



Department of Computer Science and Engineering

ITW II Project

(CSE-205N)

CSE IDD III RD SEMESTER

TOPIC:

RAILWAY MANAGEMENT SYSTEM



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PROJECT DESCRIPTION

AIM

The aim of the project is to create a database driven web application to facilitate the reservation of online train tickets through simple yet effective GUI for a normal passenger wishing to have a journey through train.

-> FURTHER OBJECTIVES:

1. To manage the online train ticket booking.
2. To make online payments for the tickets.
3. To manage the passenger. Details.
4. To aid cancellation of tickets and the refund thereafter.
5. To maintain train details like arrival, departure, fare, route, facilities, etc.
6. To provide necessary information like availability of seats, train status, tickets and other ongoing information etc.
7. To create a database that is consistent , reliable and secure.

Final list of relations

USER

user_id	first_name	last_name	gender	age	aadhar_no
mob_no	email_id	city	state	pincode	password

PASSENGER

passenger_id	pnr_no	age	gender	name
user_id	reservation_status	seat_no	ticket_id	

TRAIN

train_no	train_name	arrival_time	departure_time
available_seats	date	fare	total_seats

STATION

station_no	name	halt	arrival_time	train_no	wifi_availability
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TICKET

ticket_id	user_id	status	no_of_passengers	train_no	
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CANCEL

user_id	ticket_id	passenger_id	
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BOOKS

user_id	ticket_id	
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STARTS

train_no	station_no	
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STOPS_AT

train_no	station_no	
----------	------------	--

REACHES

train_no	station_no	time
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CREATE COMMANDS:

show databases;

CREATE database Railway;

use railway;

SHOW tables;

CREATE TABLE if not exists USER(

user_id int primary key,

first_name varchar(50),

last_name varchar(50),

aadhar_no varchar(20),

gender char,

age int,

mob_no varchar(50),

email_id varchar(50),

city varchar(50),

state varchar(50),

pincode varchar(20),

password varchar(50)

);

DESC USER;

	Field	Type	Null	Key	Default	Extra
►	user_id	int	NO	PRI	NULL	
	first_name	varchar(50)	YES		NULL	
	last_name	varchar(50)	YES		NULL	
	aadhar_no	varchar(20)	YES		NULL	
	gender	char(1)	YES		NULL	
	age	int	YES		NULL	
	mob_no	varchar(50)	YES		NULL	
	email_id	varchar(50)	YES		NULL	
	city	varchar(50)	YES		NULL	
	state	varchar(50)	YES		NULL	
	pincode	varchar(20)	YES		NULL	
	password	varchar(50)	YES		NULL	

CREATE TABLE if not exists TRAIN(

train_no int primary key,

train_name varchar(50),

arrival_time time,

departure_time time,

total_seats int,

available_seats int,

fare float,

date date

);

DESC TRAIN;

	Field	Type	Null	Key	Default	Extra
►	train_no	int	NO	PRI	NULL	
	train_name	varchar(50)	YES		NULL	
	arrival_time	time	YES		NULL	
	departure_time	time	YES		NULL	
	total_seats	int	YES		NULL	
	available_seats	int	YES		NULL	
	fare	float	YES		NULL	
	date	date	YES		NULL	

CREATE TABLE if not exists STATION(

station_no int ,

name varchar(50),

hault int,

arrival_time time,

train_no int,

Wifi_availability varchar(5),

primary key(station_no,train_no),

CONSTRAINT FOREIGN KEY(train_no) references TRAIN(train_no)

ON UPDATE CASCADE

);

DESC STATION;

	Field	Type	Null	Key	Default	Extra
▶	station_no	int	NO	PRI	NULL	
	name	varchar(50)	YES		NULL	
	halt	int	YES		NULL	
	arrival_time	time	YES		NULL	
	train_no	int	NO	PRI	NULL	
	Wifi_availability	varchar(5)	YES		NULL	

```

CREATE TABLE if not exists TICKET(
ticket_id int primary key,
user_id int,
status varchar(20),
no_of_passengers int,
train_no int,
CONSTRAINT FOREIGN KEY(user_id) references USER(user_id),
CONSTRAINT FOREIGN KEY(train_no) references TRAIN(train_no)
ON DELETE CASCADE
);

```

DESC TICKET;

	Field	Type	Null	Key	Default	Extra
▶	ticket_id	int	NO	PRI	NULL	
	user_id	int	YES	MUL	NULL	
	status	varchar(20)	YES		NULL	
	no_of_passengers	int	YES		NULL	
	train_no	int	YES	MUL	NULL	

```

CREATE TABLE if not exists PASSENGER(
passenger_id int primary key,
pnr_no int,
age int,
gender char,
user_id int,
reservation_status varchar(20),
seat_no varchar(5),
name varchar(50),

```

```

ticket_id int,
CONSTRAINT FOREIGN KEY(user_id) references USER(user_id),
CONSTRAINT FOREIGN KEY(ticket_id) references TICKET(ticket_id)
ON UPDATE CASCADE
);

```

DESC PASSENGER;

	Field	Type	Null	Key	Default	Extra
►	passenger_id	int	NO	PRI	NULL	
	pnr_no	int	YES		NULL	
	age	int	YES		NULL	
	gender	char(1)	YES		NULL	
	user_id	int	YES	MUL	NULL	
	reservation_status	varchar(20)	YES		NULL	
	seat_no	varchar(5)	YES		NULL	
	name	varchar(50)	YES		NULL	
	ticket_id	int	YES	MUL	NULL	

```

CREATE TABLE if not exists STARTS(
train_no int,
station_no int,
CONSTRAINT FOREIGN KEY(train_no) references TRAIN(train_no),
CONSTRAINT FOREIGN KEY(station_no) references STATION(station_no)
);

```

DESC STARTS;

	Field	Type	Null	Key	Default	Extra
►	train_no	int	YES	MUL	NULL	
	station_no	int	YES	MUL	NULL	

```

CREATE TABLE if not exists STOPS_AT(
train_no int,
station_no int,
CONSTRAINT FOREIGN KEY(train_no) references TRAIN(train_no),
CONSTRAINT FOREIGN KEY(station_no) references STATION(station_no)
);

```


DESC STOPS_AT;

	Field	Type	Null	Key	Default	Extra
▶	train_no	int	YES	MUL	NULL	
	station_no	int	YES	MUL	NULL	

CREATE TABLE if not exists REACHES(

train_no int,

station_no int,

time time,

CONSTRAINT FOREIGN KEY(train_no) references TRAIN(train_no),

CONSTRAINT FOREIGN KEY(station_no) references STATION(station_no)

);

DESC REACHES;

	Field	Type	Null	Key	Default	Extra
▶	train_no	int	YES	MUL	NULL	
	station_no	int	YES	MUL	NULL	
	time	time	YES		NULL	

CREATE TABLE if not exists BOOKS(

user_id int,

ticket_id int,

CONSTRAINT FOREIGN KEY(user_id) references USER(user_id),

CONSTRAINT FOREIGN KEY(ticket_id) references TICKET(ticket_id)

ON UPDATE CASCADE

);

DESC BOOKS;

	Field	Type	Null	Key	Default	Extra
▶	user_id	int	YES	MUL	NULL	
	ticket_id	int	YES	MUL	NULL	

CREATE TABLE if not exists CANCEL(

```

user_id int,
ticket_id int,
passenger_id int,
CONSTRAINT FOREIGN KEY(ticket_id) REFERENCES TICKET(ticket_id)
ON UPDATE CASCADE,
CONSTRAINT FOREIGN KEY(passenger_id) references PASSENGER(passenger_id),
CONSTRAINT FOREIGN KEY(user_id) references USER(user_id)
);

```

DESC CANCEL;

	Field	Type	Null	Key	Default	Extra
▶	user_id	int	YES	MUL	NULL	
	ticket_id	int	YES	MUL	NULL	
	passenger_id	int	YES	MUL	NULL	

INSERT QUERIES:

INSERT INTO

USER(user_id,first_name,last_name,aadhar_no,gender,age,mob_no,email_id,city,state,pincode,password)

values(1,'Ayush','Agrawal','987654321012','M',18,'7568719211','Aa7568719211@gmail.com','S
herghati','Bihar','824211',1234768),

(2,'Manoj','Sharma','309887340843','M',34,'9887786655','sharmamanoj@gmail.com','Vijayawa
da','Andhrapradesh','520001',12345@#),

(3,'Ajeet','kumar','456709871234','M',45,'9809666555','ajeetkumar@gmail.com','Gaya','Bihar',
'522004',12@#345),

(4,'Muskan','Rani','765843210987','F',20,'9995550666','ranimuskan@gmail.com','Guntur','And
hra pradesh','522004',0987hii),

(5,'Ram','Roy','6214478905','M',28,'9850530349','ramroy@gmail.com','Pune',
'Maharashtra','415124',ram1231),

(6,'Aastha','Kumari','664673219871','F',23,'9854002406','kumariaastha@gmail.com','Ranchi',
'Jharkhand','520204',3447@hi),

(7,'Raushan','Kumar','876903575123','M',32,'9973943255','kumarraushan@gmail.com','Mirza
pur','Uttar Pradesh','823897',9647@fi),

(8,'Aakash','Goyal','849163073587','M',29,'7745794086','goyalaakash@gmail.com','Bhopal','Madhya Pradesh','856432','37@k76o');

SELECT * FROM USER;

	user_id	first_name	last_name	aadhar_no	gender	age	mob_no	email_id	city	state	pincode	password
▶	1	Ayush	Agrawal	987654321012	M	18	7568719211	Aa7568719211@gmail.com	Sherghati	Bihar	824211	1234567
	2	Manoj	Sharma	309887340843	M	34	9887786655	sharmamanoj@gmail.com	Vijayawada	Andhrapradesh	520001	12345@#
	3	Ajeet	kumar	456709871234	M	45	9809666555	ajeetkumar@gmail.com	Gaya	Bihar	522004	12@#345
	4	Muskan	Rani	765843210987	F	20	9995550666	ranimuskan@gmail.com	Guntur	Andhra pradesh	522004	0987hii
	5	Ram	Roy	6214478905	M	28	9850530349	ramroy@gmail.com	Pune	Maharashtra	415124	ram1231
	6	Aastha	Kumari	664673219871	F	23	9854002406	kumariaastha@gmail.com	Ranchi	Jharkhand	520204	3447@hi
	7	Raushan	Kumar	876903575123	M	32	9973943255	kumarraushan@gmail.com	Mirzapur	Uttar Pradesh	823897	9647@fi
	8	Aakash	Goyal	849163073587	M	29	7745794086	goyalaakash@gmail.com	Bhopal	Madhya Pradesh	856432	37@k76o
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

INSERT INTO TRAIN

(train_no,train_name,arrival_time,departure_time,total_seats,available_seats,fare,date) values

(12416,'Rajdhani exp','012000','233000',3,0,1500,20211010),

(12751,'Garbha exp','113000','214000',3,0,1600,20211010),

(12711,'Chennai exp','023500','183000',4,3,1700,20211010),

(12315,'Pune-Duronto exp','124600','000000',2,1,1200,20211010);

SELECT * FROM TRAIN;

train_no	train_name	arrival_time	departure_time	total_seats	available_seats	fare	date
12315	Pune-Duronto exp	12:46:00	00:00:00	2	1	1200	2021-10-10
12416	Rajdhani exp	01:20:00	23:30:00	3	0	1500	2021-10-10
12711	Chennai exp	02:35:00	18:30:00	4	3	1700	2021-10-10
12751	Garbha exp	11:30:00	21:40:00	3	0	1600	2021-10-10
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

INSERT INTO STATION (station_no,name,hault,arrival_time,train_no,Wifi_availability) values

(111,'Ratlam',10,203000,12315,'No'),

(222,'Pune',20,124600,12315,'Yes'),

(258,'Delhi',NULL,000000,12315,'Yes'),

(555,'Howrah',15,012000,12416,'No'),

(258,'Delhi',NULL,233000,12416,'Yes'),

(888,'Mumbai',15,023500,12711,'Yes'),

(898,'Chennai',NULL,183000,12711,'Yes'),

(999,'Surat',10,113000,12751,'Yes'),

(258,'Delhi',NULL,214000,12751,'No');

SELECT * FROM STATION;

	station_no	name	halt	arrival_time	train_no	Wifi_availability
▶	111	Ratlam	10	20:30:00	12315	No
	222	Pune	20	12:46:00	12315	Yes
	258	Delhi	NULL	00:00:00	12315	Yes
	258	Delhi	NULL	23:30:00	12416	Yes
	258	Delhi	NULL	21:40:00	12751	No
	555	Howrah	15	01:20:00	12416	No
	888	Mumbai	15	02:35:00	12711	Yes
	898	Chennai	NULL	18:30:00	12711	Yes
	999	Surat	10	11:30:00	12751	Yes
*	NULL	NULL	NULL	NULL	NULL	NULL

INSERT INTO TICKET(ticket_id,user_id,status,no_of_passengers,train_no) values

(1001,1,'C',2,12751),

(1002,2,'C',3,12416),

(1003,3,'C',1,12315),

(1004,4,'C',1,12711),

(1005,5,'C',1,12751),

(1006,6,'NC',2,12416),

(1007,7,'Cancel',1,12751),

(1008,8,'Cancel',1,12416);

SELECT * FROM TICKET;

	ticket_id	user_id	status	no_of_passengers	train_no
▶	1001	1	C	2	12751
	1002	2	C	3	12416
	1003	3	C	1	12315
	1004	4	C	1	12711
	1005	5	C	1	12751
	1006	6	NC	2	12416
	1007	7	Cancel	1	12751
	1008	8	Cancel	1	12416
*	NULL	NULL	NULL	NULL	NULL

INSERT INTO

PASSENGER(passenger_id,pnr_no,age,gender,user_id,reservation_status,seat_no,name,ticket_id) values

(101,78965,18,'M',1,'C','B4-2','Ayush Agrawal',1001),
 (102,78965,17,'F',1,'C','A3-1','Surekha Rani',1001),
 (103,54523,34,'M',2,'C','B3-2','Manoj Sharma',1002),
 (104,54523,23,'F',2,'C','A4-1','Shruti Rani',1002),
 (105,54523,29,'F',2,'C','A2-2','Preeti Rai',1002),
 (106,64673,45,'M',3,'C','A1-1','Ajeet kumar',1003),
 (107,44578,20,'F',4,'C','C2-2','Muskan Rani',1004),
 (108,86532,28,'M',5,'C','C2-1','Ram Roy',1005),
 (109,98766,23,'F',6,'NC','B5-2','Aastha Kumari',1006),
 (110,98766,14,'F',6,'NC','A3-2','Neha Kumari',1006),
 (111,91246,32,'M',7,'Cancel','C1-2','Raushan Kumar',1007),
 (112,46036,29,'M',8,'Cancel','C3-1','Aakash Goyal',1008);

SELECT * FROM PASSENGER;

	passenger_id	pnr_no	age	gender	user_id	reservation_status	seat_no	name	ticket_id
▶	101	78965	18	M	1	C	B4-2	Ayush Agrawal	1001
	102	78965	17	F	1	C	A3-1	Surekha Rani	1001
	103	54523	34	M	2	C	B3-2	Manoj Sharma	1002
	104	54523	23	F	2	C	A4-1	Shruti Rani	1002
	105	54523	29	F	2	C	A2-2	Preeti Rai	1002
	106	64673	45	M	3	C	A1-1	Ajeet kumar	1003
	107	44578	20	F	4	C	C2-2	Muskan Rani	1004
	108	86532	28	M	5	C	C2-1	Ram Roy	1005
	109	98766	23	F	6	NC	B5-2	Aastha Kumari	1006
	110	98766	14	F	6	NC	A3-2	Neha Kumari	1006
	111	91246	32	M	7	Cancel	C1-2	Raushan Kumar	1007
	112	46036	29	M	8	Cancel	C3-1	Aakash Goyal	1008
•	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

INSERT INTO STARTS(train_no,station_no) values

(12315,111),
 (12315,222),
 (12416,555),
 (12711,888),
 (12751,999);

SELECT * FROM STARTS;

	train_no	station_no
▶	12315	111
	12315	222
	12416	555
	12711	888
	12751	999

INSERT INTO STOPS_AT (train_no,station_no) values

(12315,111),

(12315,258),

(12416,258),

(12751,258),

(12711,898);

SELECT * FROM STOPS_AT;

	train_no	station_no
▶	12315	111
	12315	258
	12416	258
	12751	258
	12711	898

insert into REACHES (train_no,station_no,time) values

(12315,111,203000),

(12315,222,124600),

(12315,258,000000),

(12416,258,233000),

(12416,555,012000),

(12751,258,214000),

(12711,888,023500),

(12711,898,183000),

(12751,999,113000);

SELECT * FROM REACHES;

	train_no	station_no	time
▶	12315	111	20:30:00
	12315	222	12:46:00
	12315	258	00:00:00
	12416	258	23:30:00
	12416	555	01:20:00
	12751	258	21:40:00
	12711	888	02:35:00
	12711	898	18:30:00
	12751	999	11:30:00

INSERT INTO BOOKS (user_id , ticket_id) VALUES

(1,1001),

(2,1002),

(3,1003),

(4,1004),

(5,1005),

(6,1006),

(7,1007),

(8,1008);

SELECT * FROM BOOKS;

	user_id	ticket_id
▶	1	1001
	2	1002
	3	1003
	4	1004
	5	1005
	6	1006
	7	1007
	8	1008

INSERT INTO CANCEL(user_id,ticket_id,passenger_id) values

(7,1007,111),

(8,1008,112);

SELECT * FROM CANCEL;

	user_id	ticket_id	passenger_id
▶	7	1007	111
	8	1008	112

SQL QUERIES

1. Print user id and name of all those user who booked ticket for Garbha express.

```
SELECT u.user_id,concat(u.first_name,' ',u.last_name)as Name
from user u,train t,ticket tc
where u.user_id=tc.user_id and t.train_no=tc.train_no and t.train_name like
'Garbha exp';
```

	user_id	Name
▶	1	Ayush Agrawal
	5	Ram Roy
	7	Raushan Kumar

2. Print details of passengers travelling under ticket no 1002.

```
SELECT * FROM PASSENGER
WHERE ticket_id like 1002;
```

	passenger_id	pnr_no	age	gender	user_id	reservation_status	seat_no	name	ticket_id
▶	103	54523	34	M	2	C	B3-2	Manoj Sharma	1002
	104	54523	23	F	2	C	A4-1	Shruti Rani	1002
	105	54523	29	F	2	C	A2-2	Preeti Rai	1002
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

3. Display all those train no's which reach station no 258.

```
SELECT t.* FROM TRAIN t,REACHES r
Where t.train_no=r.train_no and r.station_no=258;
```

	train_no	train_name	arrival_time	departure_time	total_seats	available_seats	fare	date
▶	12315	Pune-Duronto exp	12:46:00	00:00:00	2	1	1200	2021-10-10
	12416	Rajdhani exp	01:20:00	23:30:00	3	0	1500	2021-10-10
	12751	Garbha exp	11:30:00	21:40:00	3	0	1600	2021-10-10

4. Display details of all those users who canceled tickets for train no-12751.

```
SELECT u.* FROM USER u,CANCEL c,TICKET t
where c.user_id=u.user_id and c.ticket_id=t.ticket_id and t.train_no=12751;
```


	user_id	first_name	last_name	aadhar_no	gender	age	mob_no	email_id	city	state	pincode	password
▶	7	Raushan	Kumar	876903575123	M	32	9973943255	kumarraushan@gmail.com	Mirzapur	Uttar Pradesh	823897	9647@fi

5. Display the train no with increasing order of the fares.

SELECT t.train_no,t.fare,t.train_name

FROM train t

ORDER BY fare asc;

	train_no	fare	train_name
▶	12315	1200	Pune-Duronto exp
	12416	1500	Rajdhani exp
	12751	1600	Garbha exp
	12711	1700	Chennai exp
*	NULL	NULL	NULL

6. Display the train no which haults for more time in station no-

SELECT * FROM TRAIN

WHERE train_no like (

SELECT train_no

FROM station

HAVING max(hault));

	train_no	train_name	arrival_time	departure_time	total_seats	available_seats	fare	date
▶	12315	Pune-Duronto exp	12:46:00	00:00:00	2	1	1200	2021-10-10
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

7. Display the total fare paid by each user.

SELECT concat(u.first_name,' ',u.last_name) as Name, (tc.no_of_passengers)*sum(t.fare) as Total_amount

FROM USER u ,TRAIN t, TICKET tc

WHERE tc.train_no=t.train_no AND tc.user_id=u.user_id

GROUP BY tc.user_id

ORDER BY Total_amount DESC;

	Name	Total_amount
►	Manoj Sharma	4500
	Ayush Agrawal	3200
	Aastha Kumari	3000
	Muskan Rani	1700
	Ram Roy	1600
	Raushan Kumar	1600
	Aakash Goyal	1500
	Ajeet kumar	1200