**Create a model for the below scenarios**

**Create them on Data Architect tool**

**Scenario 1 – Online Ordering and Delivery Service for Sandwich Shop**Joe’s Sub Shop is starting an online ordering system that will provide local delivery within five miles of the sub shop. The customer can order a limited **menu** of the sandwiches the sub shop creates. The online order system will need to track the following information **customer,** **order** and **product**. They shop will need to know the quantity ordered, toppings and other directions for the order. The delivery drive will need to know the address and phone number of the customer.

Product --Peppporini Pizza, Cheese Pizza

TOpping: Extra cheese, Pineapples, Sausages, extra meat

**Scenario 2 – A Local Football League**You have been asked to develop a database to maintain details of the **football teams** signed up to play in a **local league**, including the **schedule**. The database must maintain details of the **name and location** of each team, and for **each team the players** (and their positions) who are on the team. So that a handicap system can be developed later the database should maintain the **gender, and age** of each player. Each player should also have one **'phone number** stored. Schedule and **field locations** for each of the games the teams will play.

**Scenario 3 – Student Internship Database**

A **local university** is starting an internship program for its seniors to gain real world experience in **local businesses** to gain real-world experiences from the business world. The following information needs to be tracked, **student**, **intern opportunity**, **company**, **degree program**, **application**. The details related to the student is **name**, **degree program**, **contact information**. For the company need to track **company name**, **address**, **contact information**, Please identify any additional information that would be necessary to support the database design.

**Scenario 4 – Children’s Playgroup**

A local community center is establishing a children’s playgroup that will introduce children in the neighborhood to other parents and children. This playgroup will sponsor **weekly play sessions** with a **structured activity** and **free play time** each week. If this program is successful, the community center would like to offer this play **session on a daily** basis. The following information needs to be considered, a parent can have more than one child, the **parent information**, including **name**, **phone number**, and **mailing address** need to be tracking. **Child’s name**, **gender** and **age** need to be tracked. The ability to track one or more **sessions,** including **date, time, location** and **session type**. Eventually the community center would like to add additional **special “activities”** that the parents and children would be interested.

**Scenario 5 – Pet Sitting Service Company**

A local company is starting that will provide pet sitting services for the local community. This company will **provide in-house** and **daily pet** sitting services for **dogs, cats, fish, birds and reptiles**. Each of their employees is insured and are certified pet care specialists.

The company needs to track the following **employee information**, **employee name**, and **address, pet types certified to support**, **hourly rate** and **availability.** Information about the **pet owner** needs to be track, including **pet owner name**, **address**, **billing information**, and **phone number**. The pet information includes **pet** **type**, **pet name**, **pet medications**, **pet likes** and **dislikes**. The company needs to track the **pet sitting requirements** for each pet, including in-house or **number of visits per day**, **total number of days for pet sitting** order, **special requirements** for pet.

In addition any **special pet food**, **treats** or information needs to be track about each pet. Each pet owner can have one or more pets.

# Scenario 1

Details: The main focus of the business is renting cars and vans, and the database is to manage the booking system.

1) Vehicles are categorized into **small cars** (suitable for carrying up to 4 people), **family cars** (suitable for carrying up to 7 adults), and **vans**.

2) Information stored for each booking includes **customer**, car, **date of hire** and date on which the vehicle is to be **returned**.

3) A customer cannot hire a car for **longer than a week**.

4) If a vehicle is available, the customer's details are recorded (if not stored already) and a new booking is made.

5) Potential or existing customers can book a vehicle up to **7 days in advance** depending on availability.

6) Customers must **pay** for the vehicle at the time of hire.

7) On receiving an **enquiry**, employees are required to check availability of cars and vans.

8) **An invoice** is written at the time of booking for the customer.

9) If the booking has been made in advance, a **confirmation letter** will be sent to the customer.

10) A **report** is printed at the **start of each day** showing the bookings for that particular day.

A. What are the Things of Interest ?

A.1 Bookings

A.2 Cars

A.3 Confirmation Letters

A.4 Customers

A.5 Invoices

A.6 Payments

A.7 Vans

A.8 Vehicles

B. How are the Things of Interest related ?

B.1 A Booking is for one Vehicle and one Customer.

B.2 A Customer can be associated with one or many Vehicles.

B.3 A customer cannot hire a car for longer than a week.

B.4 A Customer can receive one or many Invoices.

B.5 A Vehicle can be a Car or a Van.

B.6 An Invoice is for one and only one Customer.

C. What are the characteristics of the Things of Interest ?

C.1 Customer details include name,address, gender telephone number.

C.2 Each booking includes customer, car, date of hire and

date on which the vehicle is to be returned.

# Scenario 2

**Catalogue**: yes, the point would be to provide access to the **inventories** of

several **suppliers**, so that the **customer** could search and compare on **price**,

**quality**, **delivery times**, etc. **Shopping basket** would be essential. The

optimal solution, to break into the commercial market would be true B2B

e-commerce portal functionality, which would allow ordering from **car**

**maintenance** / **workshop software packages**. Currently, these packages in the

US do provide a certain amount of this functionality, but it is not as

integrated as it should be, due to the incompatibility of cataloguing

information.

A Database to be built and support an e-commerce web application.

This would include a **Search facility** so that people could look for the Parts that they were interested in.

The data model would contain :-

Component – part hierarchies,

Fields such as weight, condition, mileage of donor vehicle, etc.

A. Things of Interest :-

A.1 Addresses

A.2 Customers

A.3 Car Parts

A.4 Suppliers

A.5 Vehicles

Organizations include :-

Suppliers.

People include :-

Customers, Suppliers.

Transactions include :-

Purchase and Payments.

C. How are these Things of Interest related ?

C.1 A Person can be related to many Organizations.

C.2 An Organization can be related to many People.

# Scenario 3

The Things of Interest include :-

Clinics

Pharmaceutical

Supplies

Suppliers

How are these Things related :-

A Supplier can supply one or many Supplies.

A Supply can be supplied by one or many Suppliers.

Characteristics of these Things :-

A Pharmaceutical Item has :-

A unique Drug Number, etc..

A Non-Pharmaceutical Item has :-

A unique Item Number, etc..

# Scenario 4

Subject: Tracking Visits of Pharmaceutical Vendors

Question: A doctor needs to register visit of pharmaceutical vendors in his office.

Vendor works for one lab, offers several medical products.

Need to track date and product as detail of visit.

Question 1

Go through the requirement below & draw out the conceptional model. Below is the biz requirement or business processs

1. The Area being Modelled is :-

2. A Online Banking.

3.

4. A. STATEMENT OF USER REQUIREMENTS :

5. i. A **Customer** must have a valid User Id and **password** to login to the system

6. ii. If a wrong password is given thrice in succession, that **account** will be locked and the customer will not be able to use it.

7. When an invalid password is entered a warning is given to the user that his account is going to get locked.

8. iii. After the valid user logs in he is shown the list of accounts he has with the bank.

9. iv. On selecting the desired account he is taken to a page which shows the present balance in that particular account number

10. v. User can request details of the last ‘n’ number of **transactions** he has performed.

11. A **report** can also be taken of this.

12. vi. User can make a funds transfer to another account in the same bank. User is provided with a transaction password

13. which is different from the login password.

14. vii. User can transfer funds from his account to any other account with this bank. If the transaction is successful a

15. **notification** should appear to the customer, in case it is unsuccessful, a proper message should be given to the

16. customer as to why it failed.

17. viii. User can **request** for cheque book/change of address/stop payment of cheques

18. ix. User can view his monthly as well as annual **statements**. He can also take print out of the same.

19.

20. That is the end of the Functional Requirements for the Database.

21.

22. A GLOSSARY OF THE THINGS OF INTEREST INCLUDES ...

23. 1. Accounts

24. 2. Addresses

25. 3. Customers

26. 4. Transactions

Question 2:

Go through the business overview & design the Conceptional data model

The Area being Modelled is :-

Subject: Car / Vehicle Sales (Simple)

Question: Gofar Travel **Vehicles** sells new and used recreational vehicles.

When new vehicles arrive at Gofar Travel Vehicles from the **manufacturer**, a new vehicle record is created.

Included in the new vehicle record is the following information:

• vehicle identification number (VIN)

• name

• model

• year

• name of manufacturer

• cost or amount paid to the manufacturer.

When a customer arrives at Gofar Travel Vehicles, he/she works with a **salesperson** to discuss a vehicle purchase.

The customer can purchase a new or used vehicle.

On the new vehicle the customer can **add options** like a microwave, special lighting, fridge, stove, better seats etc.

When the purchase has been agreed to, a **sales invoice** is completed by the salesperson.

The invoice summarizes the details of the purchase.

It will include all customer information, information on the vehicle being purchased and any options (if any),

information on the trade-in vehicle and the trade-in dollar amount allowed (if a trade in exists).

If the customer requests dealer-installed options, they will be listed on the invoice as well as the price.

The invoice also summarizes the final price, plus any applicable taxes (7%) and license fees.

The **transaction** concludes with a customer signature on the sales invoice.

Customers are assigned a customer ID when they make their first purchase from Gofar Travel Vehicles.

Name, address, and phone number are recorded for the customer.

If there is a trade-in vehicle it is described by a serial number, make, **model**, and year.

Dealer installed options are described by an option code, description, cost from the manufacturer and selling price.

Each invoice will list just one customer and one vehicle sold.

It is rare but if a customer wants 2 vehicles then it requires two invoices be prepared.

A person does not become a customer until they purchase a vehicle.

Over time, a customer may purchase a number of vehicles from Gofar Travel Vehicles.

Every invoice must be filled out by only one salesperson.

A new salesperson may not have sold any vehicles, but experienced salespeople have sold many vehicles.

A customer may decide to have no options added to the vehicle, or may choose to add many options.

The optional equipment (stove, fridge, fire extinguisher) is stored in the warehouse.

An option like a fire extinguisher can be installed on different types of vehicles.

A customer may **trade in** only one vehicle toward the purchase of a new vehicle.

The trade in vehicle may be sold later to another customer, who later trades it in on another Gofar Travel Vehicle.

The same vehicle over time can be sold several times. 1)

Design the database to handle the above. 1. Relationships 2. Mapping Entities to table 3. Relation Schema

4. Relation Instance 5. Entity Relationship Diagram 6. ERD representation of Relational Schema 7. Normalization.