 45162810 | Louis | Pratt | 1360 Gerald L. Bates Drive | Springfield | OR | 97477 | 1 | 13 | 1 |
| | 47195860 | Kristie | Ray | 3542 Pine Tree Lane | Springfield | OR | 97477 | 17 | 27 | 0 |
| | 58939043 | Fabian | Norwood | 3673 Duck Creek Road | Springfield | OR | 97477 | 12 | 4 | 0 |
| | 63648396 | Sylvia | Thompson | 727 Cooks Mine Road | Springfield | OR | 97477 | 25 | 32 | 1 |
| | 65902348 | Hermina | Franks | 1053 Heron Way | Eugene | OR | 97401 | 1 | 8 | 2 |
| | 73201835 | Wayne | Leamon | 3420 Cityview Drive | Eugene | OR | 97403 | 7 | 0 | 0 |
| | 77073821 | Nicholas | Adam | 1371 Melrose Street | Springfield | OR | 97477 | 9 | 17 | 4 |
| | 78440400 | Margaret | Crone | 2690 Sunny Day Drive | Springfield | OR | 97478 | 31 | 11 | 3 |
| | 80684050 | William | Lindell | 1955 Boone Street | Eugene | OR | 97401 | 11 | 8 | 0 |
| | 82921871 | Sonia | Tilford | 2239 Northwest Boulevard | Eugene | OR | 97401 | 14 | 48 | 1 |
| | 87654321 | Angelica | Bunyi | 3243 Firwood Way | Eugene | OR | 97401 | 19 | 36 | 1 |
| | 90381787 | Nancy | Bagley | 4836 Burnside Avenue | Springfield | OR | 97478 | 25 | 29 | 2 |
| | 91985441 | Natalie | Haliburton | 1509 Huntz Lane | Eugene | OR | 97403 | 1 | 17 | 7 |
| | 92138311 | Kathleen | Barger | 3316 Woodrow Way | Springfield | OR | 97478 | 0 | 0 | 1 |
| | 92777447 | Peter | Hartman | 1991 Meadowview Drive | Eugene | OR | 97403 | 20 | 48 | 0 |
| | 93930847 | Diane | Bulter | 1010 James Street | Springfield | OR | 97478 | 10 | 24 | 0 |
| | 94069813 | Anthony | Stephenson | 2639 Richards Avenue | Eugene | OR | 97403 | 4 | 21 | 2 |
| | 94472280 | Marc | Ballenger | 248 Corpening Drive | Eugene | OR | 97403 | 6 | 0 | 1 |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

1 • `SELECT * FROM larrys.Fulfillment;`



Result Grid



Filter Rows:

E

| | vID | sku |
|---|------|------|
| ▶ | 1 | 11 |
| | 2 | 11 |
| | 1 | 12 |
| | 2 | 12 |
| | 1 | 13 |
| | 2 | 13 |
| | 4 | 14 |
| | 3 | 15 |
| | 5 | 21 |
| | 6 | 21 |
| | 7 | 21 |
| | 5 | 22 |
| | 6 | 22 |
| | 7 | 22 |
| | 5 | 23 |
| | 6 | 23 |
| | 7 | 23 |
| | 5 | 24 |
| | 6 | 24 |
| | 8 | 24 |
| | 5 | 25 |
| | 8 | 25 |
| | 9 | 31 |
| | 10 | 32 |
| | 10 | 33 |
| | 10 | 34 |
| | 11 | 35 |
| | 12 | 35 |
| | 13 | 41 |
| | 15 | 41 |
| | 14 | 42 |
| | 16 | 42 |
| | 13 | 43 |
| | 14 | 43 |
| | 13 | 44 |
| | 14 | 44 |
| | 15 | 45 |
| | 16 | 45 |
| | 20 | 45 |
| | 17 | 51 |
| | 18 | 52 |
| | 18 | 53 |
| | 19 | 54 |
| | 20 | 55 |
| * | NULL | NULL |

Hourly:

```
1 ● SELECT * FROM larrys.Hourly;
```

| Result Grid | | | | | |
|--------------|----------|------|------|------|-------|
| Filter Rows: | | | | | |
| | ssn | dNum | sID | rate | FTE |
| ▶ | 17888796 | 4 | 2 | 18 | 37440 |
| | 19634202 | 2 | 2 | 16 | 33280 |
| | 22553394 | 2 | 1 | 16 | 33280 |
| | 26657975 | 4 | 1 | 15 | 31200 |
| | 34809404 | 1 | 1 | 16 | 33280 |
| | 38168571 | 1 | 2 | 15 | 31200 |
| | 41290871 | 3 | 1 | 17 | 35360 |
| | 41699394 | 4 | 1 | 15 | 31200 |
| | 58939043 | 3 | 2 | 16 | 33280 |
| | 63648396 | 2 | 2 | 18 | 37440 |
| | 65902348 | 1 | 1 | 15 | 31200 |
| | 77073821 | 1 | 2 | 17 | 35360 |
| | 78440400 | 3 | 2 | 18 | 37440 |
| | 80684050 | 3 | 1 | 17 | 35360 |
| | 82921871 | 2 | 1 | 15 | 31200 |
| | 90381787 | 4 | 2 | 17 | 35360 |
| | 92138311 | 5 | 2 | 15 | 31200 |
| | 92777447 | 5 | 1 | 17 | 35360 |
| | 93930847 | 5 | 2 | 15 | 31200 |
| | 94472280 | 5 | 1 | 17 | 35360 |
| ✱ | NULL | NULL | NULL | NULL | NULL |

Inventory:

1 • `SELECT * FROM larrys.Inventory;`

| Result Grid | | | |
|--------------|------|------|----------|
| Filter Rows: | | | |
| | sID | sku | quantity |
| ▶ | 1 | 11 | 400 |
| | 1 | 12 | 163 |
| | 1 | 13 | 632 |
| | 1 | 14 | 68 |
| | 1 | 15 | 224 |
| | 1 | 21 | 40 |
| | 1 | 22 | 32 |
| | 1 | 23 | 12 |
| | 1 | 24 | 6 |
| | 1 | 25 | 27 |
| | 1 | 31 | 65 |
| | 1 | 32 | 46 |
| | 1 | 33 | 36 |
| | 1 | 34 | 7 |
| | 1 | 35 | 12 |
| | 1 | 41 | 54 |
| | 1 | 42 | 0 |
| | 1 | 43 | 5 |
| | 1 | 44 | 14 |
| | 1 | 45 | 28 |
| | 1 | 51 | 55 |
| | 1 | 52 | 43 |
| | 1 | 53 | 5 |
| | 1 | 54 | 27 |
| | 1 | 55 | 15 |
| | 2 | 11 | 31 |
| | 2 | 12 | 225 |
| | 2 | 13 | 114 |
| | 2 | 14 | 19 |
| | 2 | 15 | 326 |
| | 2 | 21 | 4 |
| | 2 | 22 | 37 |
| | 2 | 23 | 21 |
| | 2 | 24 | 13 |
| | 2 | 25 | 7 |
| | 2 | 31 | 29 |
| | 2 | 32 | 2 |
| | 2 | 33 | 6 |
| | 2 | 34 | 28 |
| | 2 | 35 | 14 |
| | 2 | 41 | 3 |
| | 2 | 42 | 35 |
| | 2 | 43 | 60 |
| | 2 | 44 | 51 |
| | 2 | 45 | 120 |
| | 2 | 51 | 3 |
| | 2 | 52 | 81 |
| | 2 | 53 | 39 |
| | 2 | 54 | 12 |
| | 2 | 55 | 4 |
| ✱ | NULL | NULL | NULL |

Managers:

1 • `SELECT * FROM larrys.Managers;`

<

Result Grid

Filter Rows:

| | |
|---|----------|
| | ssn |
| ▶ | 12345678 |
| | 87654321 |
| ✱ | NULL |

Purchases:

```
1 • SELECT * FROM larrys.Purchases;
```

| < | | | | |
|--------------|------|------|------------|------|
| Result Grid | | | | |
| Filter Rows: | | | | |
| | sID | sku | pNum | Amt |
| ▶ | 1 | 11 | 5414598769 | 16 |
| | 1 | 12 | 5414598769 | 8 |
| | 1 | 13 | 5414598769 | 128 |
| | 1 | 14 | 5414598769 | 4 |
| | 1 | 15 | 5412094974 | 2 |
| | 1 | 21 | 5412094974 | 1 |
| | 1 | 21 | 5419293359 | 1 |
| | 1 | 24 | 5419293359 | 1 |
| | 1 | 25 | 5412094974 | 1 |
| | 1 | 33 | 5417311832 | 1 |
| | 1 | 34 | 5417311832 | 1 |
| | 1 | 35 | 5417311832 | 1 |
| | 1 | 42 | 5419293359 | 6 |
| | 1 | 43 | 5419293359 | 2 |
| | 1 | 44 | 5419293359 | 4 |
| | 1 | 51 | 5416487660 | 24 |
| | 1 | 51 | 5419293359 | 1 |
| | 1 | 52 | 5416487660 | 16 |
| | 2 | 11 | 5411848274 | 12 |
| | 2 | 12 | 5416305126 | 1 |
| | 2 | 14 | 5416305126 | 2 |
| | 2 | 15 | 5411848274 | 4 |
| | 2 | 23 | 5411848274 | 1 |
| | 2 | 24 | 5416305126 | 1 |
| | 2 | 31 | 5419511479 | 6 |
| | 2 | 32 | 5419511479 | 12 |
| | 2 | 41 | 5417452778 | 6 |
| | 2 | 42 | 5419511479 | 4 |
| | 2 | 53 | 5416137271 | 8 |
| | 2 | 54 | 5416305126 | 18 |
| | 2 | 54 | 5417452778 | 12 |
| | 2 | 55 | 5416137271 | 1 |
| | 2 | 55 | 5417452778 | 1 |
| • | NULL | NULL | NULL | NULL |

Salaried:

```
1 • SELECT * FROM larrys.Salaried;
```

| | ssn | salary |
|---|----------|--------|
| ▶ | 11248895 | 55000 |
| | 12345678 | 65000 |
| | 16547951 | 53000 |
| | 22410665 | 52000 |
| | 33844634 | 58000 |
| | 42374778 | 49000 |
| | 45162810 | 54000 |
| | 47195860 | 55000 |
| | 73201835 | 56000 |
| | 87654321 | 65000 |
| | 91985441 | 55000 |
| | 94069813 | 55000 |
| * | NULL | NULL |

Stores:



```
1 • SELECT * FROM larrys.store;
```

| | sID | ssn | address | city | state | zip |
|---|------|----------|-----------------|-------------|-------|-------|
| ▶ | 1 | 87654321 | 2600 Hwy 99 N | Eugene | OR | 97402 |
| | 2 | 12345678 | 2525 Olympic St | Springfield | OR | 97477 |
| * | NULL | NULL | NULL | NULL | NULL | NULL |

Vendors:

```
1 • SELECT * FROM larrys.Vendors;
```

<

Result Grid   Filter Rows:

| | vID | Name |
|---|------|------------------------|
| ▶ | 1 | Valley Forest Products |
| | 2 | Northwest Pine |
| | 3 | USG |
| | 4 | SloCrete |
| | 5 | Diamond Tools |
| | 6 | Siberian |
| | 7 | Spillwaukie |
| | 8 | Bob's Hardware |
| | 9 | Peter's Pipes |
| | 10 | PlumCo |
| | 11 | Coalher |
| | 12 | SureFlush |
| | 13 | Nikola |
| | 14 | WestingShack |
| | 15 | Beddison |
| | 16 | Watts Inc |
| | 17 | Lane Sod |
| | 18 | WonderGro |
| | 19 | Pol's Pots |
| | 20 | Northwest Rubber |
| ▲ | NULL | NULL |

Implementation code:

Located on each corresponding page of website.

Conclusion:

The project provides a minimal implementation of a hardware chain's accounting responsibilities. It was enlightening to work through and glimpse what actual companies must design and implement to provide functionality to their websites and apps, both customer-facing and internal.

Given time and resources, I would learn more php. Some queries were limited by my restricted understanding of the language. For example, in the sales search I would have liked to add several fields to allow users to break down sales by both store and department, but implementing several form fields in php and passing those to an sql query took a backseat to the basic implementation of the project in general.

Additionally, it would be interesting to flesh out the database to encompass my understanding of an actual retail chain, which would take many more hours and require much more complexity in the implementation. For example, essentially all corporate databases are password protected with a login system. Furthermore, both the granularity and scope of information stored in a corporate database are immense compared to my work.

Lastly and somewhat regrettably, the formatting of output took a backseat to actual implementation of code and suffers as a result. To my frustration, the tab character in php/html does not seem to work like one would wish - long strings tend to push the entire line over despite my best efforts.