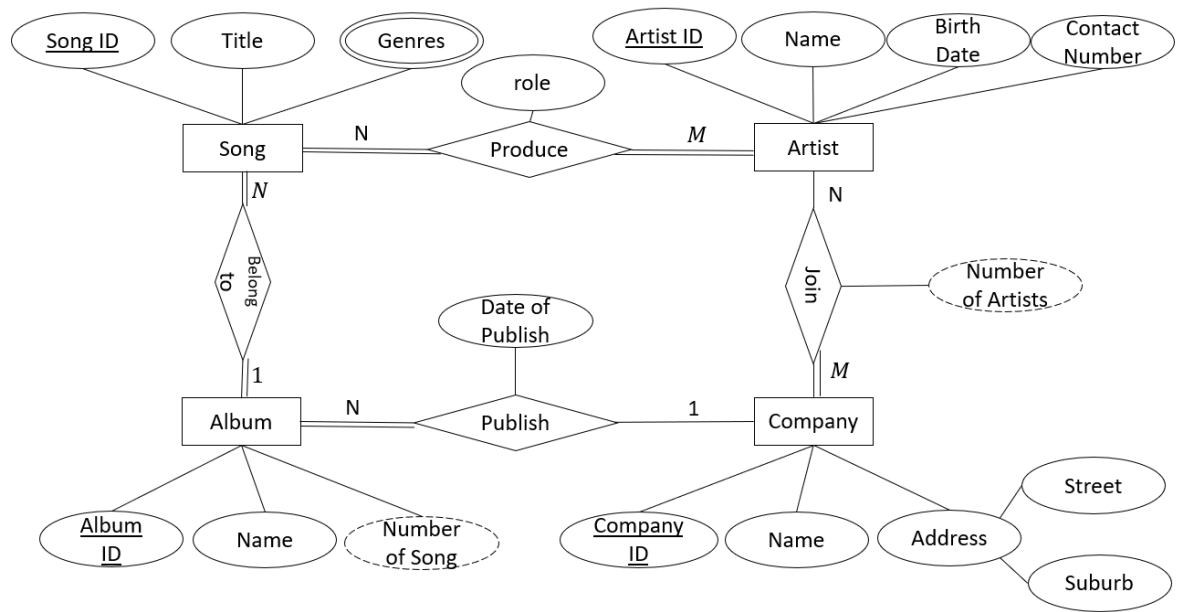
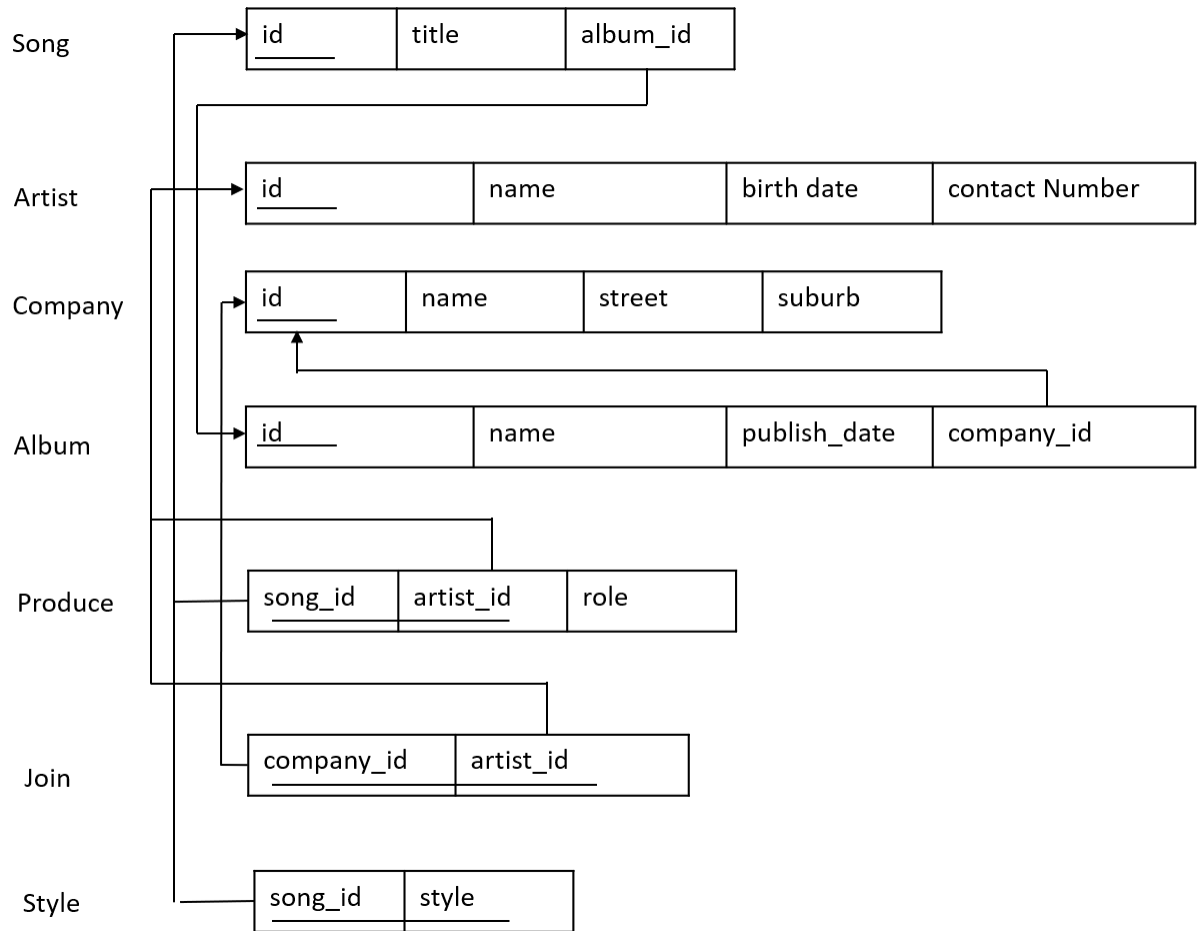


Q1.



Q2.



Q3.

1.  $A \leftarrow \text{Movie} \bowtie_{(mID)} \text{MovieShowing} \bowtie_{(cID)} \sigma_{(cName='Event' \text{ and } location='GeorgeST')} \text{Cinema}$   
 $B \leftarrow \pi_{\{title\}}(A \bowtie_{mID} \sigma_{genre='comedy'} \text{GenreOfFilm})$

2.  $A \leftarrow \text{Movie} \bowtie_{(mID)} \text{MovieShowing} \bowtie_{(cID)} \sigma_{(cName='Event' \text{ and } location='Chatswood')}(\text{Cinema})$   
 $B \leftarrow \text{Movie} \bowtie_{(mID)} \text{MovieShowing} \bowtie_{(cID)} \sigma_{(cName='Hoyts' \text{ and } location='Chatswood')}(\text{Cinema})$   
 $C \leftarrow \pi_{\{title, releaseDate\}}(A \cap B)$

3.  $A \leftarrow \text{Movie} \bowtie_{(mID)} \text{Filming} \bowtie_{(dID)} (\sigma_{(name='JamesWan')} \text{Director})$   
 $B \leftarrow \pi_{\{name\}}(\sigma_{(gender='male')} \text{Customer} \bowtie_{(cusID)} \text{WatchMovie} \bowtie_{mID} \sigma_{(title='Aquaman')} A)$   
 $C \leftarrow \pi_{\{name\}}(\sigma_{(gender='male')} \text{Customer} \bowtie_{(cusID)} \text{WatchMovie} \bowtie_{mID} \sigma_{(title \neq 'Aquaman')} A)$   
 $D \leftarrow B - C$

4.  $A \leftarrow \pi_{\{mID\}}(\sigma_{(genre='fantasy')} \text{GenreOfFilm}) \cap \pi_{\{mID\}}(\sigma_{(genre='violence')} \text{GenreOfFilm})$   
 $B \leftarrow \pi_{\{name, mID\}}(\text{Director} \bowtie_{(dID)} \text{Filming} \bowtie_{(mID)} A)$   
 $C \leftarrow \pi_{\{name, mID\}}(\text{Customer} \bowtie_{(cusID)} \text{WatchMovie} \bowtie_{(mID)} A)$   
 $D \leftarrow \pi_{\{name\}}(B \cap C)$

5.  $A \leftarrow \pi_{\{mID\}}(\sigma_{(runningTime > 120)} \text{Movie})$   
 $B \leftarrow \pi_{\{name\}}(\sigma_{(age \geq 30 \text{ and } age \leq 50)}(\text{Customer} \bowtie_{(cusID)} (\text{WatchMovie} \div A)))$   
 $C \leftarrow \pi_{\{name\}}(\text{Customer} \bowtie_{(cusID)} \text{WatchMovie} \bowtie_{(cID)} \sigma_{(cName='Hoyts')} \text{Cinema})$   
 $D \leftarrow B - C$