Rays Rental

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Introduction

We were assigned the task of creating a database for Ray's rentals, which was to help remove there issues with the paper based system they currently have.

Introduction

Rays rentals is a small bike shop which rents out bikes to people.

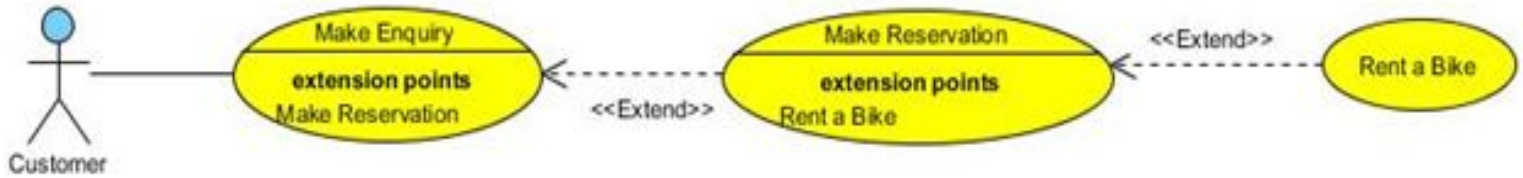
We were told that we were to focus on the hiring out of the bikes.

The key points to look at were

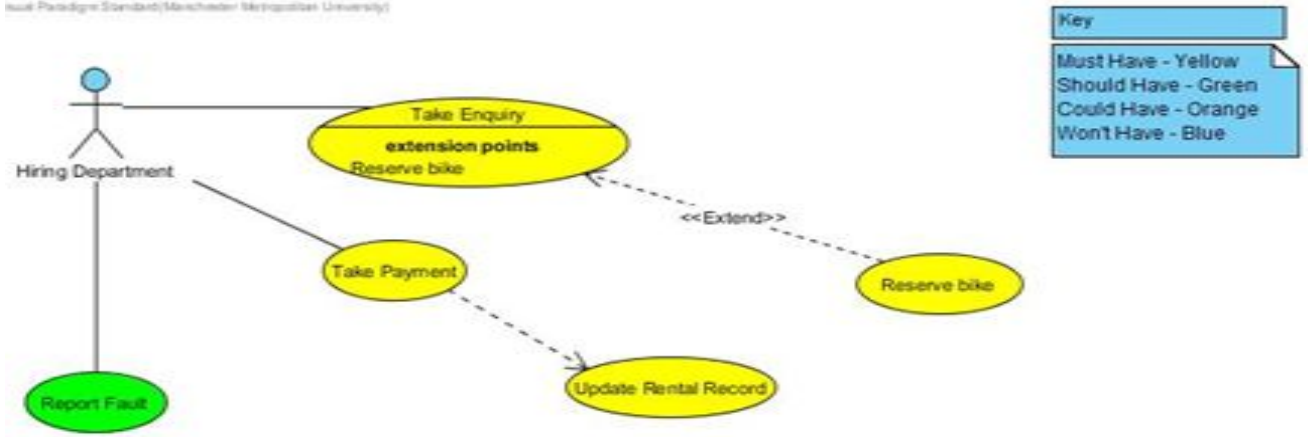
- The acquisition of the bikes
- The maintenance of the bikes
- The disposal
- And the hiring of the bikes

Overview of group UCD, description and justification of the assigned priorities

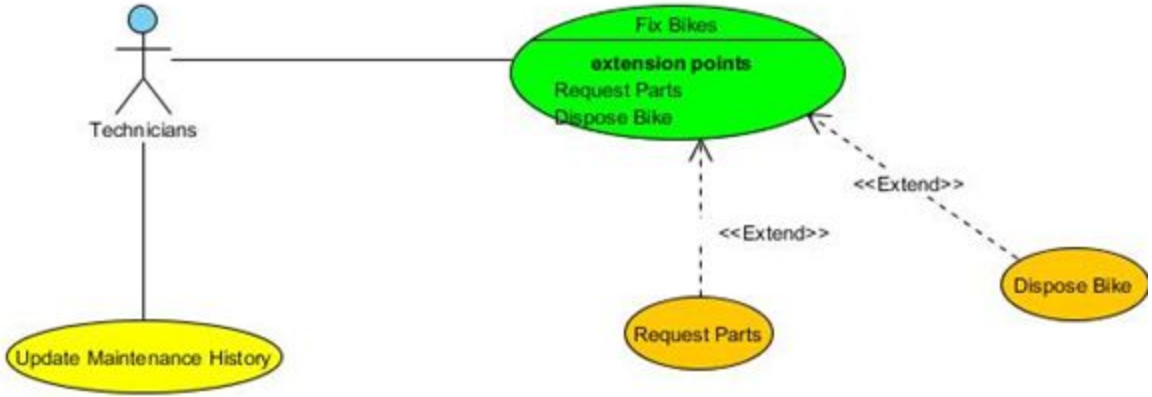
1. Customer Makes a general enquiry via phone, so to get informations about a bike he is interested in. We connected the Actor(Customer) to “Make Enquiry” Use Case and we linked it with an extend “Make Reservation” Use Case so when the Hiring Department does it’s work(collect necessary information) Customer can reserve a bike. That’s why we linked “Rent a Bike” as an extend Use Case in “Make Reservation” Use Case.



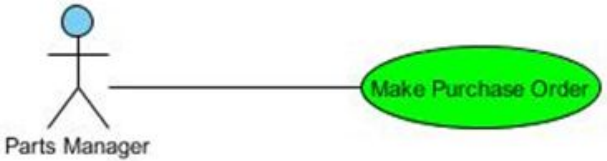
2. Hiring Department takes the enquiry from the Customer, then collects his details and informs the Customer about the bike he is interested in. That's why we created a "Take Enquiry" Use Case which is linked with a "Reserve Bike" Use Case in case Customer decides to reserve it. Therefore, if the Customer wants to buy the bike he reserved (or not) he calls Hiring Department, proceeds to payment and the Hiring Department updates Rental Record then. That's why we included "Update Rental Record" connected to "Take Payment" Use Case. Afterall, if Customers have problems with their bikes, they can call Hiring Department and report the problem to them, so the HD with their turn will inform Technicians about.



3. Technicians collects the bikes with their turn and try to fix them. If they need any part for fixing the bikes they have to refer to Parts Manager, That's why we linked an extended Use Case to "Fix Bikes" Use Case. Otherwise, if they can't fix the bike, they have to dispose it and inform Ray and the Hiring Department. For that, we linked the "Dispose Bike" Extend Use Case on the "Fix Bike" Use Case. Also, they get the bikes that needs service from Ray who inspects them every Friday.



4. Ray checks all bikes for serving every Friday so they will be ready for sell. If a bike hasn't been for service for over a month he send it over to the Technicians. We connected "Bike Check for Serving" Use Case to Ray.



5. Parts Manager is responsible for supplying the Technicians with parts when needed for fixing/repairing bikes. We connected "Make Purchase Order" Use Case to Parts Manager.

Core Use Case Specifications
Making a Reservation

Here we have the use case specification for making a reservation. Here the customer will be the owner as they will be making a reservation for the bike.

Then it moves onto the Pre-Condition and Post-Condition. In the Pre-Condition the customer will make a general enquiry about a specific bike they would like. Then in the Post-Condition, this is where Rays Rentals will check the availability of the bike that the customer wants and then they will inform the customer if they are able to rent the bike.

We then have the primary path were this describes step by the process of making a reservation.
finally , we have an alternative path which could be that the customer phones to make a reservation or books online, rather than going into the store.

Use Case: Make Reservation

Owner: Customer

Pre-Conditions

Customer calls in and makes a general enquiry for a bike.

Post-Conditions

Ray's Rentals informs the customer about the bike.

Rental Record checks for bike's availability.

Hiring Department informs Customer.

Primary Path

1. Customer calls in and makes a general enquiry for a bike.
2. Ray's Rentals informs the customer about the bike.
3. Customer decides if he wants to reserve a bike.
4. Reservation details as jotted down from staff along with customer details.
5. Rental Record checks for bike's availability and informs Hiring Department.
6. Hiring Department informs Customer that his choice of bike is available.
7. Customer Decides if he wants to Reserve a bike.

Alternate Path

1. Customer calls in and makes a general enquiry for a bike.
2. Ray's Rentals informs the customer about the bike.
3. Customer decides if he wants to reserve a bike.
4. Reservation details as jotted down from staff along with customer details.
5. Rental Record checks for bike's availability and informs Hiring Department.
6. Hiring Department informs Customer that his choice of bike isn't available.

Notes

Core Use Case Specification
Fix Bike

For this use case specification the owner will be the technician as they fix the bike.

For the Pre-Condition the technician will receive the bike that has the faults and then if he does not have the parts in stock, he will order them. For the Post-Condition, the bike will be repaired by the technician.

The primary path describes the steps of how the bike is fixed. So they will be told what the problems are and then order the parts for the bike and fix it. The alternative path for this is that they already have the parts needed in stock so they won't have to order them to the store. Another alternative path is that the bike may not be fixable so it has to be disposed.

Use Case: Fix Bike

Owner: Technician

Pre-Conditions

Bike needs repair, technician receives bike with faults, orders parts and fixes it.

Post-Conditions

Bikes Get Repaired and returned

Primary Path

1. Technician department is notified of the repair being needed.
2. Technician inspects bike and requests parts for repairs
3. Technician receives parts and fixes bike.
4. Maintenance return bikes

Alternate Path

1. Technician department is notified of the repair being needed
2. Technician inspects bike
3. Technician has parts in stock
4. Technician fixes bike
5. Technician returns bike

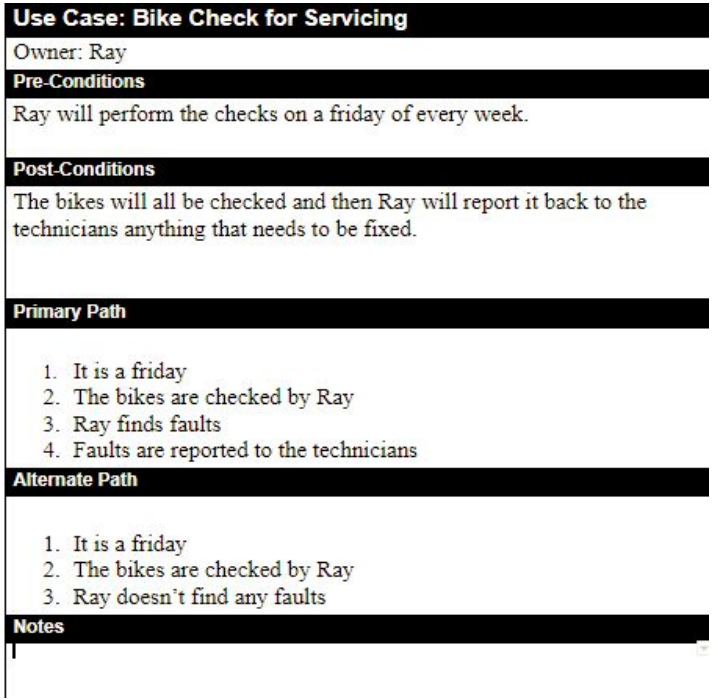
Notes

Core Use Case Specification
Bike Check For Servicing

Here we have the use case specification for checking the bike to see if it needs a service. This will be carried out by Ray himself.

For the Pre-Condition, Ray will check the bikes every Friday to make sure that they are all in working order. For the Post-Condition, Ray will have checked all the bikes and then report any faults to the technicians.

The primary path consist of how Ray will check the bikes, every friday and if he finds any faults he will report them to the technicians. An Alternative path for this is that he does not find any faults so he does not have to report anything to the technicians.



Use Case: Bike Check for Servicing

Owner: Ray

Pre-Conditions

Ray will perform the checks on a friday of every week.

Post-Conditions

The bikes will all be checked and then Ray will report it back to the technicians anything that needs to be fixed.

Primary Path

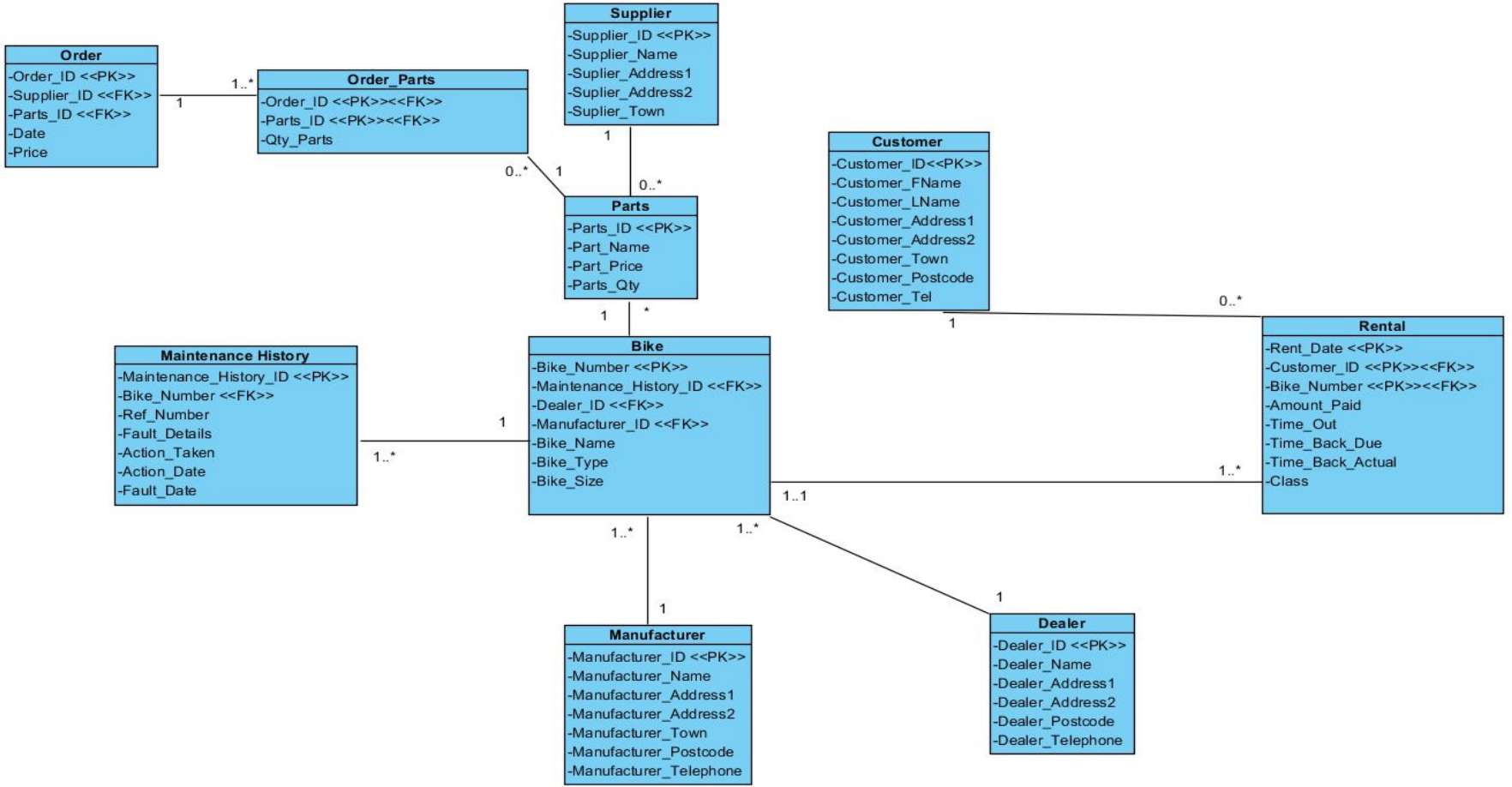
1. It is a friday
2. The bikes are checked by Ray
3. Ray finds faults
4. Faults are reported to the technicians

Alternate Path

1. It is a friday
2. The bikes are checked by Ray
3. Ray doesn't find any faults

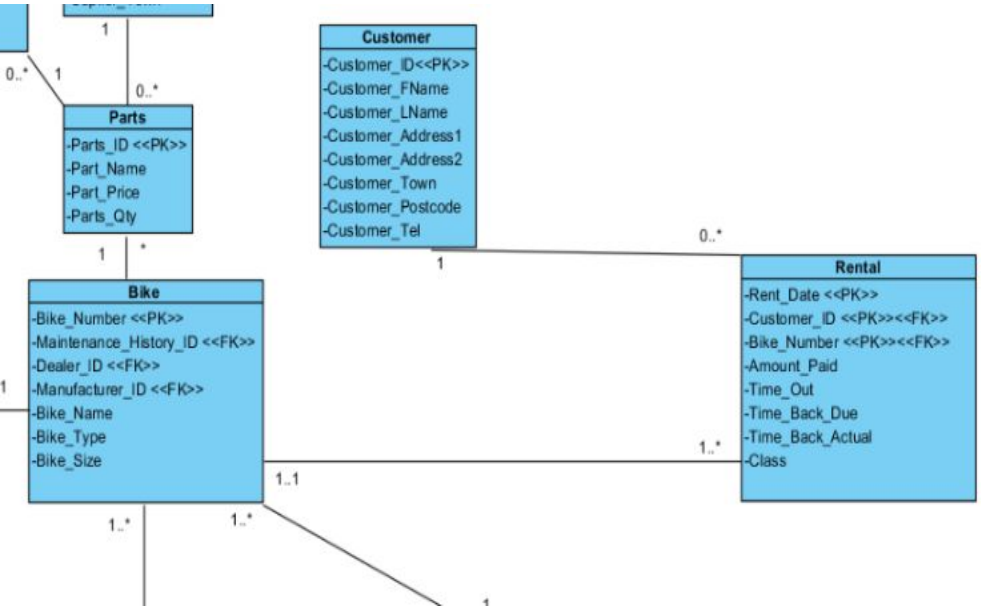
Notes

An overview of the group ERD



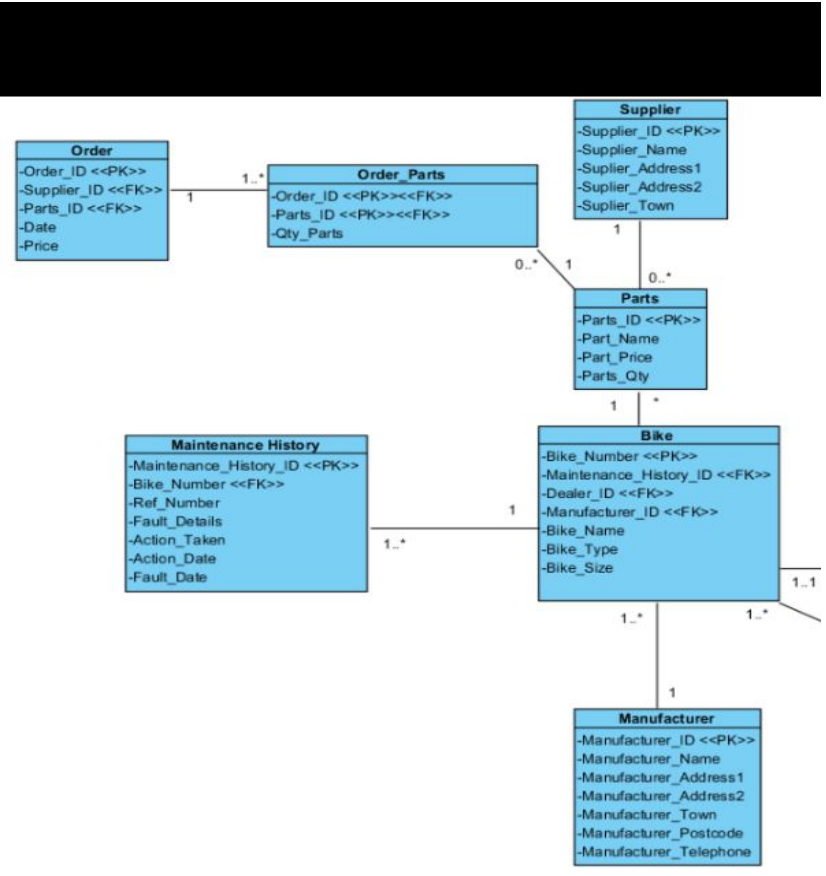
The hiring of the Bike

The relationship between Bike, Rental and Customer deals with the customer hiring a bike. A check must be done before hand, to see if the bike is in stock. The rental records important information.



- The rental record helps Ray track which bikes have been hired out to which customer.
- Avoids the bad handwriting of paper records.
- Reports can be produced so business strategy can be altered in response to trends, like if a particular bike is being rented out more than others.

Acquisition of Bikes



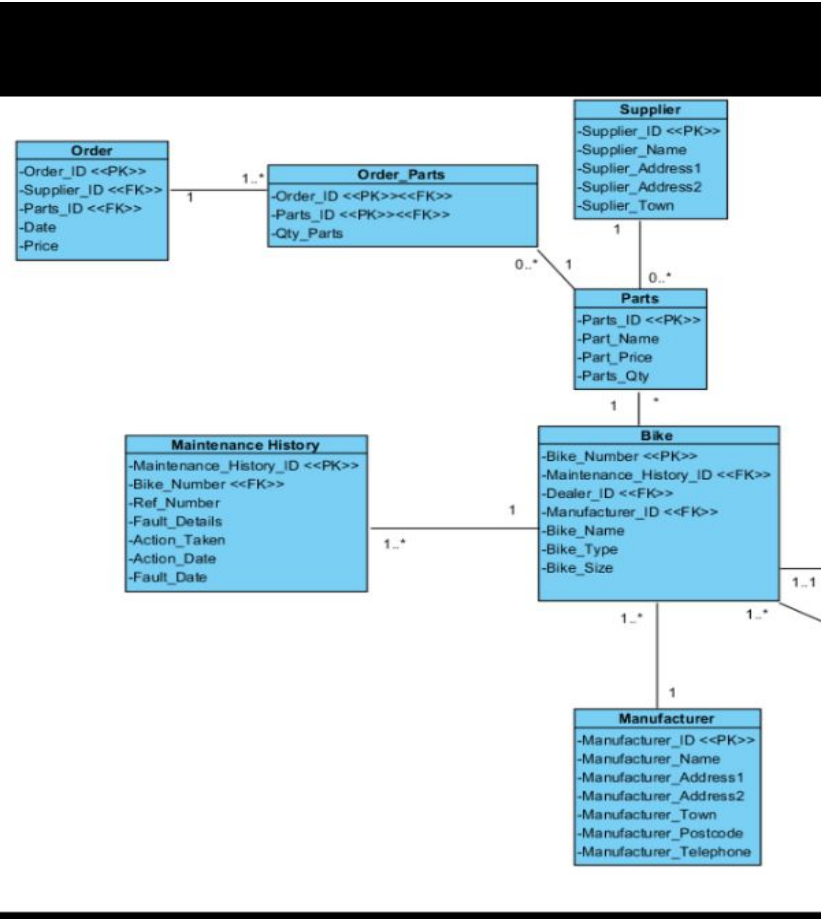
Bikes are ordered from the supplier. We have also included the manufacturer in our ERD as we believe it is an important piece of information.

The main purpose of the acquisition of bikes is to:

- replenish stock.
- To bring in the latest and greatest bikes.
- To combat an increase in demand of a particular bike/size/class.

So the acquisition of bikes is very important to Ray's Rentals.

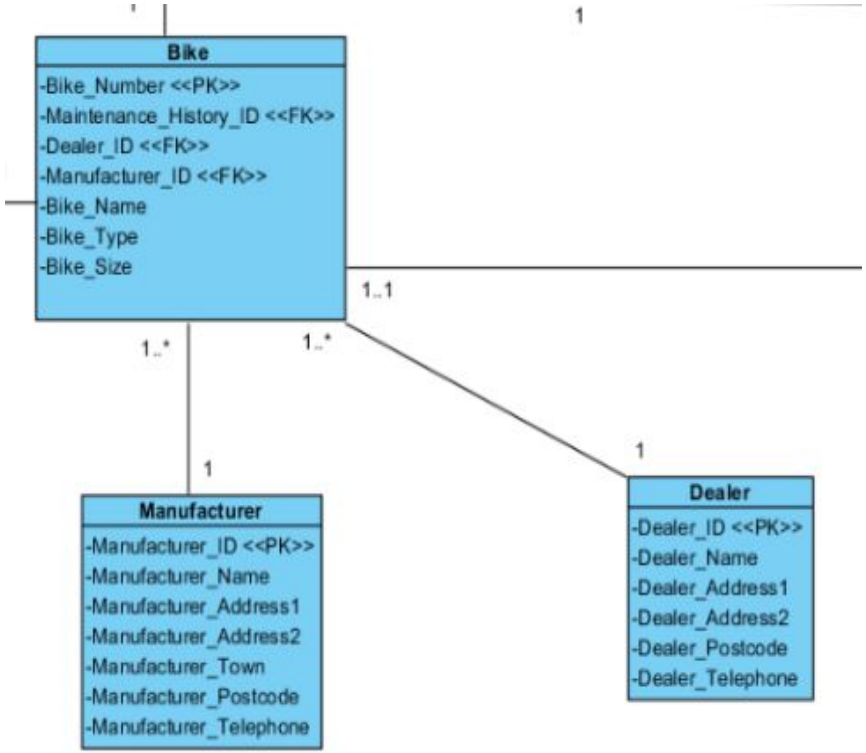
Maintenance of Bikes



The maintenance of bikes involves the maintenance history, and parts. The maintenance history keeps track of the bikes condition, the faults each bike has had in the past, each with an action taken and a reference number. Action taken describes how the bike got back to full working order, maybe a part was needed.

If a part is needed then the parts inventory is checked, if it isn't in stock then it is ordered via the supplier.

Disposal of Bikes



When bikes are in disrepair, Ray required somewhere to dispose of them.

The dealer would collect the bikes from Ray's rentals and their information would be recorded.

The bike which is being disposed of would have its data deleted from the system.

Conclusion of ERD

Reflecting back on our ERD, we believe we resolved many of the issues Ray required. Ray wanted a database to tackle the problems regarding:

1. Hiring of a Bike
2. Acquisition of a Bike
3. Maintenance of Bike
4. Disposal of Bike

We went through each of these and how the ERD tackles these problems.
In future we would have probably added a way to order bikes and parts from the Manufacturer also, as in reality, this is possible.

ORACLE System

Table Creation + Data

RR_CUSTOME	CUST_LNAME	CUST_FNAME	CUST_ADDRESS1	CUST_ADDRESS2	CUST_TOWN	CUST_POS	CUST_TELEPHONE
1	Stjohn	Donna	248 Pleasant Hill Road	Salford	Manchester	M13 7FS	1612053232
2	Gerry	Twock	21 Danger Close	Euston	London	AB1 0AR	2072043088
3	Ropes	Bailey	12 Mary lane	St Helens	Liverpool	L18 4HQ	1516673299

MANUFACTUR	MANUFACTURER_NAME	MANUFACTURER_ADDRESS1	MANUFACTURER_ADDRESS2	MANUFACTURER_TOWN	MANUFACT	MANUFACTURER_PH
1	Bike Industry	Unit 9	Dinting Road	Glossop	SK13 7DY	07884556767
34	Cycles Limited	Long Way	Station Road	Sheffield	JX78 9XW	07788442323
84	Wheels For You	Bridgeway	Green Road	Birmingham	JW45 7KL	07547896325

DEALER_ID	DEALER_NAME	DEALER_ADDRESS1	DEALER_ADDRESS2	DEALER_TOWN	DEALER_POS	DEALER_PHONE
14	ASH_UK	Unit 7	Holly Gate Center	Stockport	SK6 G24	07423432432432
62	GB Bikes	Unit 21	Gate Center	glossop	SK13 0BG	074345432432
92	Bike ltd	Unit 31	Carfax court	gamesley	SK6 0BG	07454654672

BIKE_NUMBE	MAINTENANC	DEALER_ID	MANUFACTUR	BIKE_NAME	BIKE_TYPE	BIKE_SIZE
1	1	14	1	SlayerX	Road	LargeMale
74	2	62	34	Thunder	Tamden	Child
85	3	92	84	LowRiderX	Mountain	StandardMale

MAINTENANC	BIKE_NUMBE	FAULT_DETAILS
1	1	Broken chain
2	74	Flat tire
3	85	Brakes need bleeding

RENT_DATE	RR_CUSTOME	BIKE_NUMBE	AMOUNT_PAID	TIME_OUT	TIME_DUEBA	TIME_ACBAC
21-DEC-17	1	1	40	1310	1625	1800
12-MAR-17	2	74	4	1720	1835	1900
03-AUG-17	3	85	3	1030	1345	1500

SUPPLIER_I	SUPPLIER_NAME	SUPPLIER_ADDRESS1	SUPPLIER_ADDRES	SUPPLIER_TOWN
45	Willys Wheels	45 Stretford Rd	Hulme	Manchester
34	Bicycle Benjamin	31 Winstreet Rd	Shefwire	Sheffield
47	Jezza Joes	11 Meat Rd	Hulme	Nottingham

PARTS_ID	PARTS_NAME	PARTS_PRICE	PARTS_QTY
11	Bike crank	82	62
12	Pedal	5	20
55	handlebar	54	2

ORDER_ID	SUPPLIER_I	PARTS_ID	ORDER_DATE	PRICE
433	45	11	13-NOV-17	300
123	34	12	17-OCT-17	350
244	47	55	17-OCT-17	375

ORDER_ID	PARTS_ID	QTY_PARTS
1	11	12
82	12	30
38	55	7

Conclusion

In this project we learnt to work as a group so we could submit the project on time.

We learnt to divide up the work to the appropriate members of the group depending on their skills.

We could have been more organised of handing out the work sooner

We tried to meet up regularly so to keep the project on time and not doing all the work on the day of the deadline.

We had a group chat to help us communicate within the group when members weren't available to meet.

Thanks for listening

Any questions ?