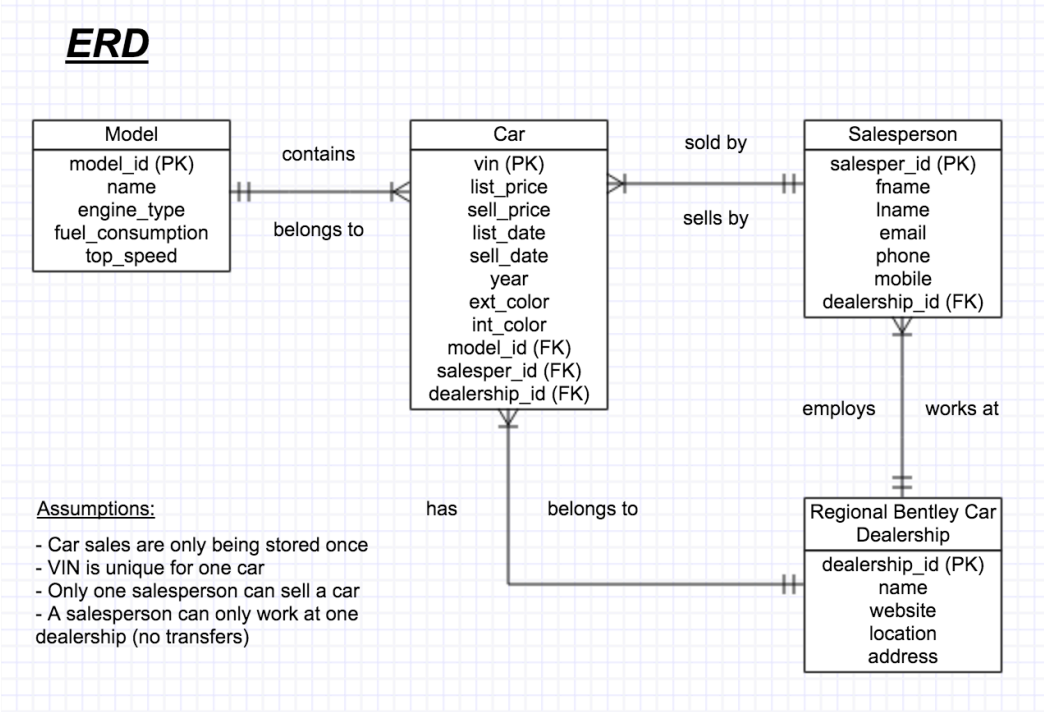
Winston Chu
67-250: The Information Systems Milieux
Database Project

Carnegie Mellon University
Bentley Motors Limited



Data Dictionaries:

Model			
Field	**Data Type**	**Description**	**Example Data**
model_id (PK)	INT	The Bentley model number	500
model_name	VARCHAR	The Bentley model name	Mulsanne
engine_type	VARCHAR	The type of engine in the model	6.75 L twin-turbo L Series V8
fuel_consumption	VARCHAR	Average fuel consumption (urban) of the model	13 Usmpg
top_speed	VARCHAR	The top speed performance measure of the model	191mph / 308kmh

Car			
Field	**Data Type**	**Description**	**Example Data**
vin (PK)	VARCHAR	The serial number that automotive industries use to identify the automobile	SCBGE11RXBLA13264
list_price	INT	The price that the car is listed with	$219,800
sell_price	INT	The price that the car is sold at	$218,000
list_date	DATE	The date that the car is put up for sale	2015-01-01
sell_date	DATE	The date that the car is sold	2015-01-03
year	YEAR	The year of the model of the car	2015
ext_color	VARCHAR	The exterior color of the car	Havana
int_color	VARCHAR	The interior color of the car	Magnolia – Dark Stained Burr Walnut
model_id (FK)	INT	The model number of the car	802
salesper_id (FK)	INT	The number of the salesperson of the car	1
dealership_id (FK)	INT	The number of the dealership of the car	104

Salesperson			
Field	**Data Type**	**Description**	**Example Data**
salesper_id (PK)	INT	The number of the salesperson	6
fname	VARCHAR	The first name of the salesperson	Kelly
lname	VARCHAR	The last name of the salesperson	Mazur
email	VARCHAR	The email of the salesperson	kmazur@ebb.com
phone	VARCHAR	The phone number of the salesperson	888 294 1133
mobile	VARCHAR	The mobile phone number of the salesperson	310 837 2039
dealership_id (FK)	INT	The number of the dealership that the salesperson works at	102

Regional Bentley Car Dealership			
Field	**Data Type**	**Description**	**Example Data**
dealership_id (PK)	INT	The number of the dealership	100
name	VARCHAR	The name of the dealership	East End Bentley
website	VARCHAR	The website of the dealership	bentleylaca.com
location	VARCHAR	The location of the dealership	Los Angeles, California
address	VARCHAR	The address of the dealership	8833 West Olympic Blvd, Beverly Hills, CA, 90211, United States

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Queries:

Average selling price of vehicles by dealership:

```
SELECT dealership_id, AVG( sell_price )
FROM Car
GROUP BY dealership_id
LIMIT 0, 30
```

dealership_id	AVG(sell_price)
101	266158.2326
102	255847.0048
103	204824.5106
104	226782.1443

Average difference in selling and asking price by dealership:

```
SELECT dealership_id, AVG( sell_price - list_price )
FROM Car
GROUP BY dealership_id
LIMIT 0, 30
```

dealership_id	AVG(sell_price - list_price)
101	4601.0233
102	4338.4641
103	-3554.9574
104	-349.5473

Average time on market by dealership:

```
SELECT dealership_id, AVG( DATEDIFF( sell_date, list_date ) )
FROM Car
GROUP BY dealership_id
LIMIT 0, 30
```

dealership_id	AVG(DATEDIFF(sell_date, list_date))
101	1.4884
102	4.7129
103	21.4894
104	10.8010

Total number of cars sold by model for each dealership:

```
SELECT dealership_id, model_id, COUNT( model_id )
FROM Car
GROUP BY model_id, dealership_id
ORDER BY dealership_id, model_id
LIMIT 0, 30
```

dealership_id	model_id	COUNT(model_id)
101	500	14
101	600	1
101	701	5
101	702	8
101	801	11
101	802	4
102	500	61
102	600	52
102	701	32
102	702	33
102	801	29
102	802	2
103	600	6
103	701	35
103	702	4
103	802	2
104	500	33
104	600	8
104	701	116
104	702	9
104	801	20
104	802	15

Most popular Bentley model:

```
SELECT model_id, COUNT( model_id )
FROM Car
GROUP BY model_id
LIMIT 0, 30
```

Therefore, the most popular model is the Continental GT (model ID #701).

model_id	COUNT(model_id)
500	108
600	67
701	188
702	54
801	60
802	23

Best salesperson:

```
SELECT salesper_id, COUNT( salesper_id ) AS "Number of cars sold"
FROM Car
GROUP BY salesper_id
LIMIT 0 , 30
```

Therefore, the best salesperson is Ray Collepay (salesperson ID #8).

salesper_id	Number of cars sold
1	68
2	12
3	3
4	94
5	39
6	34
7	31
8	172
9	12
10	28
11	7

Business Memo:

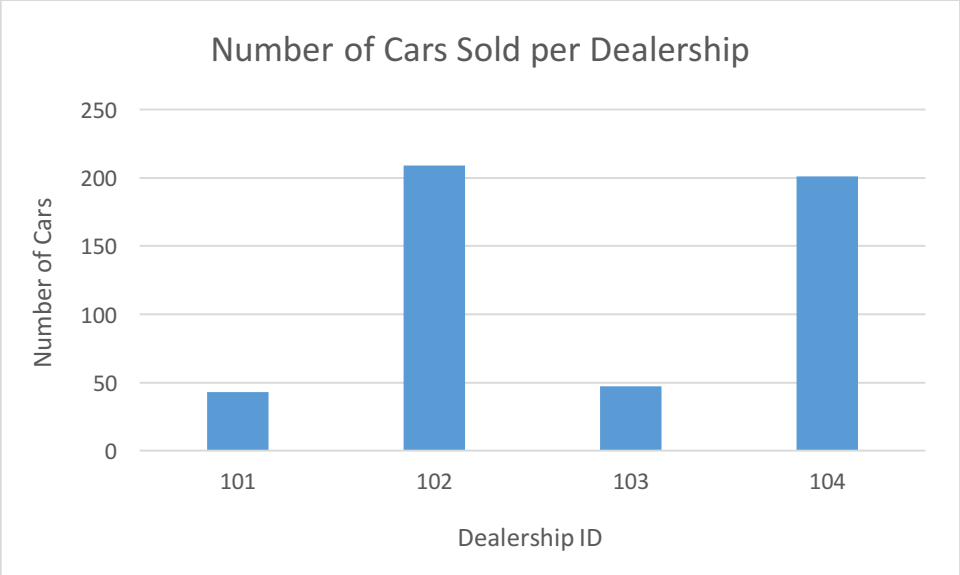
TO: Manager and Other Executives at Bentley Motors Limited

FROM: Winston Chu, Bentley IS Analyst

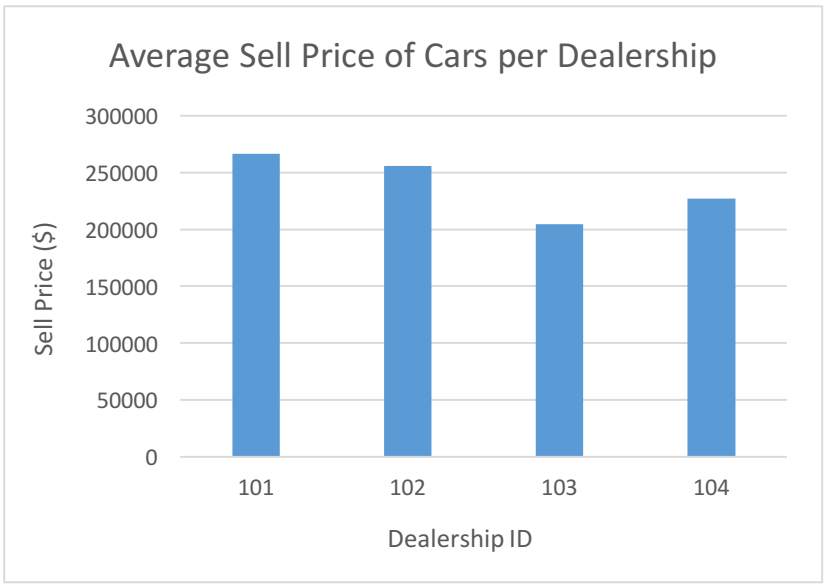
DATE: April 10, 2016

SUBJECT: Suggestion to Expand Dealership in Los Angeles, California

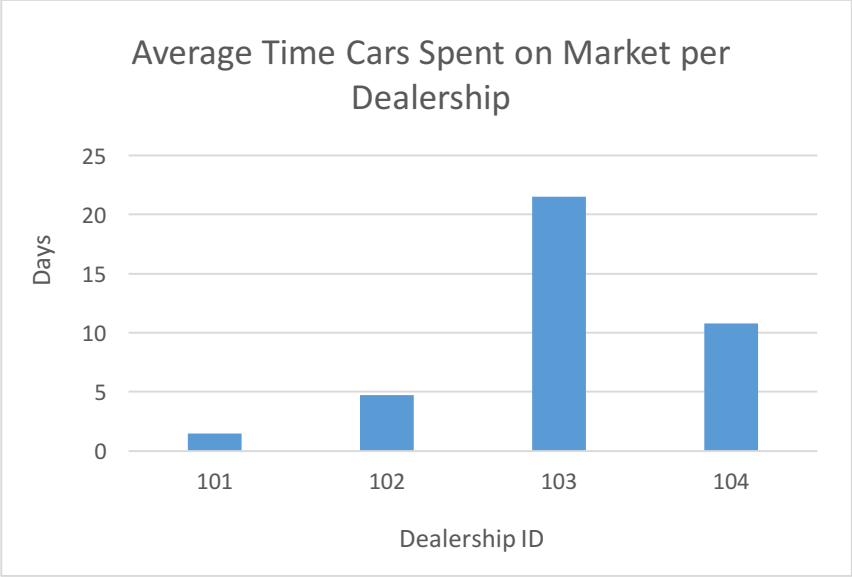
Over the past year of sales, our California dealership has sold the fewest amount of cars of our four major dealerships. With this statistic and noting their recent performance in sales, I believe that we should expand that dealership.



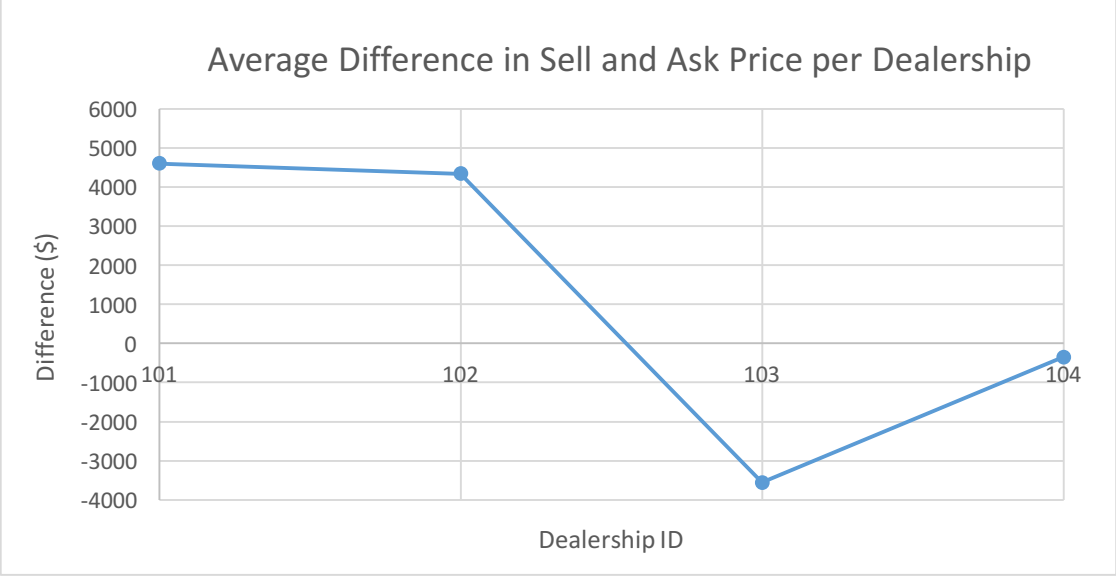
Over the past year of sales, our California dealership has sold their cars at a statistically higher cost than our other dealerships. Expanding our California partners so they could sell more cars would skyrocket our sales and increase the amount of our incoming money. Even though it would be ideal for all of our dealerships to sell their cars at the same price, our path to greater success has to begin somewhere, so expanding our California dealership is what I believe to be our first step in doing just that.



This graph to the right shows us that the time that each car spends on the market and the car's value share an inversely proportional relationship. The cars sold at our California dealership have spent the least time on the market and the dealership's economic status has been reflective of that relationship. In order to maximize sales, we should expand on our California dealership to sell more cars so that our positive sales would become even greater.



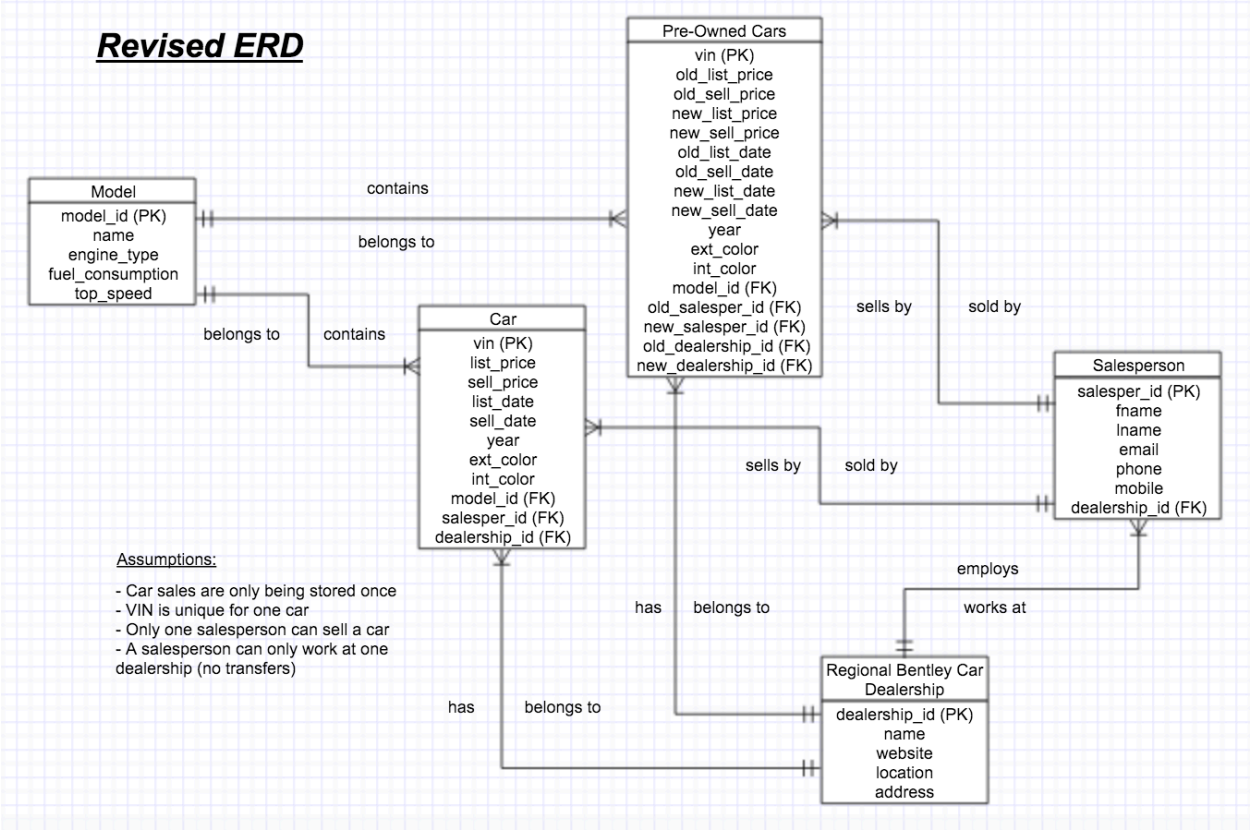
Every company knows that making money is mainly based off of profit. Economists for each company try to maximize profits while spending the least amount of money to make those profits. Salespersons for Bentley try to bargain the price with the customer and make more money from each car. Seen in the line graph below, our California dealership has been making a significantly large average profit for each car they have sold. If we expand this dealership, we would sell more cars and make more profits from each car. This would boost the economic status of our company and make our company better overall.



This recommendation would be made better if we had more data to analyze. Customer information at stores, such as how many customers visit each day, how the employees interact with them, etc., could be very useful in our data visualization. With this data, we would be able

to give a better recommendation on how to expand our dealership because we would not only have data from sales, but also have data from customer interactions, which may be the reason why our California dealership is selling less cars than our other ones. By refocusing our efforts to increase customer interaction among all dealerships, we will be able to make our company better in all possible ways. Tapping into the trends of customer experience in both online and physical stores will help us gain a good perspective on the current state of our company and help us make any necessary changes or improvements.

Additional Data Considerations:



Three example analyses given the new information:

1. Average difference in price between pre-owned car sale price and that car's new sale price by dealership.
2. Average selling price of pre-owned cars by dealership.
3. Total number of pre-owned cars sold by dealership.

Two additional SQL queries to perform the new analysis:

- Average difference in price between pre-owned car sale price and that car's new sale price by dealership.

```
SELECT dealership_id, AVG(resaleprice – original_cost)
FROM Car
GROUP BY dealership_id
LIMIT 0, 30
```

- Average selling price of pre-owned cars by dealership.

```
SELECT dealership_id, AVG(resaleprice)
FROM Car
GROUP BY dealership_id
LIMIT 0, 30
```