Assignment 1

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Question 1
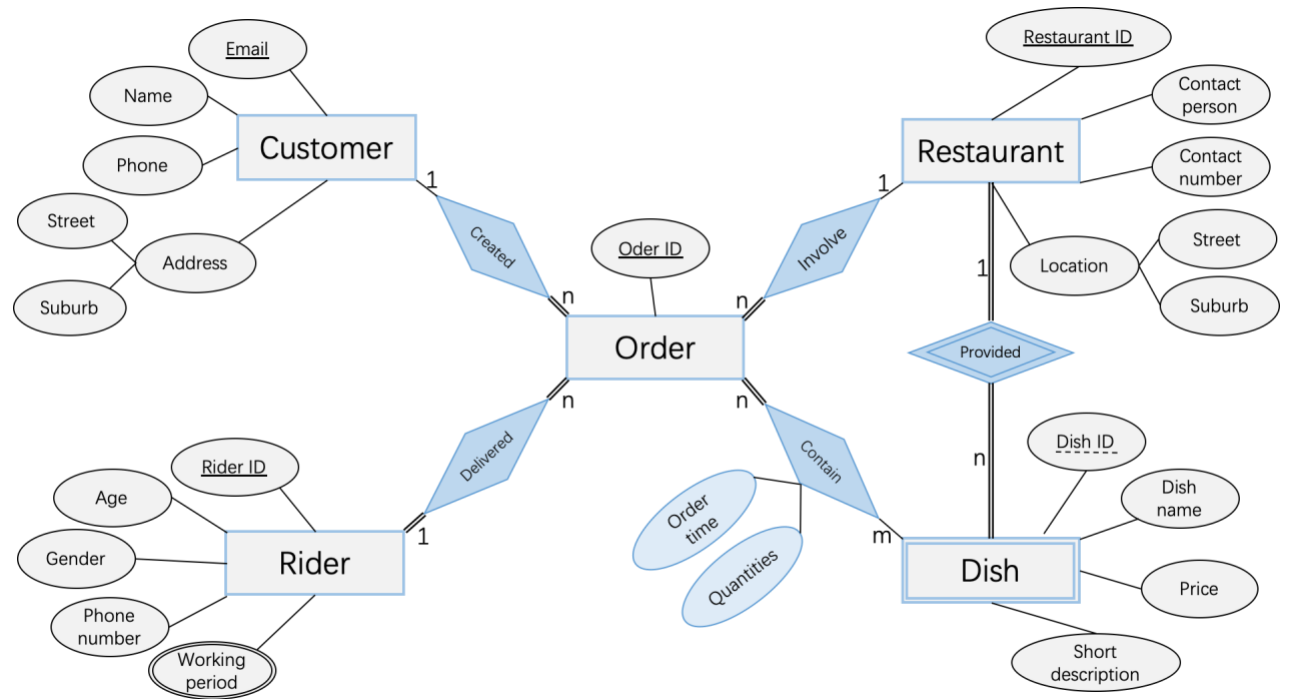
Question 2

Customer

Email	Name	Phone	Add_suburb	Add_street

Rider

Rider_ID	Age	Gender	Phone number

Working periods

Rider_ID	Working periods

Restaurant

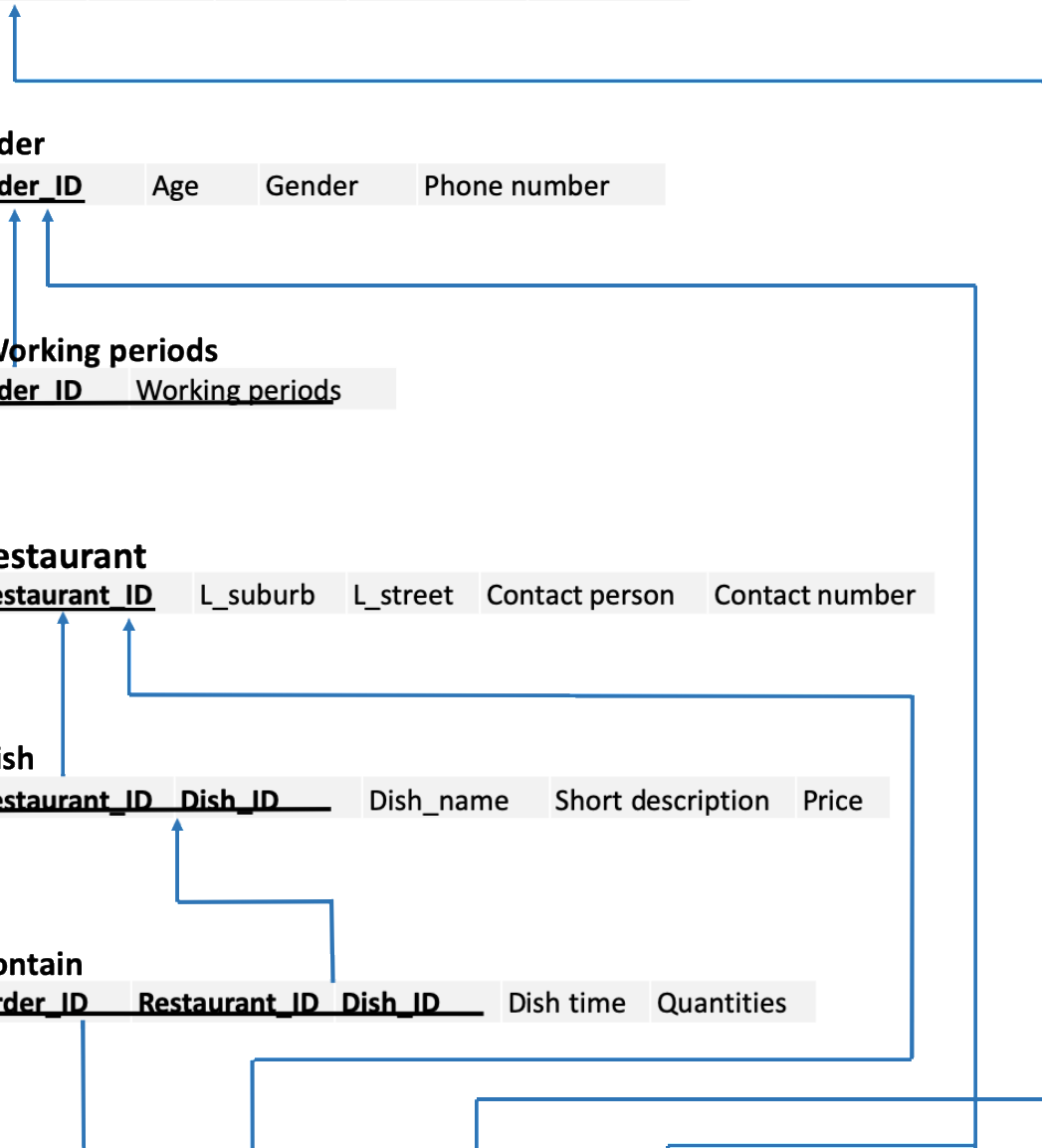| Restaurant_ID	L_suburb	L_street	Contact person	Contact number

Dish

Restaurant_ID	Dish_ID	Dish_name	Short description	Price

Contain

Order_ID	Restaurant_ID	Dish_ID	Dish time	Quantities

Order

Oder_ID	Restaurant_ID	Customer Email	Rider_ID

Question 3

1) <u>Find the titles of pop songs that are composed by Taylor Swift</u>

Lets:

$$S\_G\_A\_SC \implies (Song \bowtie GenreOfSong \bowtie Artise \bowtie SongCreating)$$

$$\prod\nolimits_{title} (\sigma_{name = 'Taylor\ Swift'\ \textbf{and}\ genre = 'pop\ song'\ \textbf{and}\ Role = 'composer'}\ (S\_G\_A\_SC))$$

2) <u>Find the titles of songs that are composed by Taylor Swift or Ed Sheeran</u>

Lets:

$$S\_A\_SC \implies (Song \bowtie Artist \bowtie SongCreating)$$

$$\prod\nolimits_{title} (\sigma_{name = 'Taylor\ Swift'\ \textbf{or}\ name = 'Ed\ Sheeran'}\ (S\_A\_SC) \cap \sigma_{Role = 'composer'}(S\_A\_SC))$$

3) <u>Find the names of female artists in Universal Music Group who have participated in creating some pop songs but have never participated in creating any hip-hop songs.</u>

Lets:

$$A\_C\_J \implies (Artist \bowtie Company \bowtie JoinIn)$$

$$F\_NAME\_IN\_UMG$$

$$\implies \prod\nolimits_{name, aID} (\sigma_{gender = 'Female'\ \textbf{and}\ Name = 'Universal\ Music\ Group'}\ (A\_C\_J))$$

$$G\_SC \implies (GenreOfSong \bowtie SongCreating)$$

$$POP\_NOHIP \implies \prod\nolimits_{aID} (\sigma_{Genre = 'pop-song'}\ (G\_SC)) - \prod\nolimits_{aID} (\sigma_{Genre = 'hip-pop'}\ (G\_SC))$$

$$\prod\nolimits_{name} (F\_NAME\_IN\_UMG \bowtie POP\_NOHIP)$$

4) <u>Find the names of the artists who have participated in creating all genres of songs and have cooperated with Taylor Swift at least once when creating songs. Note that, Taylor Swift herself should be excluded from the result.</u>

Lets:

$$S\_A\_G \Rightarrow (SongCreating \bowtie Artist \bowtie GenreOfSong)$$

$$ALL\_G\_ARTISTS \Rightarrow \prod_{name,genre} (S\_A\_G) \div \prod_{genre} (GenreOfSong)$$

$$TL\_PARTICIPATE \Rightarrow \prod_{sID,name} (\prod_{sID} (\sigma_{name='Taylor\ Swift'}(S\_A\_G)) \bowtie S\_A\_G)$$

$$\sigma_{name \neq 'Taylor\ Swift'}(\prod_{name} (TL\_PARTICIPATE \bowtie ALL\_G\_ARTISTS))$$