

Roughwork

TBL\_EMPLOYEE

EMPID (PK)	NAME	SALARY	DOJ	ADDRID(FK)
101	RAJ	10000	10-JUN-2023	111

TBL\_ADDRESS

ADDRID (PK)	CITY	PINCODE	LANDMARK	EMPID (FK)
111	MUMBAI	400001	...	101

# One to One Association

TBL\_EMPLOYEE

EMPID (PK)	NAME	SALARY	DOJ	ADDRID(FK)
101	RAJ	10000	10-JUN-2023	111
102	RAM	20000	10-MAY-2021	222

TBL\_ADDRESS

ADDRID (PK)	CITY	PINCODE	STATE	
111	MUMBAI	400001	MH	
222	PUNE	411002	MH	

# One to One Association

TBL\_EMPLOYEE

EMPID (PK)	NAME	SALARY	DOJ	ADDRID(FK)
101	AMBAR	10000	10-JUN-2023	

WHAT TO DO TO STORE  
ADDRESS OF AMBAR?

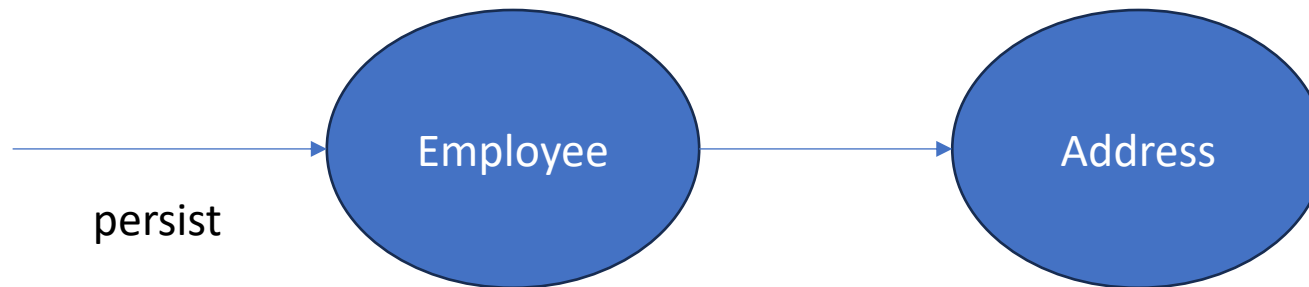
1. WE NEED TO  
INSERT ADDRESS  
RECORD IN IT'S  
TABLE
2. THEN UPDATE  
AMBAR'S RECORD  
WITH THE ADDRESS  
ID

TBL\_ADDRESS

ADDRID (PK)	CITY	PINCODE	STATE	

# Cascading

We need a way by which if I store Employee Data in the Database, the corresponding Address of that Employee should also get stored automatically in the Database



If we add Employee, Address should also get added

If we update Employee, Address should also get updated

If we delete Employee, Address should also get deleted

The solution is to use CASCADING

# One to One Association

TBL\_PERSON

PERSON_ID (PK)	NAME	EMAIL	DATE_OF_BIRTH	
101	MAJRUL	...	...	

TBL\_PASSPORT

PASSPORT_ID	ISSUED BY	ISSUE_DATE	EXPIRY_DATE	PERSON_ID (FK)
K123456	GOVT. OF INDIA	10-APR-2012	09-APR-2022	101

1. Create the Entities
2. Write code for the following scenarios:
  1. First add Person, then add Passport details of that person
  2. Add Person and Passport details together
  3. Practice writing SELECT queries
    1. Fetch persons whose Age is >= 18
    2. Fetch persons whose passport has expired

# One to Many Association

TBL\_ALBUM/MOVIE (ONE TO MANY)

ALBUM_ID (PK)	NAME	RELEASE_DATE	COPYRIGHT	
101	HITS OF 2022	25-DEC-2022	SONY MUSIC	
102	HITS OF 2021	25-DEC-2021	AMAZON MUSIC	

TBL\_SONG (MANY TO ONE)

SONG_ID (PK)	TITLE	ARTIST	GENRE	ALBUM_ID (FK)
111	SONG1	ARIJIT SINGH	POP	101
222	SONG2	SHREYA GHOSHAL	ROCK	101
333	SONG3	ARIJIT SINGH	POP	102

ALBUM & SONG -> ONE TO MANY  
SONG & ARTIST -> MANY TO MANY

TBL\_ALBUM/MOVIE

ALBUM_ID (PK)	NAME	RELEASE_DATE	COPYRIGHT
101	HITS OF 2022	25-DEC-2022	SONY MUSIC
102	HITS OF 2021	25-DEC-2021	AMAZON MUSIC

TBL\_SONG

SONG_ID (PK)	TITLE	GENRE	ALBUM_ID (FK)
111	SONG1	POP	101
222	SONG2	ROCK	101
333	SONG3	POP	102

TBL\_ARTIST

ARTIST_ID	NAME	CITY
100	Arijit Singh	Mumbai
200	Shreya Ghoshal	Delhi
300	Neha Kakkar	Mumbai

TBL\_SONG\_ARTIST

ID (PK)	SONG_ID (FK)	ARTIST_ID (FK)
1	111	100
2	111	200
3	222	100
4	222	300



# Many to Many

TBL\_STUDENT

STUDENT_ID	NAME	EMAIL
111	RAM	...
222	RAVI	...
333	OM	...

TBL\_COURSE

COURSE_ID	NAME	FEES
100	JAVA	5000
200	.NET	4000
300	REACT	3000

TBL\_ENROLLMENT

STUDENT_ID	COURSE_ID
111	100
222	100
111	300
333	300
222	200

In Projects, for many to many association also, we use one to many style mapping

The issue with many to many is that the 3<sup>rd</sup> table cannot contain extra columns apart from FK

What if we want to keep enrollment\_date in the 3<sup>rd</sup> table along with the fk columns? The solution is to use one to many style mapping

TBL\_STUDENT

STUDENT_ID	NAME	EMAIL
111	RAM	...
222	RAVI	...
333	OM	...

TBL\_COURSE

COURSE_ID	NAME	FEES
100	JAVA	5000
200	.NET	4000
300	REACT	3000

TBL\_ENROLLMENT

STUDENT_ID	COURSE_ID	ENROLLMENT_DATE
111	100	10-JUN-2023
222	100	11-JUN-2023
111	300	5-JUN-2023
333	300	
222	200	

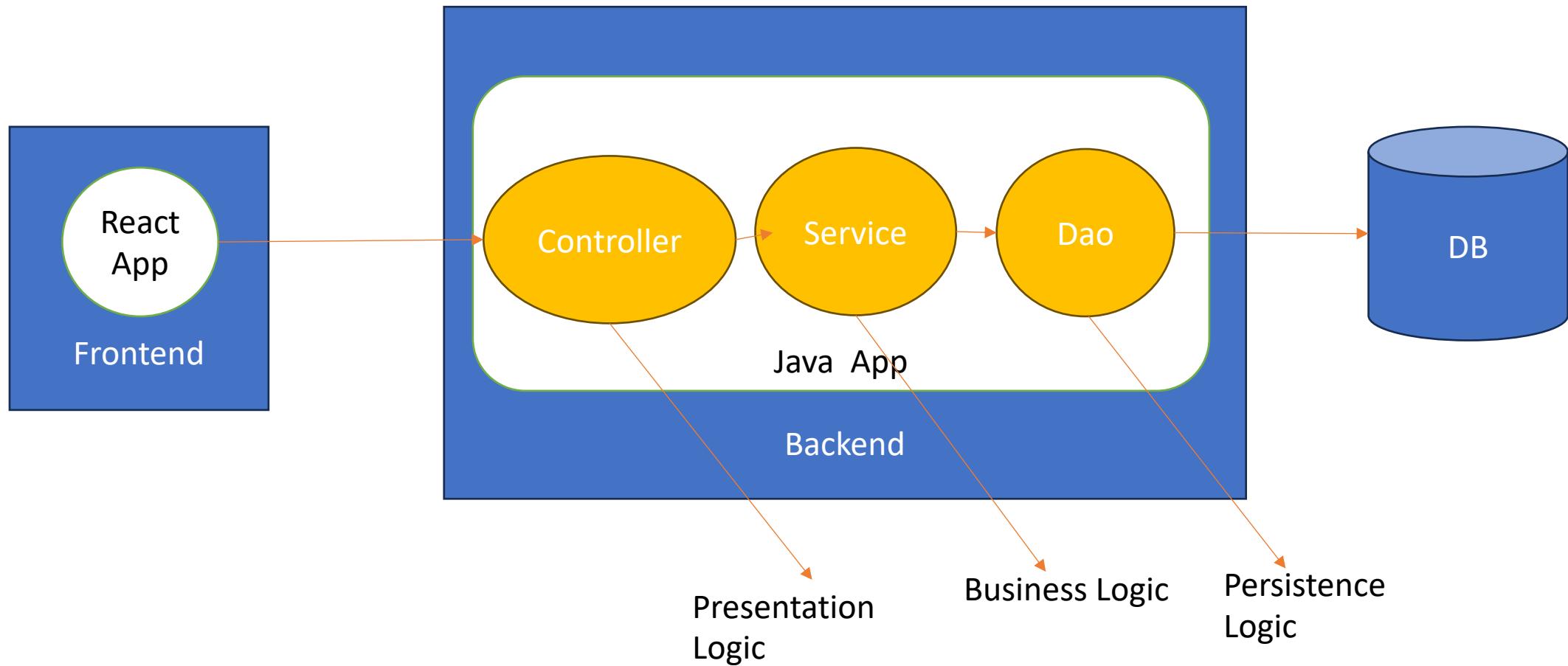
# One to Many Association

TBL\_ACCOUNT (ONE TO MANY)

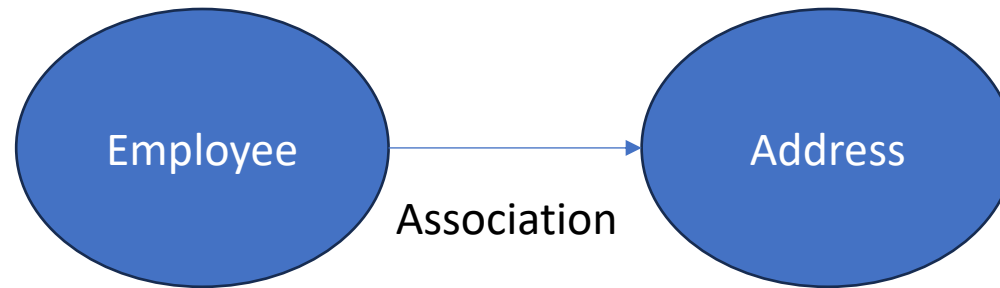
ACNO	NAME	TYPE	BALANCE	
101	MAJRUL	SAVINGS	5000	
102	ANIKET	CURRENT	5000	

TBL\_TRANSACTION (MANY TO ONE)

TXNO	DATE_AND_TIME	AMOUNT	TYPE	ACNO
111	20-JUNE-2023	1000	WITHDRAW	101
222	25-JUNE-2023	1000	WITHDRAW	102
333	30-JUNE-2023	5000	DEPOSIT	101
444	22-JUNE-2023	2000	DEPOSIT	102
555	25-JUNE-2023	1000	WITHDRAW	102



# Lazy/Eager Loading



Suppose we fetch Employee Data from the Database, will Hibernate also fetch the Address of that Employee?

The answer to this question depends on whether the association between the entity is defined as lazy or eager loading

The default behaviour of Hibernate/JPA is:

1. For one to one and many to one, eager loading is used
2. For one to many and many to many lazy loading is used

# ORM

- There are many ORMs in Java:
  - Hibernate
  - Toplink
  - Eclipselink
  - Datanucleus
- What happens if we use Hibernate's API, then our code will work only with Hibernate ORM
  - What if we want to tomorrow shift to a different ORM in our project?
    - The solution is to use a standard API called as JPA
    - JPA is a standard for all ORMs in Java
    - In other words, we can say all ORMs are JPA compliant

# TODO

- Use Many to Many association
- What is the meaning of transient and detached objects in Hibernate
- What is Caching and How it be implemented using Hibernate
- Check what is the difference between Hibernate and JPA