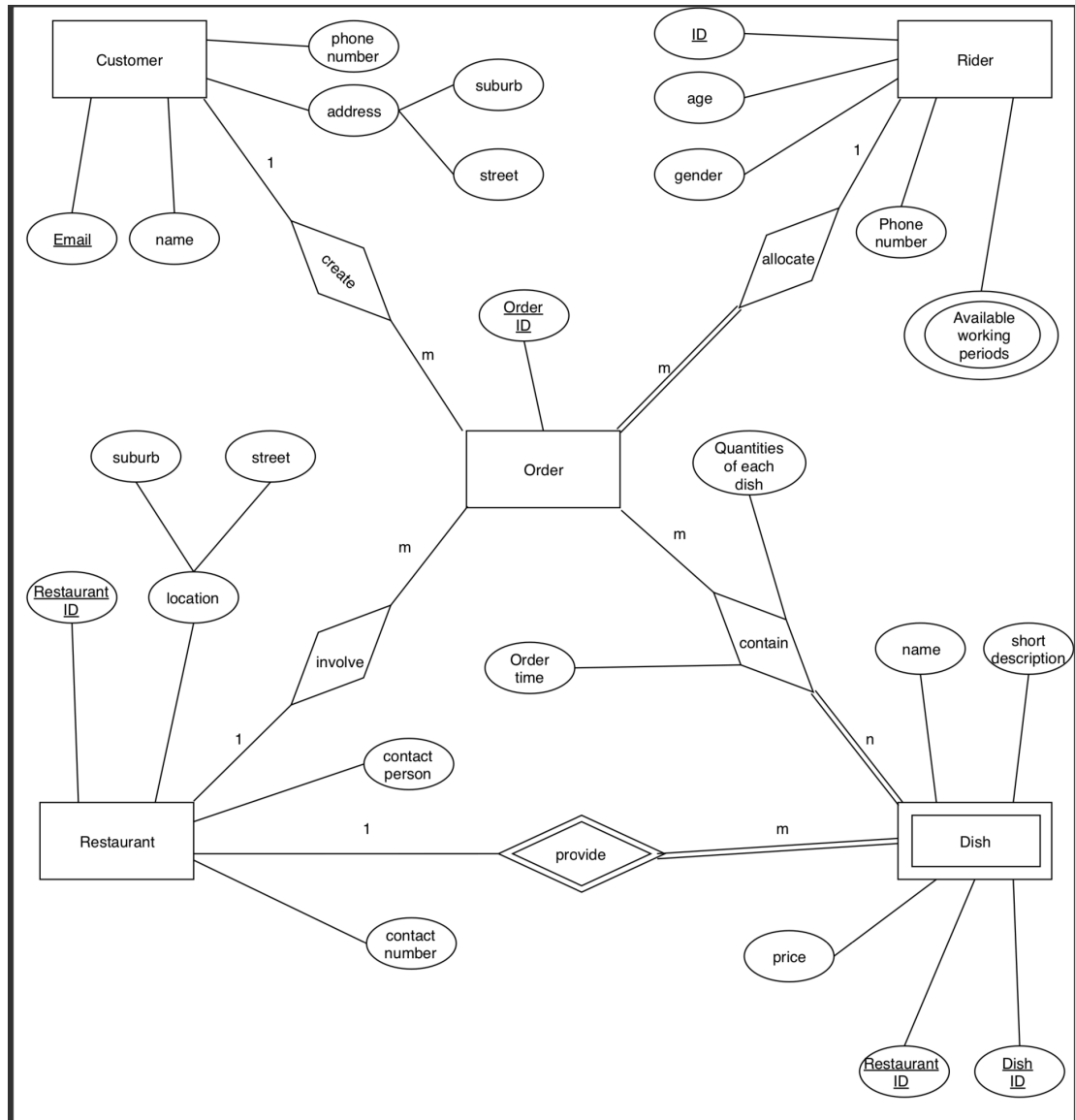


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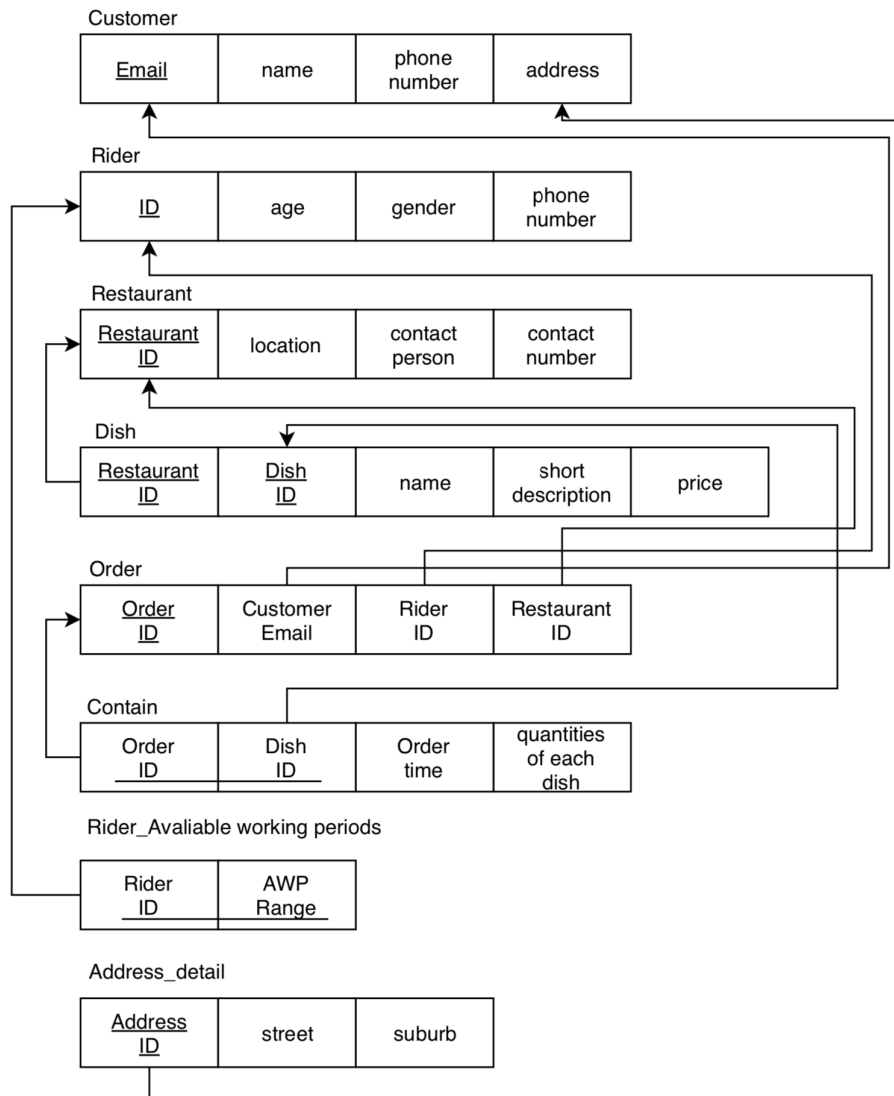
Assignment1

Dong Hang (5227948)

Question1



Question2



Question3

(1):

$$\pi_{\{title\}}(Song \bowtie ((\sigma_{(genre = 'pop')}(GenreOfSong)) \bowtie (\sigma_{(name = 'Taylor Swift')}(Artist) \bowtie SongCreating)))$$

(2):

$$A \leftarrow \pi_{\{title\}}(Song \bowtie (\sigma_{(name = 'Taylor Swift')}(Artist) \bowtie SongCreating))$$

$$B \leftarrow \pi_{\{title\}}(Song \bowtie (\sigma_{(name = 'Ed Sheeran')}(Artist) \bowtie SongCreating))$$

$$C \leftarrow (A \cup B) - (A \cap B)$$

(3):

$$A \leftarrow \pi_{\{name\}}(\sigma_{(gender = 'Female')}(Artist) \bowtie (\sigma_{(genre = 'pop')}(GenreOfSong) \bowtie SongCreating \bowtie (\sigma_{(Name = 'Universal')}(Company) \bowtie JoinIn)))$$

$$B \leftarrow \pi_{name}(\sigma_{(gender = 'Female')}(Artist) \bowtie (\sigma_{(genre = 'hip-pop')}(GenreOfSong) \bowtie SongCreating \bowtie (\sigma_{(Name = 'Universal Music Group')}(Company) \bowtie JoinIn)))$$

$$C \leftarrow A - B$$

(4):

$$A \leftarrow \pi_{\{SID\}}((\pi_{\{aID\}}(SongCreating \bowtie GenreOfSong) \div (\pi_{(genre)}(GenreOfSong)))) \bowtie SongCreating \bowtie Artist$$

$$B \leftarrow \pi_{\{SID\}}(\sigma_{(name = 'Taylor Swift')}(Artist \bowtie SongCreating))$$

$$C \leftarrow A \cap B$$

$$D \leftarrow \pi_{\{name\}}(C \bowtie SongCreating \bowtie Artist)$$

$$E \leftarrow \pi_{\{name\}}(\sigma_{(name = 'Taylor Swift')}(Artist))$$

$$F \leftarrow D - E$$