Phase#3 of the *Personal Collection* Database Application

a. Describe Tables

```
describe company;
```

	Field	Type	Null	Key	Default	Extra
▶	Company_ID	int unsigned	NO	PRI	NULL	auto_increment
	CEO	varchar(45)	NO		NULL	

```
describe credit_card;
```

	Field	Type	Null	Key	Default	Extra
▶	Credit_card_ID	int unsigned	NO	PRI	NULL	auto_increment
	Credit_card_number	varchar(16)	NO		NULL	
	Credit_card_cvn	varchar(3)	NO		NULL	
	Credit_card_expiration_date	date	NO		NULL	

```
describe customer;
```

	Field	Type	Null	Key	Default	Extra
▶	User_ID	int unsigned	NO	MUL	NULL	
	First_Name	varchar(255)	NO		NULL	
	Last_Name	varchar(255)	NO		NULL	
	Credit_card_ID	int unsigned	YES	MUL	NULL	

```
describe customer_order;
```

	Field	Type	Null	Key	Default	Extra
▶	Order_ID	int unsigned	NO	PRI	NULL	auto_increment
	User_ID	int unsigned	NO	MUL	NULL	

```
describe distributor;
```

	Field	Type	Null	Key	Default	Extra
▶	User_ID	int unsigned	NO	MUL	NULL	
	Distributor_name	varchar(255)	NO		NULL	
	Distributor_rating	tinyint unsigned	NO		NULL	

```
describe item_order;
```

	Field	Type	Null	Key	Default	Extra
▶	Order_ID	int unsigned	NO	MUL	NULL	
	Seller_product_listing_ID	int unsigned	NO	MUL	NULL	

```
describe manufacturer;
```

	Field	Type	Null	Key	Default	Extra
▶	User_ID	int unsigned	NO	MUL	NULL	
	Company_Company_ID	int unsigned	NO	MUL	NULL	
	Manufacturer_name	varchar(255)	NO		NULL	

```
describe prime_member;
```

	Field	Type	Null	Key	Default	Extra
▶	Prime_member_ID	int unsigned	NO	PRI	NULL	auto_increment
	User_ID	int unsigned	NO	MUL	NULL	

```
describe prime_payment;
```

	Field	Type	Null	Key	Default	Extra
▶	Prime_member_ID	int unsigned	NO	MUL	NULL	
	Payment_date	date	NO		NULL	
	Payment_amount	decimal(10,2)	NO		NULL	
	Paid	tinyint	NO		NULL	

```
describe product;
```

	Field	Type	Null	Key	Default	Extra
▶	Product_ID	int unsigned	NO	PRI	NULL	auto_increment
	Manufacturer_User_ID	int unsigned	NO	MUL	NULL	
	Product_name	varchar(255)	NO		NULL	

```
describe product_comment;
```

	Field	Type	Null	Key	Default	Extra
▶	Product_comment_ID	int unsigned	NO	PRI	NULL	auto_increment
	User_ID	int unsigned	NO	MUL	NULL	
	Site_product_ID	int unsigned	NO	MUL	NULL	
	Date_created	datetime	NO		CURRENT_TIMESTAMP	DEFAULT_GENERATED
	Date_modified	datetime	YES		NULL	
	Comments	text	YES		NULL	
	Images	blob	YES		NULL	
	Product_rating	tinyint	YES		NULL	

```
describe product_tag_pair;
```

	Field	Type	Null	Key	Default	Extra
▶	Site_product_ID	int unsigned	NO	MUL	NULL	
	Product_tag_ID	int unsigned	NO	MUL	NULL	

```
describe seller;
```

	Field	Type	Null	Key	Default	Extra
▶	User_ID	int unsigned	NO	MUL	NULL	
	Credit_card_ID	int unsigned	YES	MUL	NULL	
	Seller_name	varchar(255)	NO		NULL	
	Seller_rating	tinyint	NO		NULL	

```
describe seller_product_listing;
```

	Field	Type	Null	Key	Default	Extra
▶	Seller_product_listing_ID	int unsigned	NO	PRI	NULL	auto_increment
	User_ID	int unsigned	NO	MUL	NULL	
	Product_ID	int unsigned	NO	MUL	NULL	
	Site_product_ID	int unsigned	NO	MUL	NULL	
	Product_pricing	decimal(10,2)	NO		NULL	
	Product_description	text	YES		NULL	
	Product_image	blob	YES		NULL	

```
describe shipping_information;
```

	Field	Type	Null	Key	Default	Extra
▶	Shipping_ID	int unsigned	NO	PRI	NULL	auto_increment
	User_ID	int unsigned	NO	MUL	NULL	
	Order_ID	int unsigned	NO	MUL	NULL	
	Shipping_speed	varchar(45)	NO		NULL	
	Order_date	datetime	NO		CURRENT_TIMESTAMP	DEFAULT_GENERATED
	Ship_date	datetime	YES		NULL	
	Arrive_date	datetime	YES		NULL	
	Delivery_notes	varchar(255)	YES		NULL	

```
describe shopping_cart_item;
```

	Field	Type	Null	Key	Default	Extra
▶	Shopping_cart_item_ID	int unsigned	NO	PRI	NULL	auto_increment
	User_ID	int unsigned	NO	MUL	NULL	
	Site_product_ID	int unsigned	NO	MUL	NULL	

```
describe site_product;
```

	Field	Type	Null	Key	Default	Extra
▶	Site_product_ID	int unsigned	NO	PRI	NULL	auto_increment

```
describe tag_information;
```

	Field	Type	Null	Key	Default	Extra
▶	Product_tag_ID	int unsigned	NO	PRI	NULL	auto_increment
	Tag_Title	varchar(45)	NO		NULL	

```
describe user;
```

	Field	Type	Null	Key	Default	Extra
▶	User_ID	int unsigned	NO	PRI	NULL	auto_increment
	Username	varchar(45)	NO		NULL	
	Password	varchar(45)	NO		NULL	
	Address_1	varchar(255)	NO		NULL	
	Address_2	varchar(255)	YES		NULL	
	City	varchar(255)	NO		NULL	
	State_Province	varchar(255)	NO		NULL	
	Zip	varchar(5)	YES		NULL	
	Phone_1	varchar(45)	NO		NULL	
	Phone_2	varchar(45)	YES		NULL	
	Email	varchar(255)	NO		NULL	
	date_created	datetime	NO		CURRENT_TIMESTAMP	DEFAULT_GENERATED

`SELECT * FROM cis_363_project.user;`

User_ID	Username	Password	Address_1	Address_2	City	State_Province	Zip	Phone_1	Phone_2	Email	date_created
4	Username_4	Password	Address_1_4	NULL	City_4	State_Province_4	14532	1903882540	NULL	Email_4@email.com	2020-04-20 02:40:43
5	Username_5	Password	Address_1_5	NULL	City_5	State_Province_5	45508	6869132381	NULL	Email_5@email.com	2020-04-20 02:40:43
6	Username_6	Password	Address_1_6	NULL	City_6	State_Province_6	94809	1132025190	NULL	Email_6@email.com	2020-04-20 02:40:43
7	Username_7	Password	Address_1_7	NULL	City_7	State_Province_7	28829	6081894924	NULL	Email_7@email.com	2020-04-20 02:40:43
8	Username_8	Password	Address_1_8	NULL	City_8	State_Province_8	84602	2656278086	NULL	Email_8@email.com	2020-04-20 02:40:43
9	Username_9	Password	Address_1_9	NULL	City_9	State_Province_9	67401	5831597229	NULL	Email_9@email.com	2020-04-20 02:40:43
10	Username_10	Password	Address_1_10	NULL	City_10	State_Province_10	99037	1657891481	NULL	Email_10@email.com	2020-04-20 02:40:43
11	Username_11	Password	Address_1_11	NULL	City_11	State_Province_11	75616	7645415399	NULL	Email_11@email.com	2020-04-20 02:40:43
12	Username_12	Password	Address_1_12	NULL	City_12	State_Province_12	95635	3653674411	NULL	Email_12@email.com	2020-04-20 02:40:43
13	Username_13	Password	Address_1_13	NULL	City_13	State_Province_13	33541	6117334894	NULL	Email_13@email.com	2020-04-20 02:40:43
14	Username_14	Password	Address_1_14	NULL	City_14	State_Province_14	48363	2657027832	NULL	Email_14@email.com	2020-04-20 02:40:43
15	Username_15	Password	Address_1_15	NULL	City_15	State_Province_15	64569	5092053001	NULL	Email_15@email.com	2020-04-20 02:40:43
16	Username_16	Password	Address_1_16	NULL	City_16	State_Province_16	95029	3725331552	NULL	Email_16@email.com	2020-04-20 02:40:43
17	Username_17	Password	Address_1_17	NULL	City_17	State_Province_17	27257	2114516230	NULL	Email_17@email.com	2020-04-20 02:40:43
18	Username_18	Password	Address_1_18	NULL	City_18	State_Province_18	17767	5579593737	NULL	Email_18@email.com	2020-04-20 02:40:43
19	Username_19	Password	Address_1_19	NULL	City_19	State_Province_19	97688	1186280547	NULL	Email_19@email.com	2020-04-20 02:40:43
20	Username_20	Password	Address_1_20	NULL	City_20	State_Province_20	78156	4749192094	NULL	Email_20@email.com	2020-04-20 02:40:43
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

`SELECT * FROM cis_363_project.shipping_information;`

Shipping_ID	User_ID	Order_ID	Shipping_speed	Order_date	Ship_date	Arrive_date	Delivery_notes
1	17	1	Prime shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_1
2	20	2	Prime shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_2
3	18	3	Prime shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_3
4	17	4	Prime shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_4
5	19	5	Standard shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_5
6	16	6	Standard shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_6
7	18	7	Business shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_7
8	20	8	Standard shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_8
9	16	9	Prime shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_9
10	20	10	Prime shipping	2020-04-20 02:40:44	NULL	NULL	Delivery_notes_10
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

`SELECT * FROM cis_363_project.shopping_cart_item;`

Shopping_cart_item_ID	User_ID	Site_product_ID
1	2	5
2	3	2
3	4	4
4	1	1
5	5	4
6	3	5
7	2	4
8	4	5
9	5	1
10	3	3
11	6	4
12	4	3
13	1	1
14	6	2
15	2	4
16	3	1
17	2	5
18	5	2
19	3	2
20	2	2
NULL	NULL	NULL

```
SELECT * FROM cis_363_project.product_comment;
```

Product_comment_ID	User_ID	Site_product_ID	Date_created	Date_modified	Comments	Images	Product_rating
1	10	2	2020-04-20 02:40:44	NULL	Very cool!	NULL	1
2	8	5	2020-04-20 02:40:44	NULL	Looks Good!	NULL	3
3	3	4	2020-04-20 02:40:44	NULL	Very cool!	NULL	5
4	4	3	2020-04-20 02:40:44	NULL	Nice!	NULL	1
5	2	3	2020-04-20 02:40:44	NULL	Looks Good!	NULL	4
6	3	5	2020-04-20 02:40:44	NULL	Very cool!	NULL	2
7	4	3	2020-04-20 02:40:44	NULL	Very cool!	NULL	4
8	10	1	2020-04-20 02:40:44	NULL	Very cool!	NULL	3
9	5	2	2020-04-20 02:40:44	NULL	Very cool!	NULL	1
10	5	4	2020-04-20 02:40:44	NULL	Nice!	NULL	4
11	6	2	2020-04-20 02:40:44	NULL	Looks Good!	NULL	1
12	4	2	2020-04-20 02:40:44	NULL	Nice!	NULL	1
13	9	1	2020-04-20 02:40:44	NULL	Looks Good!	NULL	4
14	4	4	2020-04-20 02:40:44	NULL	Very cool!	NULL	4
15	5	2	2020-04-20 02:40:44	NULL	Very cool!	NULL	5
16	1	3	2020-04-20 02:40:44	NULL	Nice!	NULL	5
17	10	2	2020-04-20 02:40:44	NULL	Very cool!	NULL	2
18	9	5	2020-04-20 02:40:44	NULL	Looks Good!	NULL	3
19	6	2	2020-04-20 02:40:44	NULL	Looks Good!	NULL	3
20	2	4	2020-04-20 02:40:44	NULL	Very cool!	NULL	3
21	3	1	2020-04-20 02:40:44	NULL	Nice!	NULL	5
22	9	4	2020-04-20 02:40:44	NULL	Nice!	NULL	2
23	9	1	2020-04-20 02:40:44	NULL	Looks Good!	NULL	2
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
SELECT * FROM cis_363_project.customer;
```

User_ID	First_Name	Last_Name	Credit_card_ID
1	First_name_1	Last_name_1	1
2	First_name_2	Last_name_2	2
3	First_name_3	Last_name_3	3
4	First_name_4	Last_name_4	4
5	First_name_5	Last_name_5	5

c. Sample Query and with Explain output

```sql
-- Get all Orders made by Customers, the number of items in each order and the total cost of the Order
SELECT customer.User_ID as "Customer ID" , First_name as "First name", Last_name as "Last name",
customer_order.Order_id as "Order ID",
count(customer_order.Order_id) as "Amount of items in order",
sum(seller_product_listing.product_pricing) as "Order Total"
FROM customer
INNER JOIN customer_order ON customer.User_ID = customer_order.User_ID
INNER JOIN item_order ON customer_order.Order_id = item_order.Order_ID
INNER JOIN seller_product_listing on seller_product_listing.seller_product_listing_ID = item_order.seller_product_listing_ID
GROUP BY customer_order.Order_id;
```

Customer ID	First name	Last name	Order ID	Amount of items in order	Order Total
1	First_name_1	Last_name_1	4	1	12999.99
2	First_name_2	Last_name_2	2	2	13399.97
2	First_name_2	Last_name_2	5	2	13399.97
2	First_name_2	Last_name_2	6	2	13399.97
2	First_name_2	Last_name_2	7	3	13197.97
2	First_name_2	Last_name_2	8	2	498.97
3	First_name_3	Last_name_3	9	3	898.95
3	First_name_3	Last_name_3	10	2	13399.97
4	First_name_4	Last_name_4	1	1	98.99
5	First_name_5	Last_name_5	3	2	13098.98

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	customer	NULL	ALL	fk_Customer_User1_idx	NULL	NULL	NULL	5	100.00	Using temporary
1	SIMPLE	customer_order	NULL	ref	PRIMARY,fk_Super_order_Customer1_idx	fk_Super_order_Customer1_idx	4	cis_363_project.customer.User_ID	1	100.00	Using index
1	SIMPLE	item_order	NULL	ref	fk_Item_Order_Order1_idx,fk_Item_Order_Seller_s	fk_Item_Order_Order1_idx	4	cis_363_project.customer_order.Order_ID	1	100.00	NULL
1	SIMPLE	seller_product_listing	NULL	eq_ref	PRIMARY	PRIMARY	4	cis_363_project.item_order.Seller_product_listing_I	1	100.00	NULL

```sql
-- From all users, how many of them have prime?
SELECT count(user.User_ID) as "Amount of Users total", count(prime_member.prime_member_ID) as "Amount of users who have Prime"
FROM user
LEFT JOIN prime_member ON prime_member.User_ID = user.User_ID;
```

Amount of Users total	Amount of users who have Prime
20	5

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	user	NULL	index	NULL	PRIMARY	4	NULL	20	100.00	Using index
1	SIMPLE	prime_member	NULL	ref	fk_prime_member_customer1_idx	fk_prime_member_customer1_idx	4	cis_363_project.user.User_ID	1	100.00	Using index

```sql
-- For each of the websites products, display each seller's amount of inventory for those products and what each seller sells their product at
SELECT Site_product_ID as "Site Product ID", Site_product_ID as "Seller ID", Product_pricing as "Seller's prices for product given Site Product ID",
count(Product_pricing) as "Seller's invetory for product at Seller's price"
FROM seller_product_listing
GROUP BY Site_product_ID, Product_pricing
ORDER BY Site_product_ID;
```

Site Product ID	Seller ID	Seller's prices for product given Site Product ID	Seller's invetory for product at Seller's price
1	1	98.99	2
1	1	12999.99	5
2	2	98.99	3
2	2	399.98	4
2	2	12999.99	3
3	3	98.99	5
3	3	399.98	5
3	3	12999.99	1
4	4	98.99	2
4	4	399.98	3
4	4	12999.99	6
5	5	98.99	4
5	5	399.98	2
5	5	12999.99	5

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	seller_product_listing	NULL	ALL	NULL	NULL	NULL	NULL	50	100.00	Using temporary; Using filesort

```sql
-- Get the average rating for each product on the site
SELECT site_product.Site_product_ID as "Site Product ID", count(product_comment.Product_comment_ID) as "Amount of comments made",
AVG(product_comment.product_rating) as "Average Site Product ID Rating (Product Rating)"
FROM site_product
JOIN product_comment ON site_product.site_product_ID = product_comment.site_product_ID
GROUP BY site_product.Site_product_ID;
```

Site Product ID	Amount of comments made	Average Site Product ID Rating (Product Rating)
1	4	3.5000
2	7	2.0000
3	4	3.5000
4	5	3.6000
5	3	2.6667

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	site_product	NULL	index	PRIMARY	PRIMARY	4	NULL	5	100.00	Using index
1	SIMPLE	product_comment	NULL	ref	fk_Product_comment_Site_product_ID1_idx	fk_Product_comment_Site_product_ID1_idx	4	cis_363_project.site_product.Site_product_ID	1	100.00	NULL

```sql
-- Display the Revenue made for each Seller
SELECT user_ID as "Seller ID", sum(product_pricing) as "Revenue"
FROM seller_product_listing
JOIN item_order on seller_product_listing.seller_product_listing_ID = item_order.seller_product_listing_ID
GROUP BY user_ID
ORDER BY sum(product_pricing) DESC;
```

Seller ID	Revenue
10	38999.97
7	26799.94
8	13696.94
9	13498.96
6	1397.92

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	item_order	NULL	index	fk_Item_Order_Seller_product_listing1_idx	fk_Item_Order_Seller_product_listing1_idx	4	NULL	20	100.00	Using index; Using temporary; U...
1	SIMPLE	seller_product_listing	NULL	eq_ref	PRIMARY,fk_Seller_product_listing_Seller1_idx	PRIMARY	4	cis_363_project.item_order.Seller_product_listi...	1	100.00	NULL