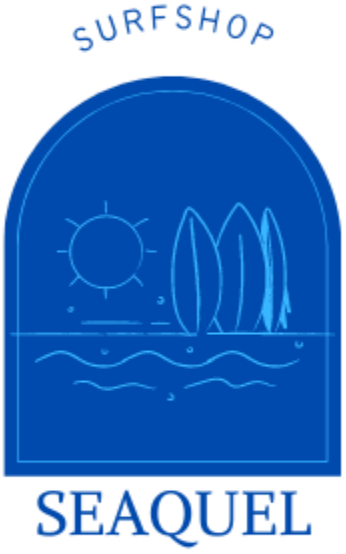
SEAquel Surf Shop:
Streamlining Surfboard Customization



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Project Framing and Explanation

SEAQuel Surf Shop is a small store that sells custom surfboards to a variety of customers. The surf shop has been around for just about 2 years and is still trying to grow its presence within the surfboard market. The SEAquelCustoms database will significantly improve SEAquel Custom Surf Shop's ability to store all important information associated with creating and selling custom surfboards. Specifically, this database will be able to clearly manage past, present, and future data, which is a huge benefit especially when needing to look at business trends (e.g. sales performance, employee performance, customer preferences, etc). In addition to those benefits mentioned, integrating a high functioning database like this one will help make SEAquel Custom Surf Shop's business operations more efficient and accessible to multiple users.

As mentioned earlier, SEAquel Custom Surf Shop creates, shapes, and sells custom surfboards to different types of customers (i.e. surfers, wholesalers, resellers). Surfboard material suppliers, surfboard shapers, employees, and customers are the four main players that are primarily involved in the business operations of SEAquel Custom Surf Shop. Over the last few months, management of this surfshop constantly ran into issues associated with actions (i.e. supplying the materials, creating the board, shaping the board, and selling the board) between each of those main players. Specifically, the surf shop was not storing its data efficiently and constantly lost important information as well as charged and paid incorrectly for materials, surfboards, and wages.

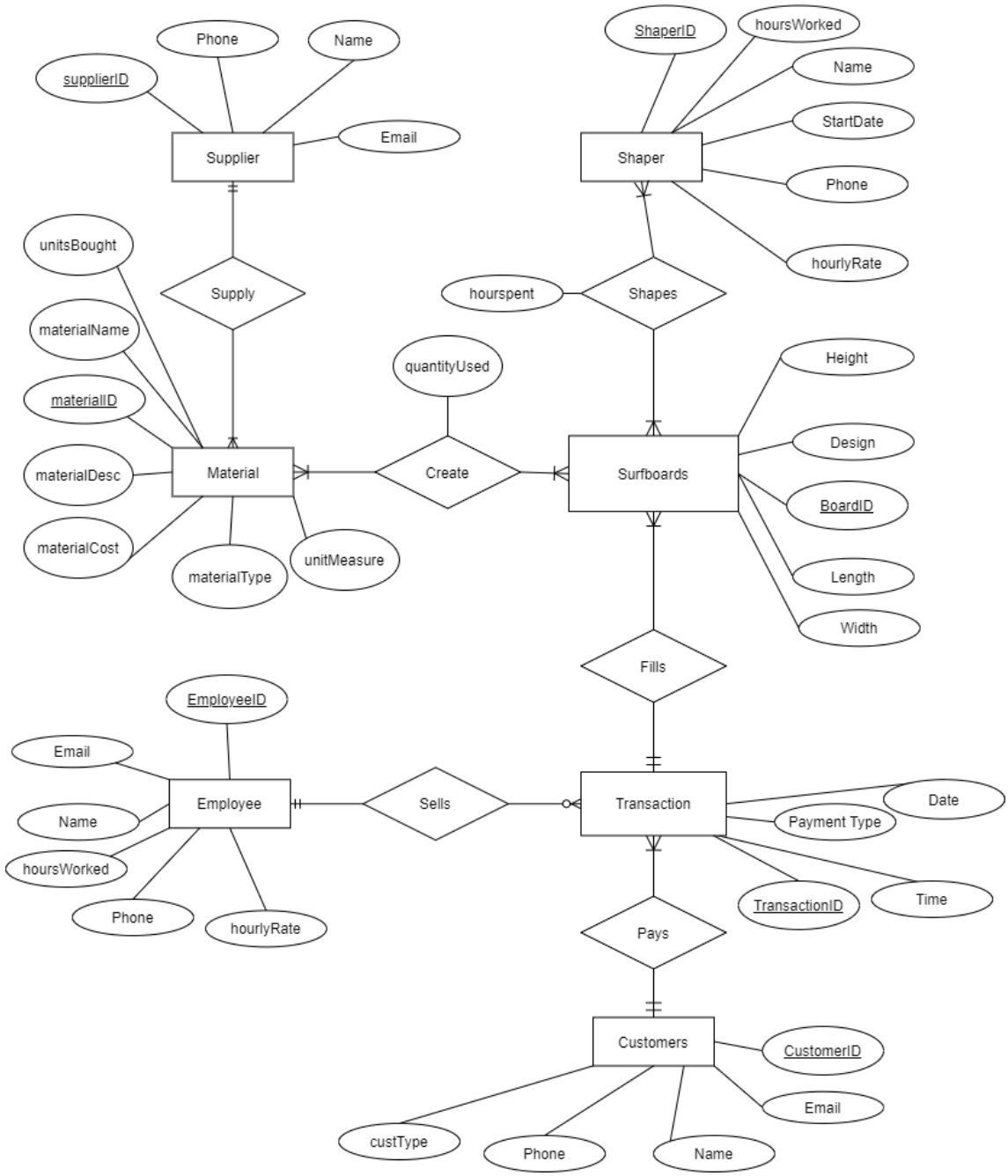
By integrating our SEAquelCustoms database into the surf shop's operations, they will be able to improve all issues mentioned above and be able to allocate the wasted time, of attempting to execute past business operations, elsewhere. Our database ensures that all variables associated with each player and action are recorded correctly. Additionally, the database will help the surf shop better understand how many materials are supplied, available, and have been used, how many hours and the hourly wage of each employee and surfboard shaper, all details associated with the surfboards, and all important information associated with creating, shaping, and selling the surfboard.

Over the course of this report, we will touch on the processes of modeling and populating the SEAquel Custom Surf Shop's database. Further, we will discuss the process of running different SQL queries and reports to develop a strong and accurate database. Then we will mention potential issues, limitations, and next steps associated with implementing our database for SEAquel Custom Surf Shop.

Models and Data

Entity Relationship Diagram

This company relies on its employees to manage the surf shop and make sales, shapers to physically make the surfboards, and its partnerships with suppliers to supply the necessary materials for the boards. Each surfboard can be customized by height, length, width, color, and design of the surfboard and can be paid for by credit card, debit card, or cash. Finally, each customer can be either a surfer that is buying for personal use, a reseller that is buying specific boards to sell on a smaller scale to consumers, and a wholesaler that sells these boards on a more massive scale.


Phone
Name
supplierID
Email
Supplier
ShaperID
hoursWorked
Name
StartDate
Shaper
Phone
hourlyRate
unitsBought
Supply
hourspent
Shapes
materialName
quantityUsed
Height
materialID
Design
materialDesc
Material
Create
Surfboards
BoardID
materialCost
materialType
unitMeasure
Length
Width
Fills
EmployeeID
Email
Employee
Sells
Transaction
Date
Name
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hoursWorked
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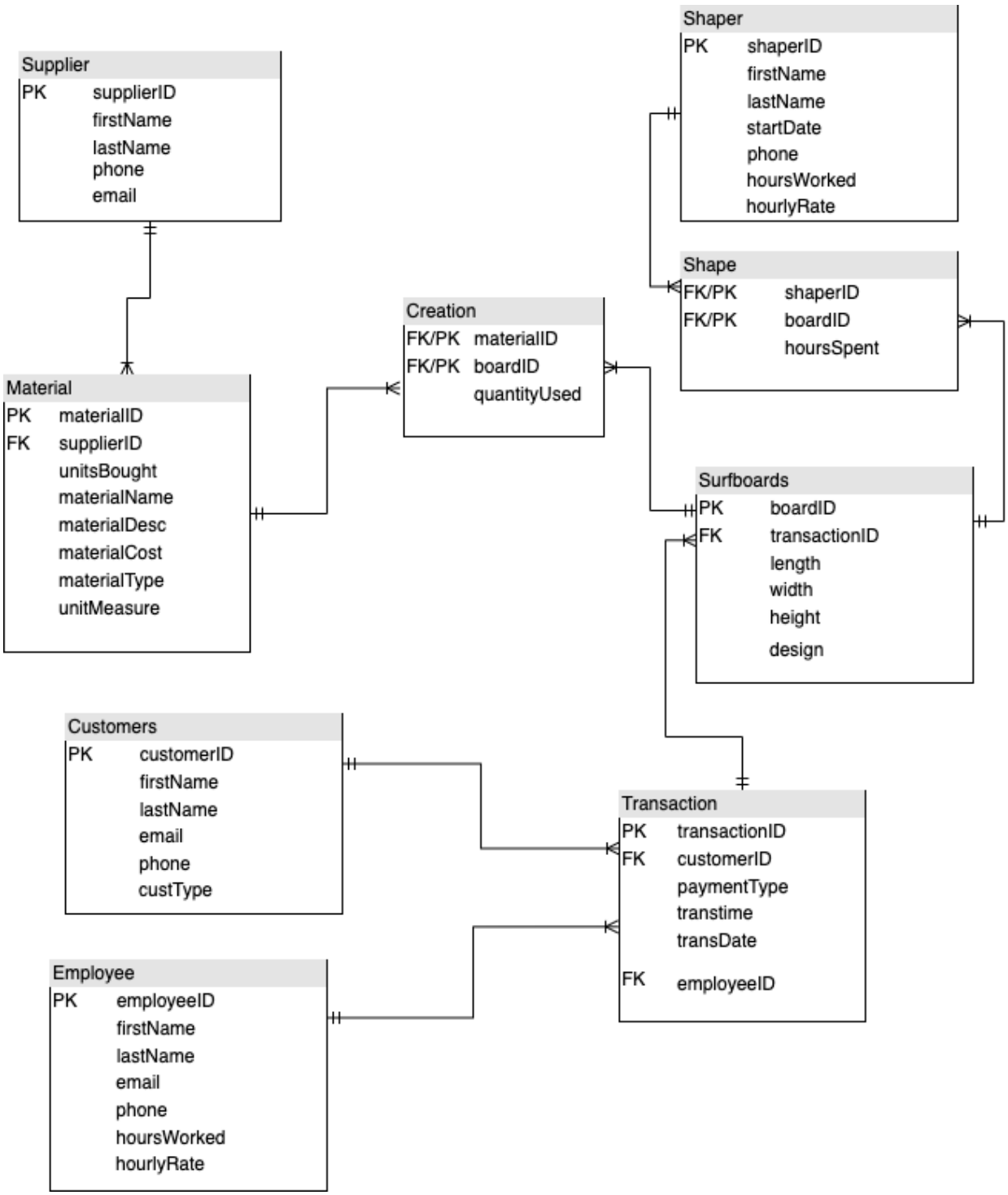
Logical Data Model



Data Source

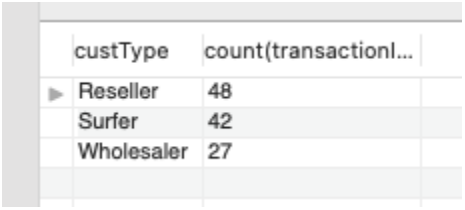
The data in the database was created by first utilizing a fake name generator online to randomly populate a specific amount of names, phone numbers, and email addresses needed for the tables that needed individual names and identifying information. For other parts of the data— such as hours worked, dates, materials, color— the team decided on what we wanted the data options to be and then used excel to randomly select and assign each entry. To choose the size of the boards, we set an array of possible sizes for each surfboard design (ie. a longboard would have a longer length) and let excel randomly select the size. Therefore, the size of each surfboard was a mixture of intentional choices of numbers as well as excel randomization.

Queries and Reports

Customer Type Information

The purpose of this query is to count the number of resellers, wholesalers, and surfers there are within the customer table since 2020. This gives the company a more recent distribution of types of customers they appeal to and would be helpful in informing the marketing and possible partnership decisions moving forward.

```
SELECT custType, count(transactionID)
FROM seaquelcustoms.customer c
        NATURAL JOIN seaquelcustoms.transaction t
WHERE transDate > "2020-00-00"
GROUP BY c.custType;
```



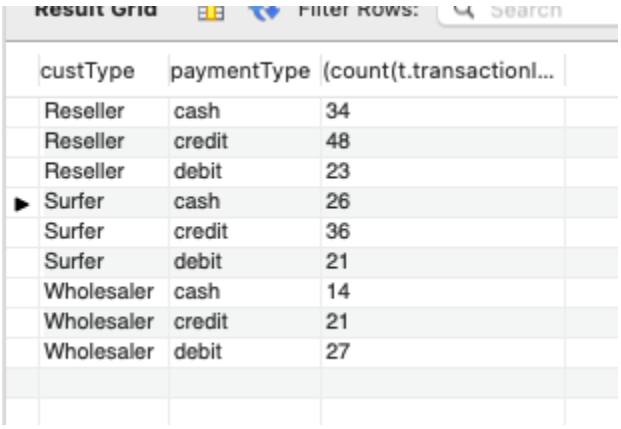
custType	count(transactionI...
Reseller	48
Surfer	42
Wholesaler	27

Customer Payment Information

The query below further reveals information about payment for each customer type. This information could help the business update and maintain their payment system so the customers will have ease when paying for their products.

```
SELECT c.custType, t.paymentType, (count(t.transactionID))
FROM seaquelcustoms.customer c
        NATURAL JOIN seaquelcustoms.transaction t
```

GROUP BY c.custType, t.paymentType;

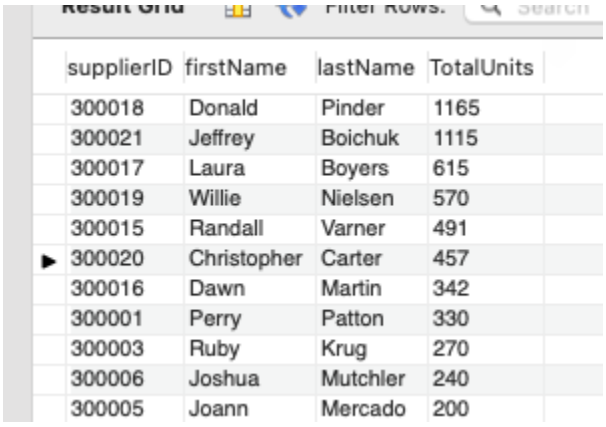


custType	paymentType	(count(t.transactionI...
Reseller	cash	34
Reseller	credit	48
Reseller	debit	23
Surfer	cash	26
Surfer	credit	36
Surfer	debit	21
Wholesaler	cash	14
Wholesaler	credit	21
Wholesaler	debit	27

Supplier Information

The purpose of the query below is to see which suppliers the surf shop buys the most units of materials from. This can be helpful for the company to prioritize specific partnerships with suppliers to see which ones are the most important for their business.

SELECT s.supplierID , s.firstName, s.lastName, sum(m.unitsBought) as TotalUnits
FROM seaquelcustoms.material m NATURAL JOIN seaquelcustoms.supplier s
GROUP BY s.supplierID
ORDER BY TotalUnits DESC;



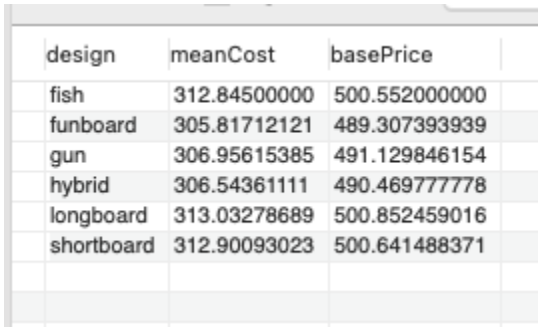
supplierID	firstName	lastName	TotalUnits
300018	Donald	Pinder	1165
300021	Jeffrey	Boichuk	1115
300017	Laura	Boyers	615
300019	Willie	Nielsen	570
300015	Randall	Varner	491
300020	Christopher	Carter	457
300016	Dawn	Martin	342
300001	Perry	Patton	330
300003	Ruby	Krug	270
300006	Joshua	Mutchler	240
300005	Joann	Mercado	200

Surfboard Pricing

The purpose of the query below is to inform the company about how they should price each surfboard. For this query, the average cost of the materials used for each surfboard design was calculated and this average cost was multiplied by 1.6 to get a baseline price that the company could use to determine the pricing for each design.

```
CREATE VIEW cost AS
SELECT sb.boardID,  sum(cre.quantityUsed * m.materialCost) AS cost, sb.design
FROM seaquelcustoms.creation as cre
        NATURAL JOIN seaquelcustoms.material as m
        NATURAL JOIN seaquelcustoms.surfboards as sb
GROUP BY sb.boardID;

SELECT design, avg(cost) as meanCost, avg(cost)*1.6 as basePrice
FROM seaquelcustoms.cost
GROUP BY design;
```



design	meanCost	basePrice
fish	312.84500000	500.552000000
funboard	305.81712121	489.307393939
gun	306.95615385	491.129846154
hybrid	306.54361111	490.469777778
longboard	313.03278689	500.852459016
shortboard	312.90093023	500.641488371

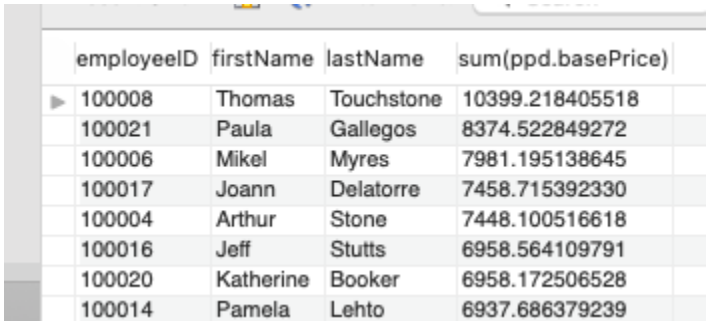
Employee Value Information

The purpose of the query below is to see which employees have sold the highest monetary value of surfboards. This information could be used by the surf shop to give out bonuses to the top performing employees or inform the company which employees aren't performing as well as expected.

```
CREATE VIEW price_per_design as
SELECT design, avg(cost) as meanCost, avg(cost)*1.6 as basePrice
FROM seaquelcustoms.cost
GROUP BY design;

SELECT e.employeeID, e.firstName, e.lastName, sum(ppd.basePrice)
FROM seaquelcustoms.surfboards as sb
        NATURAL JOIN seaquelcustoms.transaction as t
    NATURAL JOIN seaquelcustoms.employee as e
```

LEFT JOIN seaquelcustoms.price_per_design as ppd on ppd.design = sb.design
GROUP BY e.employeeID
ORDER BY sum(ppd.basePrice) DESC;



employeeID	firstName	lastName	sum(ppd.basePrice)
100008	Thomas	Touchstone	10399.218405518
100021	Paula	Gallegos	8374.522849272
100006	Mikel	Myres	7981.195138645
100017	Joann	Delatorre	7458.715392330
100004	Arthur	Stone	7448.100516618
100016	Jeff	Stutts	6958.564109791
100020	Katherine	Booker	6958.172506528
100014	Pamela	Lehto	6937.686379239

Limitations and Next Steps

Although we were able to create a successful database, we ran into a few issues and limitations throughout the process. Initially, we ran into issues creating the first ERD for a couple of reasons. One reason was that the ERD was far too complex with subset entities and incorrect connections between a few entities. We realized after the fact that creating subset entities in a database for the first time would be much more of a challenge than we previously thought. Therefore, we ended up removing the subset entities to simplify.

As far as the incorrect connections go, in our first version of the ERD we linked a few entities together that should not have been. We realized that connecting these entities not only did not make logical sense when we thought about the Logical Data modeling, but also that linking the entities in this way would cause problems calling and joining different entity tables in the future. After reworking the initial ERD, we developed a simpler and more straightforward model that would be much better suited for students developing a database for the first time.

Next steps for the seaquelCustoms database could involve adding attributes to entities as well as adding more entities to increase complexity. For example, within some entities, specifically materials and suppliers entities, we could build that out and add additional materials and new possibilities in regards to how many of the materials could each supplier supply. Currently, our database shows that all the suppliers could supply all of the materials, however realistically it may be a bit more difficult to classify all the suppliers and materials that way. Thus, potentially adding subsets onto the suppliers entity would increase complexity as well.

Another idea would be to add subset entities off of shapers, employees, and surfboards. Additional subsets like these would increase the complexity as well as increase the capabilities of information that our database could provide. Developing new table entities that store attributes such as other operating expenses could also be incredibly helpful for the surf shop. For example, creating a payment entity that connects the suppliers of equipment required to shape and or create surfboards would be helpful information for accounting purposes.

In the future, it would be helpful to expand Seaquel Surf Shop online, as this would give them access to new customers. Then, we could adapt the database to accommodate for the new tables and variables required for an online database. Some changes might be developing a new entity instead of the employee entity that connects the customer entity to the transaction entity. Further, if the Surf Shop started an online store, it would be useful to have a database of information containing online reviews.