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Primary key and candidate keys of all relations:

Below is the list of all the primary keys, candidate keys and foreign keys for every relation in relational mapping. We have not mentioned the primary key again in the candidate key. (Every primary key is a candidate key as well).

Relation name	Primary key	Candidate keys	Foreign keys
Songs	song_id	-	song_id
Avail_songs	song_id	avail_song_id	avail_song_id
Unavail_songs	song_id	unavail_song_id	unavail_song_id
Person	PID	-	PID
Person-phone	{PID, phone_no}	-	-
Person-email	{PID, email}	-	-
Customer	PID	cust_id	cust_id
Customer-genre_pref	{cust_id, genre_pref}	-	-
Producer	PID	producer_id	producer_id
Artist	PID	artist_id	artist_id
Singer	artist_id	singer_id	singer_id
Composer	artist_id	composer_id	composer_id
Buys_rents	{cust_id, avail_song_id}	trans_id	-
Likes	{cust_id, avail_song_id}	-	-
Requests	{unavail_song_id, cust_id}	req_id	-
Produces	{song_id, producer_id}	-	-
Follows	{cust_id, artist_id}	-	-
Sings	{singer_id, song_id}	-	-
Composes	{composer_id, song_id}	-	-

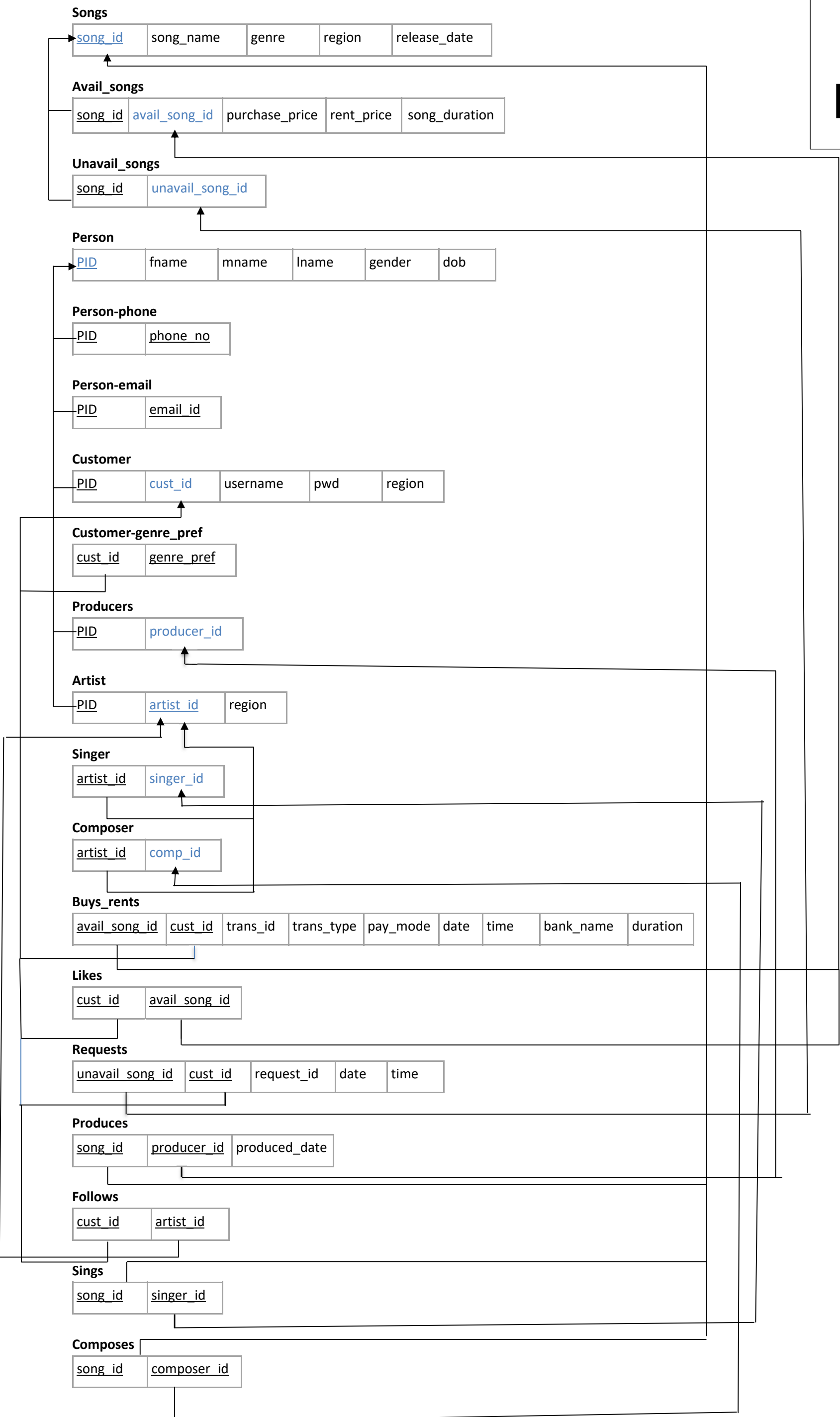
Functional dependencies:

Relation name	Functional dependencies
Songs	$song_id \rightarrow \{song_name, genre, region, release_date\}$
Avail_songs	$song_id \rightarrow \{avail_song_id, purchase_price, rent_price, duration\}$ $avail_song_id \rightarrow \{song_id, purchase_price, rent_price, duration\}$
Unavail_songs	$song_id \rightarrow \{unavail_song_id\}$ $unavail_song_id \rightarrow \{song_id\}$
Person	$PID \rightarrow \{fname, mname, lname, gender, dob\}$
Person-phone	-
Person-email	-
Customer	$PID \rightarrow \{cust_id, username, pwd, region\}$ $cust_id \rightarrow \{PID, username, pwd, region\}$
Customer-genre_pref	-
Producer	$PID \rightarrow \{producer_id\}$ $producer_id \rightarrow \{PID\}$
Artist	$PID \rightarrow \{artist_id, region\}$ $artist_id \rightarrow \{PID, region\}$
Singer	$artist_id \rightarrow \{singer_id\}$ $singer_id \rightarrow \{artist_id\}$
Composer	$artist_id \rightarrow \{comp_id\}$ $comp_id \rightarrow \{artist_id\}$
Buys_rents	$\{cust_id, avail_song_id\} \rightarrow \{trans_id, trans_type, pay_mode, date, time, bank_name, duration\}$ $trans_id \rightarrow \{cust_id, avail_song_id, trans_type, pay_mode, date, time, bank_name, duration\}$
Likes	-
Requests	$\{unavail_song_id, cust_id\} \rightarrow \{request_id, date, time\}$ $request_id \rightarrow \{unavail_song_id, cust_id, date, time\}$
Produces	$\{song_id, PID\} \rightarrow \{produced_date\}$
Follows	-
Sings	-
Composes	-

In the above table we have not mentioned the obvious function dependencies such as self dependencies ($X \rightarrow X$) and others.

On the next page we have the mapping of all relations. All foreign keys have font color blue and the primary keys are underlined.

Mapping of Relations



Team Members:

1. *Pratik Antoni Patekar (1001937948)*
2. *Harshal Hemant Bhope (1002064141)*
3. *Sanket Rajendrakumar More (1001952737)*
4. *Keyur Pradip Mushrif (1002080033)*