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CPSC321 HW-2

1.

album(<u>title, year_recorded, record_label</u>, group_id)
FK: album(<u>title, year_recorded, record_label</u>) **REFS** music_group.group_id

music_group(<u>group_id</u>, group_name, year_created)

genre(<u>genre_label</u>, genre_descrip)

group_genre(<u>group_id</u>, <u>genre_label</u>)
FK: group_genre.group_id **REFS** music_group.group_id
group_genre.genre_label **REFS** genre.genre_label

artist(<u>artist_id</u>, artist_name, birth_year)

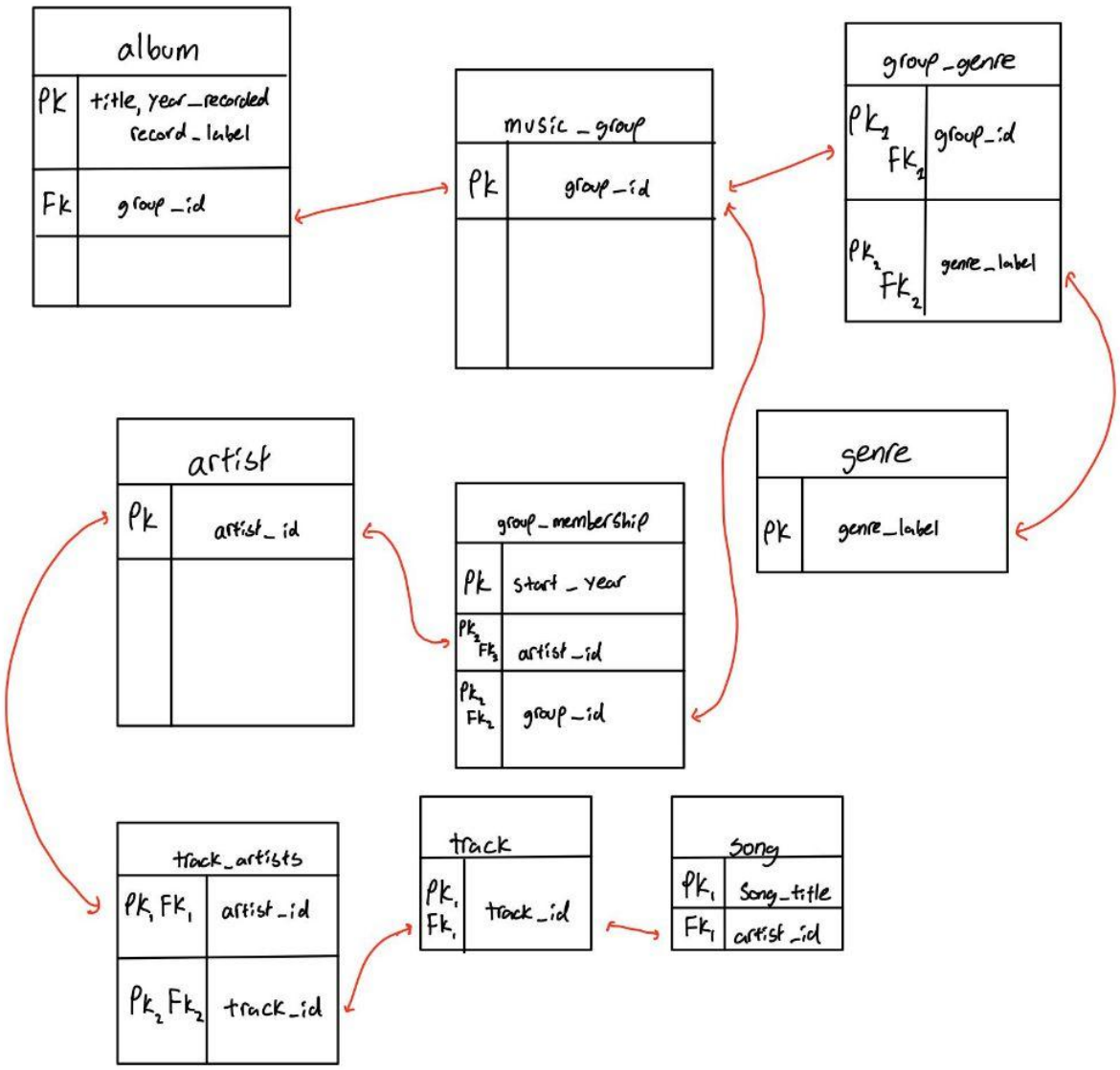
group_membership(<u>artist_id</u>, <u>group_id</u>, <u>start_year</u>, end_year)
FK: group_membership.artist_id **REFS** artist.artist_id
group_membership.group_id **REFS** music_group.group_id

track(<u>track_id</u>, track_name, year_rec)
FK: track.track_id **REFS** song.song_title

song(<u>song_title</u>, year_written, artist_id)
FK: song.artist_id **REFS** track.track_id

track_artists(<u>track_id</u>, <u>artist_id</u>)
FK: track_artists.track_id **REFS** track.track_id
track_artists.artist_id **REFS** artist.artist_id

2.



3.

Based on the given definition of a “well designed” schema, I’d say that my schema is pretty decent as it does not have very much redundancy. All attributes and constraints are met, and they are all separated into a variety of relations with lots of foreign keys to link it all together. Visualizing my schema using a schema diagram helps confirm this.

4.

(a) $\pi_{maker}(Product \bowtie (\sigma_{hd >= 256}(laptop)))$

(b) $\pi_{model, price}(pc \bowtie_{maker = B}(Product))$

(c) $\pi_{maker}(Product \bowtie (laptop - (laptop \bowtie pc)))$

(d) $\pi_{hd}(\sigma_{count > 1}(pc1.hd = pc2.hd)(\rho_{pc2}(pc) \bowtie \rho_{pc2}(pc)))$

(e) $\pi_{maker}(\sigma_{speed = max\_speed}(pc)(pc))$