

# Tire Shop Database

CPSC 5021: Database Systems

November 29, 2022

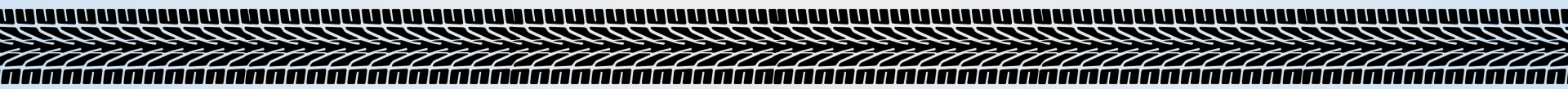
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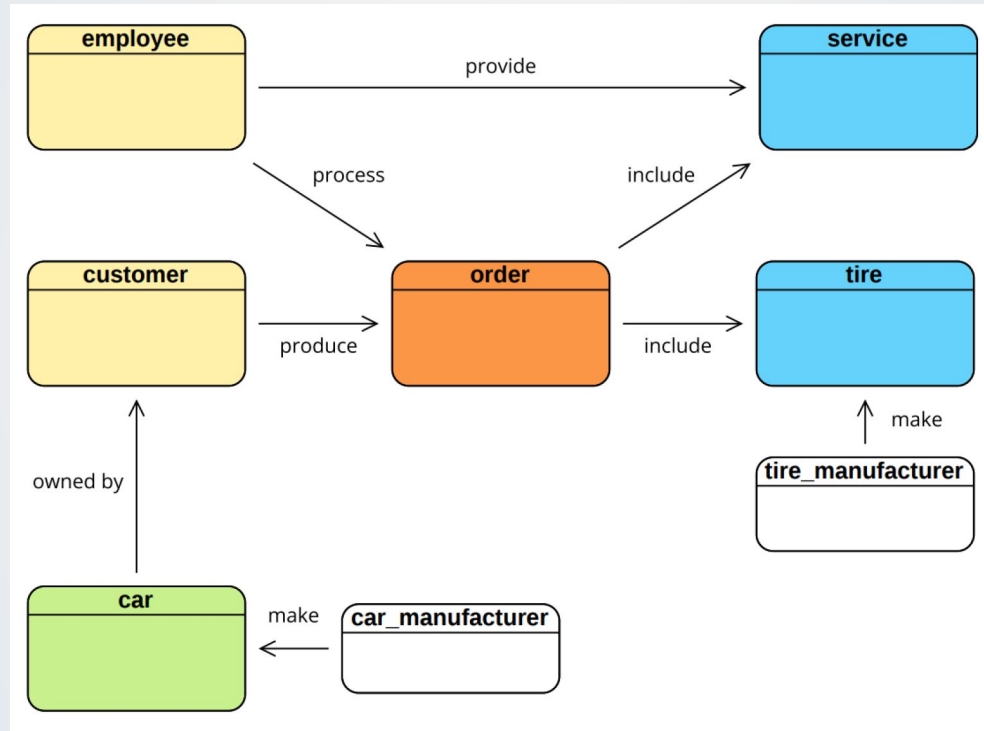
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SCIENCE AND  
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## *“Pairing every customer with the best tire for their needs”*

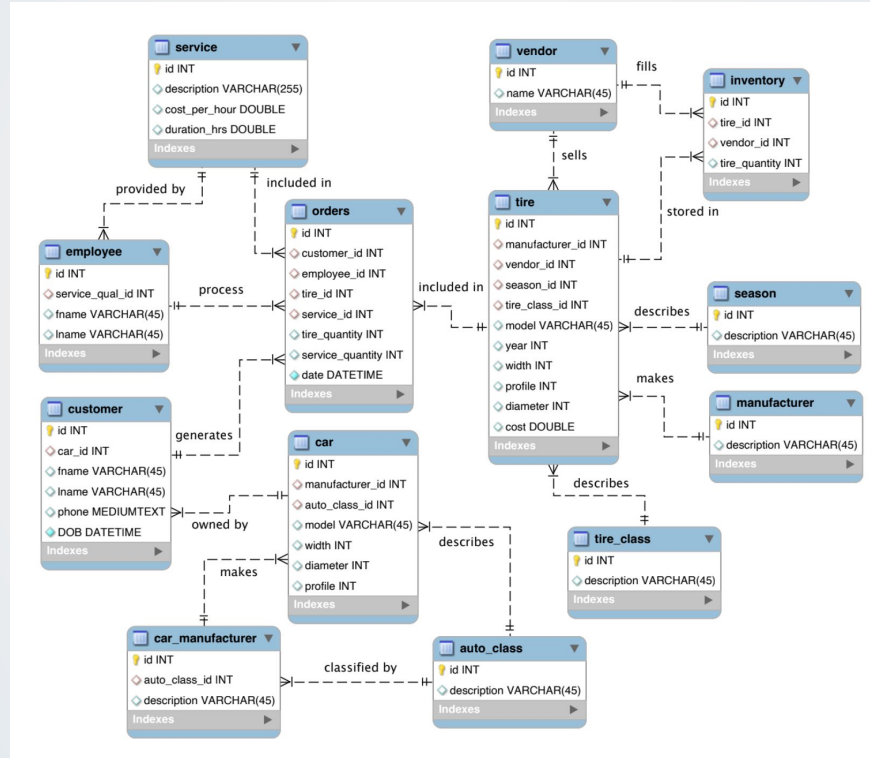
- Creating database to support the function & mission of the business
  - Tracking of customers, employees, orders, etc.
- Managers/service desk employees as end-users
- Business intelligence tool that would allow tracking of key performance indicators
  - Basis for queries
  - Best selling products, order data based on customer groups, etc.



# Conceptual Diagram



# Physical Diagram



# Queries

Winter tire that cost under 150 and is a specific size. Show model, cost and tire class description.

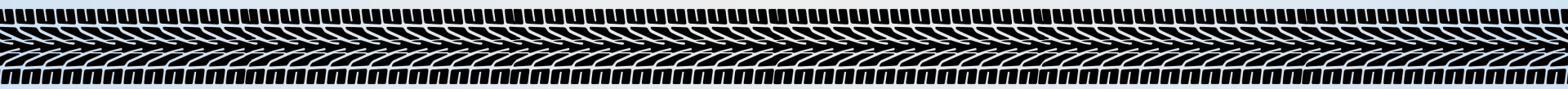
```
SELECT t.model, t.cost, tc.description
FROM tire t
JOIN season s
    ON t.season_id = s.id
JOIN tire_class tc
    ON t.tire_class_id = tc.id
WHERE s.description = 'Winter'
    AND t.cost < 150
    AND diameter = 17
    AND width = 215
    AND profile = 55;
```

	model	cost	description
►	Blizzack	125.99	Standard
	Arctic	115.99	Economy

Names of the top five most common tires sold and the number of orders of that tire

```
SELECT tire.model as 'Tire Model', COUNT(orders.id) AS `Number of Orders`
FROM orders
join tire on orders.tire_id = tire.id
GROUP BY tire.model
ORDER BY `Number of Orders` DESC
LIMIT 5;
```

	Tire Model	Number of Orders
►	Blizzack	924
	DriveGuard	364
	Altimax	140
	Celcius	104
	Azenis	80



# Queries

Number of orders per tire season category last year

```
select season.description as 'Season', count(*) as 'Order Quantity'
from orders
inner join tire on orders.tire_id = tire.id
inner join season on tire.season_id = season.id
where orders.date between '2022-01-01' and '2022-11-14'
group by tire.season_id
order by tire.season_id;
```

	Season	Order Quantity
►	Winter	72
	Summer	4
	All-Season	48
	Sport	12

List of customers & their phone numbers with luxury vehicles and the premier tires that fit the vehicles

```
select customer.fname, customer.lname, customer.phone, car.model
from customer
inner join car on customer.car_id = car.id
where car.model IN (
  select car.model
  from car
  inner join tire on tire.diameter = car.diameter
  where tire.id IN (
    SELECT id
    from tire
    where ((tire.width = car.width) && (tire.diameter = car.diameter) && (tire.profile = car.profile) &&
      ((tire.tire_class_id = 3 && car.auto_class_id = 5) ))
  )
)
ORDER BY lname;
```

	fname	lname	phone	model
►	Erv	Anmore	2571357204	A5
	Marcela	Annesley	3096741134	Model X
	Norman	Arkil	5591766505	LX
	Jeni	Aspey	9063702211	GX
	Sallie	Aston	5853813864	A3
	Leoline	Baccup	5451299998	Model S

# Queries

Revenue the store generated by doing flat-tire repairs for customers since a certain date

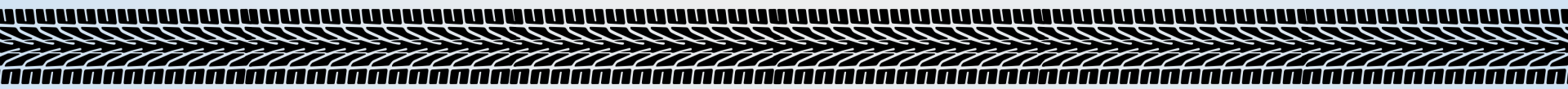
```
SELECT SUM(s.cost_per_hour * s.duration_hrs * o.service_quantity) as 'Flat-tire repair revenue'
FROM orders o
JOIN service s
    ON o.service_id = s.id
WHERE s.description = 'Flat tire repair'
    AND o.date > '2020-01-01'
GROUP BY o.service_id;
```

	Flat-tire repair revenue
▶	3200

number of manufacturers in the store system providing sport tires

```
SELECT COUNT(DISTINCT t.manufacturer_id) as 'Number of manufacturers'
FROM tire t
JOIN season s
    ON t.season_id = s.id
WHERE s.description = 'Sport';
```

	Number of manufacturers
▶	2





# Queries

Number of customers that fall in the millennial generation and the tire class they choose to purchase

```
select tire_class.description as 'Tire Class', count(*) as 'Number of Customers'
from customer
inner join orders on customer.id = orders.customer_id
inner join tire on orders.tire_id = tire.id
inner join tire_class on tire.tire_class_id = tire_class.id
where customer.DOB between '1981-01-01' and '1995-01-01'
group by tire.tire_class_id
order by tire.tire_class_id;
```

	Tire Class	Number of Customers
▶	Economy	84
	Standard	256
	Premier	64

Average cost of Firestone (manufacturer) tires provided by TireHub (vendor).

```
SELECT AVG(cost) as 'Average cost'
FROM tire
WHERE vendor_id = (
    SELECT id
    FROM vendor
    WHERE name = 'TireHub'
) AND manufacturer_id = (
    SELECT id
    FROM manufacturer
    WHERE description = 'Firestone'
);
```

	Average cost
▶	136.4445454545453



# Queries

Number of tires in stock of a specific tire model

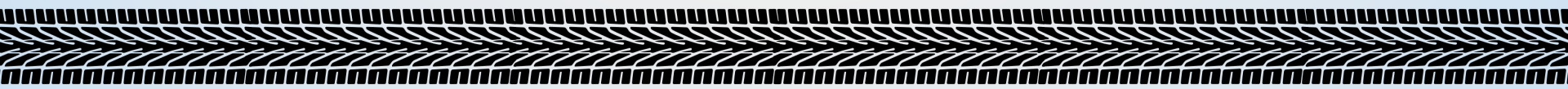
```
select tire.model, sum(tire_quantity) as 'Number in stock'  
from inventory  
join tire on tire.id = inventory.tire_id  
where tire.model = 'Blizzack';
```

	model	Number in stock
►	Blizzack	24073

Number of employees qualified to do each of the services that the shop provides

```
select service.description as 'Service', count(*) as 'Number of Employees'  
from employee  
inner join service on employee.service_qual_id = service.id  
group by service.description;
```

	Service	Number of Employees
►	Tire rotation	15
	Alignment	18
	Pre-trip check	17
	Flat tire repair	15
	Add air to tires	12
	Multiple services	23



# Application

**All Queries** **Revenue Report** **Tires for Car Model by Cost** **Set Tires on Sale**

Display Customers ▼ Selects all customers

**Run**

id	fname	lname	phone	car_id	DOB
1	Nissie	Weadick	6261600127	105	2003-08-31T00:00
2	Cassandra	Bullock	4203059	5	1941-10-30T00:00
3	Giorgio	Behling	9001317933	102	2001-01-24T00:00
4	Elizabeth	Sweating	7314522132	20	2005-10-16T00:00
5	Allyn	O'Garmen	4515152562	127	1967-04-11T00:00
6	Bidget	Barbier	8536663430	123	1966-09-16T00:00
7	Germain	Bloodworthe	6916381339	50	1943-04-25T00:00
8	Alexandr	Annetts	6423886619	24	1949-09-24T00:00
9	Deck	Elbourn	3881992238	137	1941-09-01T00:00
10	Modesta	Tire	4273172713	128	1973-11-19T00:00
11	Jard	Pengilley	7099694521	41	1964-01-17T00:00
12	Willy	Fetherby	4931778326	19	1970-11-19T00:00
13	Horatia	Babcock	1086809033	108	1933-03-10T00:00
14	Brendin	Bilverstone	7103945865	29	1999-06-03T00:00
15	Jessie	Dissman	9481454152	68	1959-09-12T00:00
16	Kane	Pardue	1287182424	75	1949-07-30T00:00
17	Tuesday	Guymr	8005867048	18	2001-01-21T00:00
18	Willa	Forsyde	4034369182	101	1986-08-08T00:00
19	Allyn	Tissiman	8113262863	101	1938-10-23T00:00
20	Blisse	Pol	4746210915	135	1971-01-21T00:00
21	Vanya	Torbard	4164316185	21	1958-05-11T00:00
22	Therese	Orbine	1867453914	29	1946-06-04T00:00
23	Venus	Kattenhorn	3596546134	87	1941-10-14T00:00
24	Dulsea	Fozzard	9847602958	87	1997-02-07T00:00
25	Barbabas	Handman	2302204470	7	1985-06-26T00:00
26	Cliff	Nussgen	7662205690	53	1961-10-23T00:00
27	Estel	Carass	3449676241	18	1989-06-25T00:00
28	Shoshanna	Felten	5837457561	84	1943-11-30T00:00
29	Desuel	Felshaw	5476343430	84	1933-05-07T00:00

**All Queries** **Revenue Report** **Tires for Car Model by Cost** **Set Tires on Sale**

Quarter 1 ▼ Quarter 1 Revenue

**Run**

Revenue Q1

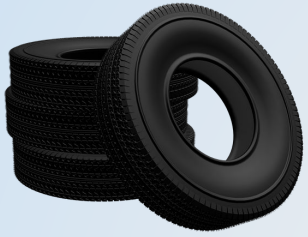
14071.980582800006

**All Queries** **Revenue Report** **Tires for Car Model by Cost** **Set Tires on Sale**

Prius ▼ 250 ▼ Tires under \$250 for a Prius

**Run**

model	cost	description
Blizzack	66.95625159000001	Standard
ContiWinterContact	84.49380459	Premier
Arctic	61.641841590000006	Economy



# Final Points/Questions

- Expanded functionality potential
  - Add features: Customer sign up, add/update order, check inventory
  - Allow for multiple franchises

Thanks for your attention!

