

## Relational Mapping:

Passenger

<u>P_id</u>	Fname	Lname	D.O.B	Email	Zip code	Street Address
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Passenger Contacts

<u>P_id</u>	<u>Contact Number</u>
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Scheduler

<u>S_id</u>	Date	Time	Seat Capacity	R_id
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Ticket

<u>T_id</u>	Mode of booking	S_id	P_id
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Books

<u>T_id</u>	<u>Date</u>	<u>Time</u>	No.of tickets
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Employee

<u>E_id</u>	Fname	Lname	Email	S_id
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Employee\_Contact

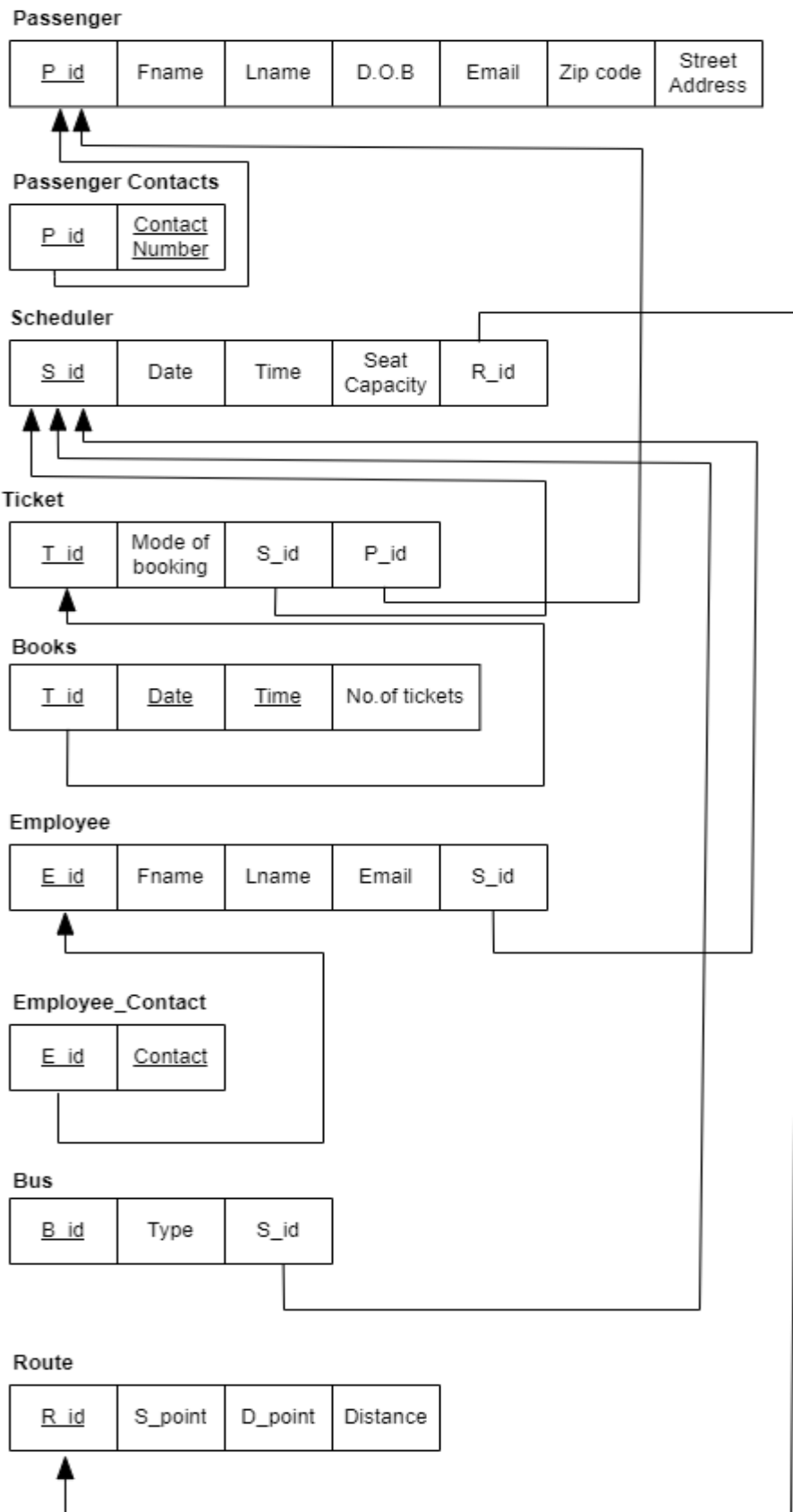
<u>E_id</u>	<u>Contact</u>
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Bus

<u>B_id</u>	Type	S_id
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Route

<u>R_id</u>	S_point	D_point	Distance
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## Relations, Primary Key, Foreign Key, Candidate Key, Functional Dependency

Relations	Primary Key	Foreign Key	Candidate Key	Functional Dependency
Passenger	P_id	-	P_id , Email	P_id → Fname P_id → Lname P_id → {Fname,Lname} P_id → D.O.B P_id → {Fname,Lname,D.O.B} P_id → Zip Code P_id → {Fname,D.O.B,Zip Code} P_id → {Lname,D.O.B,Zip Code} P_id → { Fname, Name, D.O.B, Zip Code} P_id → Street Address P_id → Email P_id → { Fname, Name, D.O.B, Zip Code, Street Address} Email → Fname Email → P_id Email → Lname Email → D.O.B Email → Zip Code Email → Street Address Email → { Fname, Name, D.O.B, Zip Code, Street Address}
Passenger_Contacts	{P_id Contact }	P_id	{ P_id Contact }	-
Scheduler	S_id	R_id	S_id,	S_id→Date S_id→Time S_id→{Date,Time} S_id→Seat capacity S_id→{Date,Seat capacity} S_id→{Time,Seat capacity} S_id→{Date,Time,Seat capacity}
Ticket	T_id	S_id P_id	T_id	T_id→Mode of Booking
Books	{T_id,date, time}	T_id	{ T_id,Date,Time }	{T_id,date, time}→No.of tickets
Employee	E_id	S_id	E_id , Email,	E_id→Fname E_id→Lname E_id→Email

Relations	Primary Key	Foreign Key	Candidate Key	Functional Dependency
				$E\_id \rightarrow \{Fname, Lname\}$ $E\_id \rightarrow \{Fname, Email\}$ $E\_id \rightarrow \{Lname, Email\}$ $E\_id \rightarrow \{F\_name, Lname, Email\}$ $Email \rightarrow Fname$ $Email \rightarrow Lname$ $Email \rightarrow E\_id$ $Email \rightarrow \{Fname, Lname\}$ $Email \rightarrow \{Fname, E\_id\}$ $Email \rightarrow \{Lname, E\_id\}$ $Email \rightarrow \{F\_name, Lname, E\_id\}$
Employee_Contact	{Eid,Contact}	E_id	{ Eid,Contact }	-
Bus	B_id	S_id	B_id	$B\_id \rightarrow Type$
Route	R_id	-	R_id	$R\_id \rightarrow S\_Point$ $R\_id \rightarrow D\_Point$ $R\_id \rightarrow Distance$ $R\_id \rightarrow \{S\_Point, D\_Point\}$ $R\_id \rightarrow \{S\_Point, Distance\}$ $R\_id \rightarrow \{D\_Point, Distance\}$ $R\_id \rightarrow \{S\_point, D\_Point, Distance\}$

Final Relational Mapping after Revision:

The relations are already in BCNF.

The tables Passengers and Employees were having multivalued attributes passenger\_contact and employee\_contact violating 1NF which were decomposed in the initial relational mapping.

Team Number : 6

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