



Parking Management System

Database Management System

Name : Samarth Pansala, Himanshu Parghi

Roll no. : 22BCE220, 22BCE222

Course : DBMS

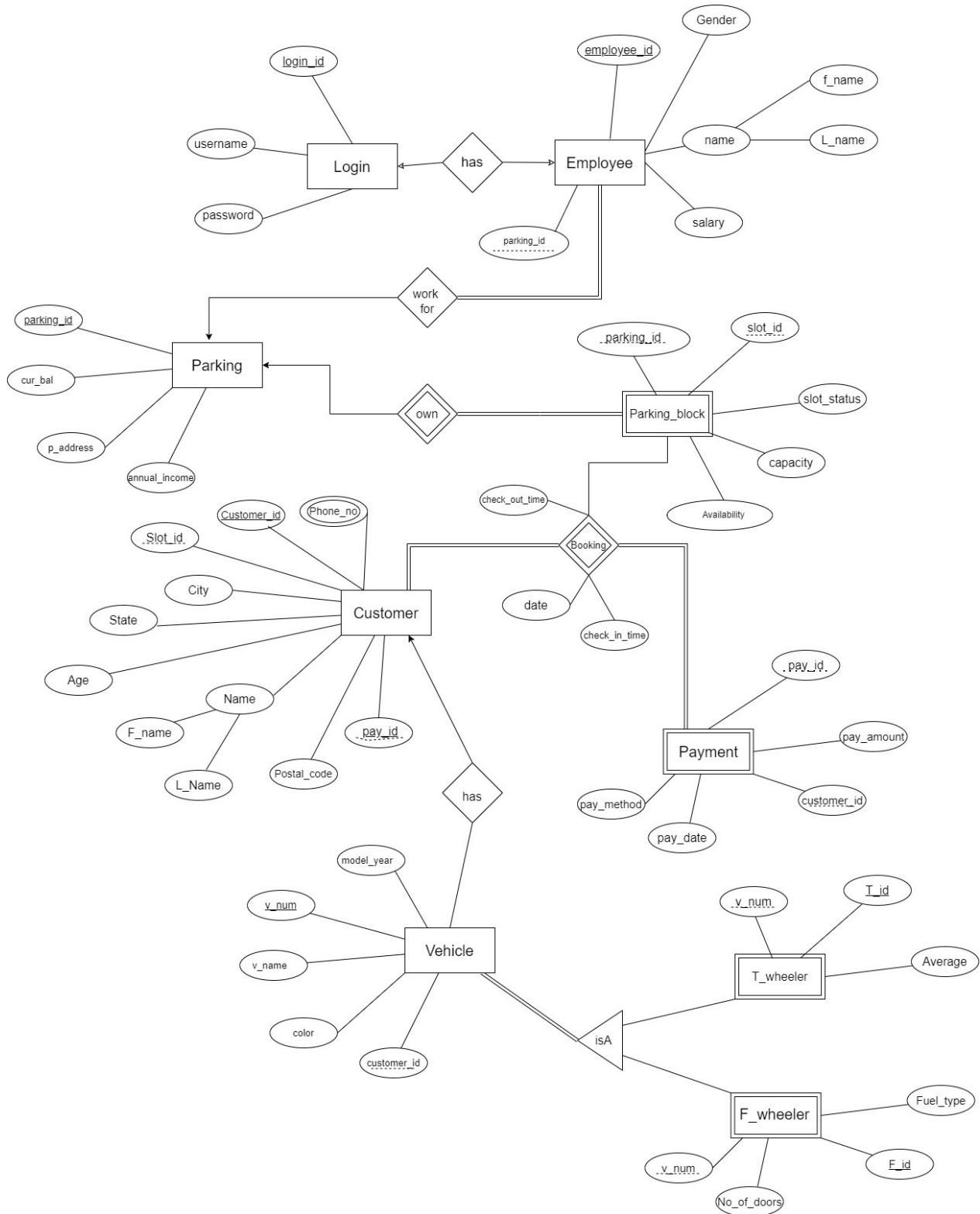
Course Code : 2CS505

Innovative Assignment - Report

Introduction / Problem Statement:

- Parking Management System is a system that provides us with reserving parking area , checking whether the parking are vacant or not etc by using online browsing. This system is very useful to all, especially for business people. For Business people they don't have sufficient time for these then they can use these types of online parking Management Systems. Parking Management system is not allowed wapon and not responsibility of your expansive Thing.
- In conclusion, the Parking Management System in DBMS project aims to address the growing parking challenges in urban areas by offering an efficient, user-friendly, and data-driven solution. This system will not only benefit parking operators but also improve the overall urban mobility experience, making cities more accessible and sustainable.

ER diagram:



Relational Model:

Login(login_id , username , password)

Employee (employee_id ,parking_id, f_name , l_name , gender , salary)

Parking (parking_id , annual income , p_address , cur_bal)

Parking_block (slot_id ,paking_id , slot_status , capacity, Availability)

Payment (pay_id , customer_id , pay_method , pay_date , pay_amount)

Customer (customer_id ,sloat_id, f_name , l_name , phone_no , gender, age , city , state , postal_code)

Booking (customer_id,sloat_id, date , check_in_time , check_out_time)

Vehicle (customer_id, v_num , v_name , color , model_year)

Two_wheeler(t_id , v_num, average)

Four_wheeler(f_id , v_num, fueltype , no_of_doors)

Data Dictionary:

Login:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 login_id 	varchar(255)	utf8mb4_general_ci		No	None		 Change	 Drop More
<input type="checkbox"/>	2 username	varchar(255)	utf8mb4_general_ci		Yes	NULL		 Change	 Drop More
<input type="checkbox"/>	3 password	varchar(255)	utf8mb4_general_ci		Yes	NULL		 Change	 Drop More

Employee:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 EMPLOYEE_ID 	decimal(10,0)			No	None		 Change	 Drop More
<input type="checkbox"/>	2 PARKING_ID 	decimal(10,0)			Yes	NULL		 Change	 Drop More
<input type="checkbox"/>	3 F_NAME	varchar(255)	utf8mb4_general_ci		No	None		 Change	 Drop More
<input type="checkbox"/>	4 L_NAME	varchar(255)	utf8mb4_general_ci		No	None		 Change	 Drop More
<input type="checkbox"/>	5 GENDER	char(1)	utf8mb4_general_ci		Yes	NULL		 Change	 Drop More
<input type="checkbox"/>	6 SALARY	decimal(10,2)			Yes	NULL		 Change	 Drop More

Parking:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 PARKING_ID 🔑	decimal(10,0)		No	None				Change Drop More
<input type="checkbox"/>	2 ANNUAL_INCOME	decimal(10,2)		Yes	NULL				Change Drop More
<input type="checkbox"/>	3 P_ADDRESS	varchar(255)	utf8mb4_general_ci	Yes	NULL				Change Drop More
<input type="checkbox"/>	4 CUR_BALANCE	decimal(10,2)		Yes	NULL				Change Drop More

Parking_block:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 SLOT_ID 🔑	decimal(10,0)		No	None				Change Drop More
<input type="checkbox"/>	2 PARKING_ID 🔑	decimal(10,0)		No	None				Change Drop More
<input type="checkbox"/>	3 SLOT_STATUS	varchar(50)	utf8mb4_general_ci	Yes	NULL				Change Drop More
<input type="checkbox"/>	4 CAPACITY	decimal(10,0)		Yes	NULL				Change Drop More
<input type="checkbox"/>	5 AVAILABILITY	decimal(60,0)		Yes	'CAPACITY'				Change Drop More

Payment:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 CUSTOMER_ID	decimal(10,0)		Yes	NULL				Change Drop More
<input type="checkbox"/>	2 PAY_METHOD	varchar(50)	utf8mb4_general_ci	Yes	NULL				Change Drop More
<input type="checkbox"/>	3 PAY_DATE	date		No	None				Change Drop More
<input type="checkbox"/>	4 PAY_AMOUNT	decimal(10,2)		Yes	NULL				Change Drop More
<input type="checkbox"/>	5 pay_id 🔑	int(11)		No	None		AUTO_INCREMENT		Change Drop More

Customer:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 CUSTOMER_ID 🔑	decimal(10,0)		No	None				Change Drop More
<input type="checkbox"/>	2 SLOT_ID 🔑	decimal(10,0)		Yes	NULL				Change Drop More
<input type="checkbox"/>	3 F_NAME	varchar(255)	utf8mb4_general_ci	Yes	NULL				Change Drop More
<input type="checkbox"/>	4 L_NAME	varchar(255)	utf8mb4_general_ci	Yes	NULL				Change Drop More
<input type="checkbox"/>	5 PHONE_NO	decimal(10,0)		No	None				Change Drop More
<input type="checkbox"/>	6 GENDER	char(1)	utf8mb4_general_ci	Yes	NULL				Change Drop More
<input type="checkbox"/>	7 AGE	decimal(10,0)		Yes	NULL				Change Drop More
<input type="checkbox"/>	8 CITY	varchar(255)	utf8mb4_general_ci	No	None				Change Drop More
<input type="checkbox"/>	9 STATE	varchar(255)	utf8mb4_general_ci	No	None				Change Drop More
<input type="checkbox"/>	10 POSTAL_CODE	varchar(20)	utf8mb4_general_ci	Yes	NULL				Change Drop More

Booking:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action	
<input type="checkbox"/>	1 CUSTOMER_ID 🔑	decimal(10,0)			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	2 SLOT_ID 🔑	decimal(10,0)			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	3 DATE1	date			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	4 CHECK_IN_TIME	time			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	5 CHECK_OUT_TIME	time			Yes	NULL		Change	Drop	More

Vehicle:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action	
<input type="checkbox"/>	1 CUSTOMER_ID 🔑	decimal(10,0)			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	2 V_NUM 🚗	varchar(20)	utf8mb4_general_ci		No	None		Change	Drop	More
<input type="checkbox"/>	3 V_NAME	varchar(255)	utf8mb4_general_ci		Yes	NULL		Change	Drop	More
<input type="checkbox"/>	4 COLOR	varchar(50)	utf8mb4_general_ci		Yes	NULL		Change	Drop	More
<input type="checkbox"/>	5 MODEL_YEAR	decimal(10,0)			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	6 VEHICLE_TYPE	varchar(20)	utf8mb4_general_ci		Yes	NULL		Change	Drop	More

Two_wheeler:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action	
<input type="checkbox"/>	1 T_ID 🔑	decimal(10,0)			No	None		Change	Drop	More
<input type="checkbox"/>	2 AVERAGE	decimal(10,2)			Yes	NULL		Change	Drop	More
<input type="checkbox"/>	3 V_NUM 🚗	varchar(20)	utf8mb4_general_ci		Yes	NULL		Change	Drop	More

Four_wheeler:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action	
<input type="checkbox"/>	1 F_ID 🔑	decimal(10,0)			No	None		Change	Drop	More
<input type="checkbox"/>	2 V_NUM 🚗	varchar(20)	utf8mb4_general_ci		Yes	NULL		Change	Drop	More
<input type="checkbox"/>	3 FUEL_TYPE	varchar(50)	utf8mb4_general_ci		Yes	NULL		Change	Drop	More
<input type="checkbox"/>	4 NO_OF_DOORS	decimal(4,0)			Yes	NULL		Change	Drop	More

Data Implementation:

A) Schema

Login:

```
CREATE TABLE login (login_id VARCHAR(255) PRIMARY KEY, username  
VARCHAR(255), password VARCHAR(255));
```

Employee:

```
CREATE TABLE employee (EMPLOYEE_ID NUMERIC(10) PRIMARY KEY, PARKING_ID  
NUMERIC(10), F_NAME VARCHAR(255) NOT NULL, L_NAME VARCHAR(255) NOT NULL,  
GENDER CHAR(1), SALARY NUMERIC(10, 2), FOREIGN KEY (PARKING_ID) REFERENCES  
PARKING(PARKING_ID));
```

Parking:

```
CREATE TABLE PARKING (PARKING_ID NUMERIC(10) PRIMARY KEY, ANNUAL_INCOME  
NUMERIC(10, 2), P_ADDRESS VARCHAR(255), CUR_BALANCE NUMERIC(10, 2));
```

Parking_block:

```
CREATE TABLE PARKING_BLOCK (SLOT_ID NUMERIC, PARKING_ID NUMERIC (10),  
SLOT_STATUS VARCHAR(50), CAPACITY NUMERIC(10), Availability NUMERIC(10),  
PRIMARY KEY (SLOT_ID, PARKING_ID), FOREIGN KEY (PARKING_ID) REFERENCES  
PARKING(PARKING_ID));
```

Payment:

```
CREATE TABLE PAYMENT (CUSTOMER_ID NUMERIC (10), PAY_METHOD VARCHAR(50),  
PAY_DATE DATE NOT NULL , PAY_AMOUNT NUMERIC(10, 2), PAY_ID NUMERIC (10)  
AUTO_INCREMENT PRIMARY KEY);
```

Customer:

```
CREATE TABLE CUSTOMER (CUSTOMER_ID NUMERIC (10) PRIMARY KEY, SLOT_ID  
NUMERIC (10), F_NAME VARCHAR(255), L_NAME VARCHAR(255), PHONE_NO NUMERIC  
(10) NOT NULL, GENDER CHAR(1), AGE NUMERIC (10), CITY VARCHAR(255) NOT
```

```
NULL , STATE VARCHAR(255) NOT NULL , POSTAL_CODE VARCHAR(20), FOREIGN KEY  
(SLOT_ID) REFERENCES PARKING_BLOCK(SLOT_ID));
```

Vehicle:

```
CREATE TABLE VEHICLE (CUSTOMER_ID NUMERIC(10), V_NUM VARCHAR(20) PRIMARY  
KEY, V_NAME VARCHAR(255), COLOR VARCHAR(50), MODEL_YEAR NUMERIC(10),  
FOREIGN KEY (CUSTOMER_ID) REFERENCES CUSTOMER(CUSTOMER_ID));
```

Two_wheeler:

```
CREATE TABLE TWO_WHEELER (T_ID NUMERIC(10) PRIMARY KEY, AVERAGE  
NUMERIC(10, 2), V_NUM VARCHAR(20), FOREIGN KEY (V_NUM) REFERENCES  
VEHICLE(V_NUM));
```

Four_wheeler:

```
CREATE TABLE FOUR_WHEELER (F_ID NUMERIC(10) PRIMARY KEY, V_NUM  
VARCHAR(20), FUEL_TYPE VARCHAR(50), NO_OF_DOORS NUMERIC(4), FOREIGN KEY  
(V_NUM) REFERENCES VEHICLE(V_NUM));
```

Booking:

```
CREATE TABLE BOOKING (CUSTOMER_ID NUMERIC(10), SLOT_ID NUMERIC(10), DATE1  
DATE, CHECK_IN_TIME TIME, CHECK_OUT_TIME TIME, FOREIGN KEY (CUSTOMER_ID)  
REFERENCES CUSTOMER(CUSTOMER_ID), FOREIGN KEY (SLOT_ID) REFERENCES  
PARKING_BLOCK(SLOT_ID));
```

B) Data Insertion

Login:

```
INSERT INTO LOGIN (LOGIN_ID, USERNAME, PASSWORD) VALUES ('L1', 'user1',  
'pass1'), ('L2', 'user2', 'pass2'), ('L3', 'user3', 'pass3'), ('L4',  
'user4', 'pass4'), ('L5', 'user5', 'pass5'), ('L6', 'user6', 'pass6'),  
( 'L7', 'user7', 'pass7'), ('L8', 'user8', 'pass8'), ('L9', 'user9',  
'pass9');
```

Employee:

```
INSERT INTO employee (employee_id, parking_id, f_name, l_name, gender, salary) VALUES (1, 101, 'John', 'Doe', 'M', 50000), (2, 102, 'Jane', 'Smith', 'F', 60000), (3, 101, 'Michael', 'Johnson', 'M', 55000), (4, 103, 'smit', 'patel', 'M', 15000), (5, 102, 'jimesh', 'shah', 'M', 56000), (6, 104, 'shivani', 'mehta', 'F', 10000), (7, 101, 'Michael', 'Johnson', 'M', 59000), (8, 104, 'shivani', 'mehta', 'F', 10000), (9, 105, 'tirth', 'doe', 'M', 89000), (10, 102, 'Jenish', 'Smith', 'M', 48000), (11, 103, 'travis', 'head', 'M', 63000);
```

Parking:

```
INSERT INTO parking (PARKING_ID, ANNUAL_INCOME, P_ADDRESS, CUR_BALANCE) VALUES (101, 50000, '', 10000), (102, 60000, '', 15000), (103, 800000, '', 30000), (104, 80000, '', 30000), (105, 90000, '', 40000);
```

Payment:

```
INSERT INTO PAYMENT (CUSTOMER_ID, PAY_METHOD, PAY_DATE, PAY_AMOUNT, PAY_ID) VALUES (1001, 'cash', '2008-09-11', '1000', 111), (1002, 'online', '2020-12-09', '1500', 112), (1003, 'cash', '2022-04-02', '3000', 113), (1004, 'NEFT', '2021-11-09', '1500', 114), (1005, 'online', '2008-01-19', '6000', 115), (1006, 'NEFT', '2009-03-09', '3500', 116), (1007, 'online', '2001-09-12', '2500', 117), (1008, 'NEFT', '2012-10-25', '6300', 118), (1009, 'NEFT', '2019-11-29', '2750', 119);
```

Parking_block:

```
INSERT INTO parking_block (SLOT_ID, PARKING_ID, SLOT_STATUS, CAPACITY) VALUES (1, 101, 'Occupied', 50), (2, 101, 'Available', 150), (3, 102, 'Available', 200), (4, 102, 'Occupied', 80), (5, 103, 'Available', 40), (6, 104, 'Occupied', 60), (7, 105, 'Occupied', 100);
```

Customer:

```
INSERT INTO customer (CUSTOMER_ID, SLOT_ID, F_NAME, L_NAME, PHONE_NO, GENDER, AGE, CITY, STATE, POSTAL_CODE) VALUES (1001, 1, 'John', 'Doe', '1234567890', 'M', 30, 'SURAT', 'GUJRAT', '10001'), (1002, 2, 'Jane', 'Smith', '0987654321', 'F', 25, 'RAJKOT', 'GUJRAT', '90001'), (1003, 3, 'shlok', 'tagadiya', '5551234567', 'M', 40,
```

```
'MORBI' , 'GUJRAT' , '60601'), (1004 , 4 , 'krunal', 'Dudhatra',
'1112223333' , 'F' , 35 , 'JAIPUR' , 'RAJASTHAN' , '77001'), (1005 , 5 ,
'David' , 'Wilson' , '9998887777' , 'M' , 45 , 'SURAT' , 'GUJRAT' ,
'10001'), (1006 , 6 , 'Sarah' , 'Taylor' , '3334445555' , 'F' , 28 ,
'PUNE' , 'MAHARASHTRA' , '19101'), (1007 , 7 , 'jay' , 'borda' ,
'6667778888' , 'M' , 32 , 'AHMEDABAD' , 'GUJRAT' , '78201'), (1008 , 1 ,
'gazal' , 'gajera' , '2223334444' , 'F' , 50 , 'SURAT' , 'GUJRAT' ,
'10001'), (1009 , 2 , 'dax' , 'adroja' , '7778889999' , 'M' , 38 ,
'RAJKOT' , 'GUJRAT' , '90001');
```

Booking:

```
INSERT INTO booking (CUSTOMER_ID , SLOT_ID , DATE1 , CHECK_IN_TIME ,
CHECK_OUT_TIME)VALUES (1001, 1, '2024-02-20', '09:00:00', '17:00:00'),
(1002, 2, '2024-02-21', '10:00:00', '18:00:00'), (1003, 3, '2024-02-22',
'11:00:00', '19:00:00'), (1004, 4, '2024-02-23', '12:00:00', '20:00:00'),
(1005, 5, '2024-02-24', '13:00:00', '21:00:00'), (1006, 3, '2024-01-28',
'18:00:00', '20:00:00'), (1007, 4, '2024-01-15', '09:00:00', '12:00:00'),
(1008, 2, '2024-02-02', '20:00:00', '23:00:00');
```

Vehicle:

```
INSERT INTO vehicle (customer_id, v_num, v_name, color, model_year)VALUES
(1001 , 'GJ-05-AB-0123' , 'Toyota Camry' , 'Blue' , 2022), (1001 , 'GJ-05-
DE-1456' , 'Splender' , 'Red' , 2020), (1002 , 'GJ-03-GH-0789' , 'Ford
Fusion' , 'Black' , 2024), (1002 , 'GJ-03-JK-8012' , 'Chevrolet Malibu' ,
'Silver' , 2017), (1003 , 'GJ-36-MN-1345' , 'Nissan Altima' , 'White' ,
2016), (1003 , 'GJ-36-PQ-2678' , 'BMW 3 Series' , 'Gray' , 2021), (1004 ,
'RJ-01-ST-7901' , 'shine' , 'Black' , 2015), (1004 , 'RJ-01-VW-9234' ,
'Audi A4' , 'Silver' , 2014), (1005 , 'GJ-05-YZ-5567' , 'dream yuga' ,
'White' , 2022), (1005 , 'GJ-05-BC-0890' , 'Lexus ES' , 'Blue' , 2019),
(1006 , 'MH-01-GH-7123' , 'Figo Ford' , 'Gray' , 2019), (1007 , 'GJ-01-MK-
6456' , 'Nissan Altima' , 'Red' , 2016), (1008 , 'GJ-05-MK-8012' ,
'Yamaha' , 'Black' , 2020);
```

Two_wheeler:

```
insert INTO two_wheeler (T_ID , AVERAGE , V_NUM) VALUES (11 , 65 , 'GJ-05-
AB-0123'), (12 , 36 , 'GJ-05-MK-8012' ), (13 , 54 , 'GJ-05-YZ-5567' ),
(14 , 72 , 'RJ-01-ST-7901'), (15 , 45 , 'GJ-05-YZ-5567' ), (16 , 35 ,
'RJ-01-ST-7901'), (17 , 62 , 'GJ-05-AB-0123'), (18 , 72 , 'GJ-05-MK-8012' );
```

Four_wheeler:

```
INSERT INTO FOUR_WHEELER(F_ID,V_NUM,FUEL_TYPE,NO_OF_DOORS)VALUES (21 ,  
'GJ-05-AB-0123' , 'CNG' , 4), (22 , 'GJ-05-AB-0123' , 'PETROL' , 4), (23 ,  
'GJ-03-JK-8012' , 'ELECTRIC', 5), (24 , 'GJ-36-MN-1345' , 'CNG' , 4),  
(25 , 'GJ-36-PQ-2678' , 'CNG' , 5), (26 , 'GJ-05-AB-0123' , 'PETROL' , 4),  
(27 , 'GJ-05-BC-0890' , 'CNG' , 6);
```

C) Insertion output

Login:

	login_id	username	password
<input type="checkbox"/>	L1	user1	pass1
<input type="checkbox"/>	L2	user2	pass2
<input type="checkbox"/>	L3	user3	pass3
<input type="checkbox"/>	L4	user4	pass4
<input type="checkbox"/>	L5	user5	pass5
<input type="checkbox"/>	L6	user6	pass6
<input type="checkbox"/>	L7	user7	pass7
<input type="checkbox"/>	L8	user8	pass8
<input type="checkbox"/>	L9	user9	pass9

Employee:

	EMPLOYEE_ID	PARKING_ID	F_NAME	L_NAME	GENDER	SALARY
<input type="checkbox"/>	1	101	John	Doe	M	50000.00
<input type="checkbox"/>	2	102	Jane	Smith	F	60000.00
<input type="checkbox"/>	3	101	Michael	Johnson	M	55000.00
<input type="checkbox"/>	4	103	smit	patel	M	15000.00
<input type="checkbox"/>	5	102	jimesh	shah	M	56000.00
<input type="checkbox"/>	6	104	shivani	mehta	F	10000.00
<input type="checkbox"/>	7	101	Michael	Johnson	M	59000.00
<input type="checkbox"/>	8	104	shivani	mehta	F	10000.00
<input type="checkbox"/>	9	105	tirth	doe	M	89000.00
<input type="checkbox"/>	10	102	Jenish	Smith	M	48000.00
<input type="checkbox"/>	11	103	travis	head	M	63000.00
<input type="checkbox"/>	13	101	john	doe	m	400000.00
<input type="checkbox"/>	25	101	darsh	jodhani	M	300000.00

Parking:

		PARKING_ID	ANNUAL_INCOME	P_ADDRESS	CUR_BALANCE
← T →		▼			
<input type="checkbox"/>	Edit Copy Delete	101	50000.00		10000.00
<input type="checkbox"/>	Edit Copy Delete	102	60000.00		15000.00
<input type="checkbox"/>	Edit Copy Delete	103	800000.00		30000.00
<input type="checkbox"/>	Edit Copy Delete	104	80000.00		30000.00
<input type="checkbox"/>	Edit Copy Delete	105	90000.00		40000.00

Parking_block:

		SLOT_ID	PARKING_ID	SLOT_STATUS	CAPACITY	AVAILABILITY
← T →		▼				
<input type="checkbox"/>	Edit Copy Delete	1	101	Occupied	10	0
<input type="checkbox"/>	Edit Copy Delete	1	102	Available	9	9
<input type="checkbox"/>	Edit Copy Delete	1	103	Occupied	20	0
<input type="checkbox"/>	Edit Copy Delete	1	104	Available	5	5
<input type="checkbox"/>	Edit Copy Delete	1	105	Occupied	2	1
<input type="checkbox"/>	Edit Copy Delete	2	101	Available	15	15
<input type="checkbox"/>	Edit Copy Delete	2	102	Occupied	10	0
<input type="checkbox"/>	Edit Copy Delete	2	103	Available	150	20
<input type="checkbox"/>	Edit Copy Delete	2	104	Available	200	20
<input type="checkbox"/>	Edit Copy Delete	2	105	Occupied	80	0
<input type="checkbox"/>	Edit Copy Delete	3	102	Available	200	20
<input type="checkbox"/>	Edit Copy Delete	4	102	Occupied	80	0
<input type="checkbox"/>	Edit Copy Delete	5	103	Occupied	40	0
<input type="checkbox"/>	Edit Copy Delete	6	104	Available	60	5
<input type="checkbox"/>	Edit Copy Delete	7	105	Occupied	100	0

Payment:

		CUSTOMER_ID	PAY_METHOD	PAY_DATE	PAY_AMOUNT	pay_id
← T →		▼				
<input type="checkbox"/>	Edit Copy Delete	2020	online	2024-04-13	40000.00	1
<input type="checkbox"/>	Edit Copy Delete	1001	cash	2008-09-11	1000.00	111
<input type="checkbox"/>	Edit Copy Delete	1002	online	2020-12-09	1500.00	112
<input type="checkbox"/>	Edit Copy Delete	1003	cash	2022-04-02	3000.00	113
<input type="checkbox"/>	Edit Copy Delete	1004	NEFT	2021-11-09	1500.00	114
<input type="checkbox"/>	Edit Copy Delete	1005	online	2008-01-19	6000.00	115
<input type="checkbox"/>	Edit Copy Delete	1006	NEFT	2009-03-09	3500.00	116
<input type="checkbox"/>	Edit Copy Delete	1007	online	2001-09-12	2500.00	117
<input type="checkbox"/>	Edit Copy Delete	1008	NEFT	2012-10-25	6300.00	118
<input type="checkbox"/>	Edit Copy Delete	1009	NEFT	2019-11-29	2750.00	119
<input type="checkbox"/>	Edit Copy Delete	1029	online	2023-04-03	30000.00	120

Customer:

	<input type="button" value="←"/> <input type="button" value="→"/>	CUSTOMER_ID	SLOT_ID	F_NAME	L_NAME	PHONE_NO	GENDER	AGE	CITY	STATE	POSTAL_CODE
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1001	1	John	Doe	1234567890	M	30	SURAT	GUJRAT	10001
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1002	2	Jane	Smith	9876543210	F	25	RAJKOT	GUJRAT	90001
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1003	3	shlok	tagadiya	5551234567	M	40	MORBI	GUJRAT	60601
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1004	4	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	77001
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1005	5	David	Wilson	9998887777	M	45	SURAT	GUJRAT	10001
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1006	6	Sarah	Taylor	3334445555	F	28	PUNE	MAHARASHTRA	19101
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1007	7	jay	borda	6667778888	M	32	AHMEDABAD	GUJRAT	78201
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1008	1	gazal	gajera	2223334444	F	50	SURAT	GUJRAT	10001
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1029	7	darsh	jodhani	1234534542	M	19	botad	gujarat	234557
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1202	3	dad	dwd	2345678654	M	23	dsg	eds	234567
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1303	3	royal	bhinde	1234565432	M	24	mumbai	maharashtra	345676
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1330	5	dev	patel	2356789543	M	13	surat	gujarat	345678
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	2020	3	samarth	pansala	3456789765	M	19	surat	gujarat	345678

Vehicle:

	<input type="button" value="←"/> <input type="button" value="→"/>	CUSTOMER_ID	V_NUM	V_NAME	COLOR	MODEL_YEAR	VEHICLE_TYPE
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1007	GJ-01-MK-6456	Nissan Altima	Red	2016	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1002	GJ-03-GH-0789	Ford Fusion	Black	2024	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1002	GJ-03-JK-8012	Chevrolet Malibu	Silver	2017	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1001	GJ-05-AB-0123	Toyota Camry	Blue	2022	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1005	GJ-05-BC-0890	Lexus ES	Blue	2019	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1001	GJ-05-DE-1456	Splender	Red	2020	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1008	GJ-05-MK-8012	Yamaha	Black	2020	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1005	GJ-05-YZ-5567	dream yuga	White	2022	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1003	GJ-36-MN-1345	Nissan Altima	White	2016	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1003	GJ-36-PQ-2678	BMW 3 Series	Gray	2021	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1006	MH-01-GH-7123	Figo Ford	Gray	2019	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1004	RJ-01-ST-7901	shine	Black	2015	NULL
<input type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/>	1004	RJ-01-VW-9234	Audi A4	Silver	2014	NULL

Booking:

CUSTOMER_ID	SLOT_ID	DATE1	CHECK_IN_TIME	CHECK_OUT_TIME
1001	1	2024-02-20	09:00:00	17:00:00
1002	2	2024-02-21	10:00:00	18:00:00
1003	3	2024-02-22	11:00:00	19:00:00
1004	4	2024-02-23	12:00:00	20:00:00
1005	5	2024-02-24	13:00:00	21:00:00
1006	3	2024-01-28	18:00:00	20:00:00
1007	4	2024-01-15	09:00:00	12:00:00
1008	2	2024-02-02	20:00:00	23:00:00

Two_wheeler:

		T_ID	AVERAGE	V_NUM
<input type="checkbox"/>	Edit	Copy	Delete	11 65.00 GJ-05-AB-0123
<input type="checkbox"/>	Edit	Copy	Delete	12 36.00 GJ-05-MK-8012
<input type="checkbox"/>	Edit	Copy	Delete	13 54.00 GJ-05-YZ-5567
<input type="checkbox"/>	Edit	Copy	Delete	14 72.00 RJ-01-ST-7901
<input type="checkbox"/>	Edit	Copy	Delete	15 45.00 GJ-05-YZ-5567
<input type="checkbox"/>	Edit	Copy	Delete	16 35.00 RJ-01-ST-7901
<input type="checkbox"/>	Edit	Copy	Delete	17 62.00 GJ-05-AB-0123
<input type="checkbox"/>	Edit	Copy	Delete	18 72.00 GJ-05-MK-8012

Four_wheeler:

		F_ID	1	V_NUM	FUEL_TYPE	NO_OF_DOORS
<input type="checkbox"/>	Edit	Copy	Delete	21 GJ-05-AB-0123	CNG	4
<input type="checkbox"/>	Edit	Copy	Delete	22 GJ-05-AB-0123	PETROL	4
<input type="checkbox"/>	Edit	Copy	Delete	23 GJ-03-JK-8012	ELECTRIC	5
<input type="checkbox"/>	Edit	Copy	Delete	24 GJ-36-MN-1345	CNG	4
<input type="checkbox"/>	Edit	Copy	Delete	25 GJ-36-PQ-2678	CNG	5
<input type="checkbox"/>	Edit	Copy	Delete	26 GJ-05-AB-0123	PETROL	4
<input type="checkbox"/>	Edit	Copy	Delete	27 GJ-05-BC-0890	CNG	6

Functionalities of database:

```
PS C:\Users\DELL\OneDrive\Desktop\DBMS_Innovative> node database.js
1. Register a new customer
2. Authenticate employee login
3. Input employee details
4. View unfilled parking slots
5. Allocate a parking slot
6. Process payment
0. Exit
Enter option: 1
```

- 1) Register a new customer

```

function insertCustomer() {
    rl.question("Enter Customer id: ", (customer_id) => {
        rl.question("Enter first name: ", (firstName) => {
            rl.question("Enter last name: ", (lastName) => {
                rl.question("Enter phone number: ", (phoneNo) => {
                    rl.question("Enter gender: ", (gender) => {
                        rl.question("Enter age: ", (age) => {
                            rl.question("Enter city: ", (city) => {
                                rl.question("Enter state: ", (state) => {
                                    rl.question("Enter postal code: ", (postalCode) => {
                                        const query = `INSERT INTO Customer (customer_id, f_name, l_name, phone_no, gender, age, city, state, postal_code) VALUES (${customer_id}, '${firstName}', '${lastName}', '${phoneNo}', '${gender}', ${age}, '${city}', '${state}', '${postalCode}'`;
                                        const query1 = `INSERT INTO Booking (customer_id) VALUES (${customer_id})`;
                                        connection.query(query, (err, result) => {
                                            if (err) throw err;
                                            console.log("Customer inserted successfully!");
                                            rl.close();
                                        });
                                        connection.query(query1, (err, result) => {
                                            if (err) throw err;
                                            rl.close();
                                        });
                                    });
                                });
                            });
                        });
                    });
                });
            });
        });
    });
}

```

```

Enter option: 1
Enter Customer id: 2025
Enter first name: Ansh
Enter last name: Pansala
Enter phone number: 2345678987
Enter gender: M
Enter age: 13
Enter city: surat
Enter state: gujarat
Enter postal code: 234567
Customer inserted successfully!

```

		CUSTOMER_ID	SLOT_ID	F_NAME	L_NAME	PHONE_NO	GENDER	AGE	CITY	STATE	POSTAL_CODE
<input type="checkbox"/>		1	John	Doe	1234567890	M	30	SURAT	GUJRAT	10001	
<input type="checkbox"/>		2	Jane	Smith	9876543210	F	25	RAJKOT	GUJRAT	90001	
<input type="checkbox"/>		3	shlok	tagadiya	5551234567	M	40	MORBI	GUJRAT	60601	
<input type="checkbox"/>		4	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	77001	
<input type="checkbox"/>		5	David	Wilson	9998887777	M	45	SURAT	GUJRAT	10001	
<input type="checkbox"/>		6	Sarah	Taylor	3334445555	F	28	PUNE	MAHARASHTRA	19101	
<input type="checkbox"/>		7	jay	borda	6667778888	M	32	AHMEDABAD	GUJRAT	78201	
<input type="checkbox"/>		8	gazal	gajera	2223334444	F	50	SURAT	GUJRAT	10001	
<input type="checkbox"/>		9	darsh	jodhani	1234534542	M	19	botad	gujarat	234557	
<input type="checkbox"/>		10	dad	dwd	2345678654	M	23	dsg	eds	234567	
<input type="checkbox"/>		11	royal	bhinde	1234565432	M	24	mumbai	maharashtra	345676	
<input type="checkbox"/>		12	dev	patel	2356789543	M	13	surat	gujarat	345678	
<input type="checkbox"/>		13	samarth	pansala	3456789765	M	19	surat	gujarat	345678	
<input type="checkbox"/>		14	Ansh	Pansala	2345678987	M	13	surat	gujarat	234567	



2) Authenticate employee login

```
function authenticateEmployee() {
    rl.question("Enter username: ", (username) => {
        rl.question("Enter password: ", (password) => {
            const query = `SELECT * FROM Login WHERE username = '${username}' AND password = '${password}'`;
            connection.query(query, (err, result) => {
                if (err) throw err;
                if (result.length > 0) {
                    console.log("Authentication successful!");
                } else {
                    console.log("Authentication failed!");
                }
                rl.close();
            });
        });
    });
}
```

Enter option: 2
Enter username: user2
Enter password: pass2
Authentication successful!

Enter option: 2
Enter username: user
Enter password: pass
Authentication failed!

3) Input employee details

```
function generateRandomSlotId1() {
    return Math.floor(Math.random() * (105 - 101 + 1)) + 101;
}

function inputEmployeeDetails() {
    const parkingid = generateRandomSlotId1();
    rl.question("Enter employee id: ", (employee_id) => {
        rl.question("Enter first name: ", (firstName) => {
            rl.question("Enter last name: ", (lastName) => {
                rl.question("Enter gender: ", (gender) => {
                    rl.question("Enter salary: ", (salary) => {
                        const query = `INSERT INTO Employee (employee_id, parking_id, f_name, l_name, gender, salary)
VALUES (${employee_id}, ${parkingid}, '${firstName}', '${lastName}', '${gender}', ${salary})`;
                        connection.query(query, (err, result) => {
                            if (err) throw err;
                            console.log("Employee details inserted successfully!");
                            rl.close();
                        });
                    });
                });
            });
        });
    });
}
```

Enter option: 3
Enter employee id: 204
Enter first name: dev
Enter last name: patel
Enter gender: M
Enter salary: 400000
Employee details inserted successfully!

		EMPLOYEE_ID	PARKING_ID	F_NAME	L_NAME	GENDER	SALARY
	Edit	Copy	Delete				
1	101	John	Doe	M	50000.00		
2	102	Jane	Smith	F	60000.00		
3	101	Michael	Johnson	M	55000.00		
4	103	smit	patel	M	15000.00		
5	102	jimesh	shah	M	56000.00		
6	104	shivani	mehta	F	10000.00		
7	101	Michael	Johnson	M	59000.00		
8	104	shivani	mehta	F	10000.00		
9	105	tirth	doe	M	89000.00		
10	102	Jenish	Smith	M	48000.00		
11	103	travis	head	M	63000.00		
13	101	john	doe	m	400000.00		
25	101	darsh	jodhani	M	300000.00		
204	101	dev	patel	M	400000.00		

4) View unfilled parking slots

```
function viewUnfilledParkingSlots() {
  const query = `SELECT * FROM Parking_block WHERE slot_status = 'Available'`;
  connection.query(query, (err, results) => {
    if (err) throw err;
    console.log("Unfilled parking slots:");
    console.log(results);
    rl.close();
  });
}
```

```
Enter option: 4
Unfilled parking slots:
[
  RowDataPacket {
    SLOT_ID: 2,
    PARKING_ID: 101,
    SLOT_STATUS: 'Available',
    CAPACITY: 150
  },
  RowDataPacket {
    SLOT_ID: 3,
    PARKING_ID: 102,
    SLOT_STATUS: 'Available',
    CAPACITY: 200
  },
  RowDataPacket {
    SLOT_ID: 5,
    PARKING_ID: 103,
    SLOT_STATUS: 'Available',
    CAPACITY: 40
  }
]
```

5) Allocate a parking slot

```

function allocateParkingSlot() {
  rl.question("Enter your Customer id: ", (customer_id) => {
    rl.question("Enter parking slot ID to allocate: ", (sloatId) => {
      rl.question("Enter parking parking ID to allocate: ", (parkingid) => {
        connection.query(`UPDATE customer SET slot_id = ${sloatId} WHERE customer_id = ${customer_id};` , (err, result) => {
          if(err) throw err;

          rl.close();
        });
        connection.query(`UPDATE booking SET slot_id = ${sloatId} WHERE customer_id = ${customer_id}` , (err, result) => {
          if(err) throw err;

          rl.close();
        });
        connection.query(`UPDATE PARKING_BLOCK SET AVAILABILITY = AVAILABILITY - 1 WHERE SLOT_ID = ${sloatId} AND PARKING_ID = ${parkingid}` 
          if(err) throw err;

          rl.close();
        });

        return new Promise((resolve, reject) => {
          connection.query(
            'SELECT SLOT_STATUS FROM PARKING_BLOCK WHERE PARKING_ID = ? AND SLOT_ID = ?',
            [parkingid, sloatId],
            (error, results) => {
              if (error) {
                reject(error);
                return;
              }

              if (results.length === 0) {

                if (results.length === 0) {
                  console.log('Invalid parking ID or slot ID');
                  return;
                }

                const slotStatus = results[0].SLOT_STATUS;
                if (slotStatus === 'Occupied') {
                  console.log('No slot available');
                } else {
                  console.log('Slot Allocated');
                }
              }
            );
            connection.query(` UPDATE PARKING_BLOCK SET SLOT_STATUS = 'Occupied' WHERE AVAILABILITY = 0;` , (err, result) => {
              if(err) throw err;

              rl.close();
            });
          });
        });
      });
    });
  });
}

```

Enter option: 5
 Enter your Customer id: 1001
 Enter parking slot ID to allocate: 1
 Enter parking parking ID to allocate: 101
 No slot available

Enter option: 5
 Enter your Customer id: 2025
 Enter parking slot ID to allocate: 5
 Parking slot allocated successfully!

		CUSTOMER_ID	SLOT_ID	F_NAME	L_NAME	PHONE_NO	GENDER	AGE	CITY	STATE	POSTAL_CODE
	Edit	Copy	Delete	1001	1 John	Doe	1234567890 M	30	SURAT	GUJRAT	10001
	Edit	Copy	Delete	1002	2 Jane	Smith	9876543210 F	25	RAJKOT	GUJRAT	90001
	Edit	Copy	Delete	1003	3 shlok	tagadiya	5551234567 M	40	MORBI	GUJRAT	60601
	Edit	Copy	Delete	1004	4 krunal	Dudhatra	1112223333 F	35	JAIPUR	RAJASTHAN	77001
	Edit	Copy	Delete	1005	5 David	Wilson	9998887777 M	45	SURAT	GUJRAT	10001
	Edit	Copy	Delete	1006	6 Sarah	Taylor	3334445555 F	28	PUNE	MAHARASHTRA	19101
	Edit	Copy	Delete	1007	7 jay	borda	6667778888 M	32	AHMEDABAD	GUJRAT	78201
	Edit	Copy	Delete	1008	1 gazal	gajera	2223334444 F	50	SURAT	GUJRAT	10001
	Edit	Copy	Delete	1029	7 darsh	jodhani	1234534542 M	19	bolad	gujarat	234557
	Edit	Copy	Delete	1202	3 dad	dwd	2345678654 M	23	dsg	eds	234567
	Edit	Copy	Delete	1303	3 proyal	bhinde	1234565432 M	24	mumbai	maharashtra	345676
	Edit	Copy	Delete	1330	5 dev	patel	2356789543 M	13	surat	gujarat	345678
	Edit	Copy	Delete	2020	3 samarth	pansala	3456789765 M	19	surat	gujarat	345678
	Edit	Copy	Delete	2025	5 Ansh	Pansala	2345678987 M	13	surat	gujarat	234567



6) Process payment

```
function processPayment() {
    rl.question("Enter customer ID: ", (customerId) => {
        rl.question("Enter payment method: ", (payMethod) => {
            rl.question("Enter payment date (YYYY-MM-DD): ", (payDate) => {
                rl.question("Enter payment amount: ", (payAmount) => {
                    const query = `INSERT INTO Payment (customer_id, pay_method, pay_date, pay_amount)
VALUES (${customerId}, '${payMethod}', '${payDate}', ${payAmount})`;
                    connection.query(query, (err, result) => {
                        if (err) throw err;
                        console.log("Payment processed successfully!");
                        rl.close();
                    });
                });
            });
        });
    });
}
```

```
Enter option: 6
Enter customer ID: 2025
Enter payment method: online
Enter payment date (YYYY-MM-DD): 2024-04-21
Enter payment amount: 40000
Payment processed successfully!
```

		CUSTOMER_ID	PAY_METHOD	PAY_DATE	PAY_AMOUNT	pay_id		
	Edit	Copy	Delete	2020	online	2024-04-13	40000.00	1
	Edit	Copy	Delete	1001	cash	2008-09-11	1000.00	111
	Edit	Copy	Delete	1002	online	2020-12-09	1500.00	112
	Edit	Copy	Delete	1003	cash	2022-04-02	3000.00	113
	Edit	Copy	Delete	1004	NEFT	2021-11-09	1500.00	114
	Edit	Copy	Delete	1005	online	2008-01-19	6000.00	115
	Edit	Copy	Delete	1006	NEFT	2009-03-09	3500.00	116
	Edit	Copy	Delete	1007	online	2001-09-12	2500.00	117
	Edit	Copy	Delete	1008	NEFT	2012-10-25	6300.00	118
	Edit	Copy	Delete	1009	NEFT	2019-11-29	2750.00	119
	Edit	Copy	Delete	1029	online	2023-04-03	30000.00	120
	Edit	Copy	Delete	2025	online	2024-04-21	40000.00	121



Queries using DBMS constructs join and subqueries:

- Find the total amount paid by each customer and display it along with their name.

```
SELECT c.customer_id, c.f_name, c.l_name, SUM(p.pay_amount) AS
total_amount_paid FROM customer c JOIN payment p ON c.customer_id =
p.customer_id GROUP BY c.customer_id, c.f_name, c.l_name;
```

customer_id	f_name	l_name	total_amount_paid
1001	John	Doe	1000.00
1002	Jane	Smith	1500.00
1003	shlok	tagadiya	3000.00
1004	krunal	Dudhatra	1500.00
1005	David	Wilson	6000.00
1006	Sarah	Taylor	3500.00
1007	jay	borda	2500.00
1008	gazal	gajera	6300.00
1029	darsh	jodhani	30000.00
2020	samarth	pansala	40000.00
2025	Ansh	Pansala	40000.00

- Get all customers who have made payments, along with their payment details, assigned parking slot, and vehicle information.

```
SELECT c.customer_id, c.f_name, c.l_name, c.phone_no, c.gender, c.age,
c.city, c.state, c.postal_code, p.pay_id, p.pay_method, p.pay_date,
p.pay_amount, cb.slot_id, cb.slot_status, v.v_num, v.v_name, v.color,
v.model_year FROM Customer c JOIN Payment p ON c.customer_id =
p.customer_id LEFT JOIN Parking_block cb ON c.slot_id = cb.slot_id LEFT
JOIN Vehicle v ON c.customer_id = v.customer_id;
```

customer_id	f_name	l_name	phone_no	gender	age	city	state	postal_code	pay_id	pay_method	pay_date	pay_amount	slot_id	slot_status	v_num	v_name	color	model_year
2020	samarth	pansala	3458789785	M	19	surat	gujarat	345678	1	online	2024-04-13	40000.00	3	Available	NULL	TG		
1001	John	Doe	1234567890	M	30	SURAT	GUJARAT	100001	111	cash	2008-09-11	1000.00	1	Occupied	GJ-01-AB-0123	C		
1001	John	Doe	1234567890	M	30	SURAT	GUJARAT	100001	111	cash	2008-09-11	1000.00	1	Occupied	GJ-01-AB-0123	S		
1002	Jane	Smith	9876543210	F	25	RAJKOT	GUJARAT	900001	112	online	2020-12-09	1500.00	2	Available	GJ-02-9789	F		
1002	Jane	Smith	9876543210	F	25	RAJKOT	GUJARAT	900001	112	online	2020-12-09	1500.00	2	Available	GJ-03-JK-8012	M		
1003	shlok	tagadiya	5551234567	M	40	MORBI	GUJARAT	606001	113	cash	2022-04-02	3000.00	3	Available	GJ-05-MN-9876	N	A	
1003	shlok	tagadiya	5551234567	M	40	MORBI	GUJARAT	606001	113	cash	2022-04-02	3000.00	3	Available	GJ-06-BH-PO-2078	B		
1004	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	770001	114	NEFT	2021-11-09	1500.00	4	Occupied	RJ-01-SI-7001	sh		
1004	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	770001	114	NEFT	2021-11-09	1500.00	4	Occupied	RJ-01-VW-9234	A		
1005	David	Wilson	9998887777	M	45	SURAT	GUJARAT	100001	115	online	2008-01-19	6000.00	5	Available	GJ-05-AB-0000	L		
1005	David	Wilson	9998887777	M	45	SURAT	GUJARAT	100001	115	online	2008-01-19	6000.00	5	Available	GJ-06-DR-YZ-5587	gr		
1006	Sarah	Taylor	3334445555	F	28	PUNE	MAHARASHTRA	19101	116	NEFT	2009-03-09	3500.00	6	Occupied	MH-01-GH-7123	F		
1007	jay	borda	6667778888	M	32	AHMEDABAD	GUJARAT	76201	117	online	2001-09-12	2500.00	7	Occupied	GJ-01-MK-avgt	N	A	

id	phone_no	gender	age	city	state	postal_code	pay_id	pay_method	pay_date	pay_amount	slot_id	slot_status	v_num	v_name	color	model_year
ma	3456789765	M	19	SURAT	GUJARAT	345678	1	online	2024-04-13	40000.00	3	Available	NULL	NULL	NULL	NULL
	1234567890	M	30	SURAT	GUJARAT	10001		cash	2008-09-11	1000.00	1	Occupied	GJ-05-AB-0123	Toyota Camry	Blue	2022
	1234567890	M	30	SURAT	GUJARAT	10001		cash	2008-09-11	1000.00	1	Occupied	GJ-05-DE-1456	Splender	Red	2020
9876543210	F	25	RAJKOT	GUJARAT	90001	112	online		2020-12-09	1500.00	2	Available	GJ-03-GH-0789	Ford Fusion	Black	2024
9876543210	F	25	RAJKOT	GUJARAT	90001	112	online		2020-12-09	1500.00	2	Available	GJ-03-JK-8012	Chevrolet Malibu	Silver	2017
ya	5551234567	M	40	MORBI	GUJARAT	60001	113	cash	2022-04-02	3000.00	3	Available	GJ-36-MN-1345	Nissan Altima	White	2016
ya	5551234567	M	40	MORBI	GUJARAT	60001	113	cash	2022-04-02	3000.00	3	Available	GJ-36-PG-2678	BMW 3 Series	Gray	2021
atra	1112223333	F	35	JAIPUR	RAJASTHAN	77001	114	NEFT	2021-11-09	1500.00	4	Occupied	RJ-01-ST-7901	shine	Black	2015
atra	1112223333	F	35	JAIPUR	RAJASTHAN	77001	114	NEFT	2021-11-09	1500.00	4	Occupied	RJ-01-VW-9234	Audi A4	Silver	2014
n	9998887777	M	45	SURAT	GUJARAT	10001	115	online	2008-01-19	6000.00	5	Available	GJ-05-BC-0890	Lexus ES	Blue	2019
n	9998887777	M	45	SURAT	GUJARAT	10001	115	online	2008-01-19	6000.00	5	Available	GJ-05-YZ-5567	dream yuga	White	2022
3334445555	F	28	PUNE	MAHARASHTRA	19101	116	NEFT		2009-03-09	3500.00	6	Occupied	GJ-01-GH-7123	Figo Ford	Gray	2019
ma	65511179888	M	32	AHMEDABAD	GUJARAT	78201	117	online	2001-09-12	2500.00	7	Occupied	GJ-01-MK-z-eze	Nissan Altima	Red	2016

- 3) Get all customers along with their vehicle details and the average fuel consumption for each two-wheeler they own.

```
SELECT c.customer_id, c.f_name, c.l_name, c.phone_no, c.gender, c.age, c.city, c.state, c.postal_code, v.v_num, v.v_name, v.color, v.model_year, tw.average AS two_wheeler_avg_fuel_consumption FROM Customer c LEFT JOIN Vehicle v ON c.customer_id = v.customer_id LEFT JOIN Two_wheeler tw ON v.v_num = tw.v_num;
```

customer_id	f_name	l_name	phone_no	gender	age	city	state	postal_code	v_num	v_name	color	model_year	two_wheeler_avg_fuel_consumption
1001	John	Doe	1234567890	M	30	SURAT	GUJARAT	10001	GJ-05-AB-0123	Toyota Camry	Blue	2022	65.00
1001	John	Doe	1234567890	M	30	SURAT	GUJARAT	10001	GJ-05-AB-0123	Toyota Camry	Blue	2022	62.00
1001	John	Doe	1234567890	M	30	SURAT	GUJARAT	10001	GJ-05-DE-1456	Splender	Red	2020	NULL
1002	Jane	Smith	9876543210	F	25	RAJKOT	GUJARAT	90001	GJ-03-GH-0789	Ford Fusion	Black	2024	NULL
1002	Jane	Smith	9876543210	F	25	RAJKOT	GUJARAT	90001	GJ-03-JK-8012	Chevrolet Malibu	Silver	2017	NULL
1003	shlok	tagadiya	5551234567	M	40	MORBI	GUJARAT	60601	GJ-36-MN-1345	Nissan Altima	White	2016	NULL
1003	shlok	tagadiya	5551234567	M	40	MORBI	GUJARAT	60601	GJ-36-PG-2678	BMW 3 Series	Gray	2021	NULL
1004	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	77001	RJ-01-ST-7901	shine	Black	2015	72.00
1004	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	77001	RJ-01-ST-7901	shine	Black	2015	35.00
1004	krunal	Dudhatra	1112223333	F	35	JAIPUR	RAJASTHAN	77001	RJ-01-VW-9234	Audi A4	Silver	2014	NULL
1005	David	Wilson	9998887777	M	45	SURAT	GUJARAT	10001	GJ-05-BC-0890	Lexus ES	Blue	2019	NULL
1005	David	Wilson	9998887777	M	45	SURAT	GUJARAT	10001	GJ-05-YZ-5567	dream yuga	White	2022	54.00

Advance Concepts:

PL/SQL(VIEWS):

- 1) Create view with employee id and name and display all details from it.

```
CREATE VIEW employee_view AS SELECT EMPLOYEE_ID, CONCAT(F_NAME, " ", L_NAME) AS NAME FROM employee;
```

	EMPLOYEE_ID	NAME
<input type="checkbox"/>	1	John Doe
<input type="checkbox"/>	2	Jane Smith
<input type="checkbox"/>	3	Michael Johnson
<input type="checkbox"/>	4	smit patel
<input type="checkbox"/>	5	jimesh shah
<input type="checkbox"/>	6	shivani mehta
<input type="checkbox"/>	7	Michael Johnson
<input type="checkbox"/>	8	shivani mehta
<input type="checkbox"/>	9	tirth doe
<input type="checkbox"/>	10	Jenish Smith
<input type="checkbox"/>	11	travis head
<input type="checkbox"/>	13	john doe
<input type="checkbox"/>	25	darsh jodhani
<input type="checkbox"/>	204	dev Patel

- 2) Create view with customer id and name and display all details from it.

```
CREATE VIEW customer_view AS SELECT CUSTOMER_ID, CONCAT(F_NAME, " ", L_NAME) AS NAME, PHONE_NO, GENDER, AGE, STATE FROM CUSTOMER;
```

	CUSTOMER_ID	NAME	PHONE_NO	GENDER	AGE	STATE
<input type="checkbox"/>	1001	John Doe	1234567890	M	30	GUJRAT
<input type="checkbox"/>	1002	Jane Smith	9876543210	F	25	GUJRAT
<input type="checkbox"/>	1003	shlok tagadiya	5551234567	M	40	GUJRAT
<input type="checkbox"/>	1004	krunal Dudhatra	1112223333	F	35	RAJASTHAN
<input type="checkbox"/>	1005	David Wilson	9998887777	M	45	GUJRAT
<input type="checkbox"/>	1006	Sarah Taylor	3334445555	F	28	MAHARASHTRA
<input type="checkbox"/>	1007	jay borda	6667778888	M	32	GUJRAT
<input type="checkbox"/>	1008	gazal gajera	2223334444	F	50	GUJRAT
<input type="checkbox"/>	1029	darsh jodhani	1234534542	M	19	gujarat
<input type="checkbox"/>	1202	dad dwd	2345678654	M	23	eds
<input type="checkbox"/>	1303	royal bhinde	1234565432	M	24	maharashtra
<input type="checkbox"/>	1330	dev Patel	2356789543	M	13	gujarat
<input type="checkbox"/>	2020	samarth pansala	3456789765	M	19	gujarat
<input type="checkbox"/>	2025	Ansh Pansala	2345678987	M	13	gujarat

TRIGGERS:

- 1) Create a trigger to get new salary input which should not be less than 50000.

```
CREATE TRIGGER salary_check BEFORE INSERT ON employee FOR EACH ROW BEGIN  
IF NEW.SALARY < 50000 THEN SIGNAL SQLSTATE "45000" SET MESSAGE_TEXT =  
"Salary cannot be less than 50000"; END IF; END;
```

Check: `insert into employee values (12 , 101 , "john" , "doe" , "m" , 40000);`

Error

[SQL query: Copy](#)

```
insert into employee values (12 , 101 , "john" , "doe" , "m" , 40000);
```

MySQL said:

```
#1644 - Salary cannot be less than 50000
```

- 2) Create a trigger to get new mobile no. input which should must be 10 digit.

```
CREATE TRIGGER check_mobile_number BEFORE INSERT ON customer FOR EACH ROW  
BEGIN IF CHAR_LENGTH(NEW.phone_no) != 10 THEN SIGNAL SQLSTATE "45000" SET  
MESSAGE_TEXT = "Mobile number must be 10 digits"; END IF; END;
```

Check: `INSERT INTO customer (CUSTOMER_ID, SLOT_ID, F_NAME, L_NAME, PHONE_NO, GENDER, AGE, CITY, STATE, POSTAL_CODE)VALUES (1020 , 1 , "Samarth" , "Pansala" , "123456789" , "M" , 30 , "SURAT" , "GUJRAT" , "10001");`

Error

[SQL query: Copy](#)

```
INSERT INTO customer (CUSTOMER_ID, SLOT_ID, F_NAME, L_NAME, PHONE_NO, GENDER, AGE, CITY, STATE, POSTAL_CODE)VALUES (1020 , 1 , "Samarth" , "Pansala" , "123456789" , "M" , 30 , "SURAT" , "GUJRAT" , "10001");
```

MySQL said:

```
#1644 - Mobile number must be 10 digits
```

- 3) Create a trigger that checks availability is must less or equal to capacity while inserting new record into parking_block.

```
'CREATE TRIGGER check_availability BEFORE INSERT ON PARKING_BLOCK FOR EACH  
ROW BEGIN IF NEW.AVAILABILITY > NEW.CAPACITY THEN SIGNAL SQLSTATE "45000"
```

```
SET MESSAGE_TEXT = "Availability must be less than or equal to Capacity";
END IF; END;
```

Check: `INSERT INTO `parking_block`(`SLOT_ID`, `PARKING_ID`, `SLOT_STATUS`, `CAPACITY`, `AVAILABILITY`) VALUES (4, 104, "Available", 10, 12);`

Error

[SQL query](#): [Copy](#)

```
INSERT INTO `parking_block`(`SLOT_ID`, `PARKING_ID`, `SLOT_STATUS`, `CAPACITY`, `AVAILABILITY`) VALUES (4, 104, 'Available', 10, 12);
```

MySQL said: [?](#)

```
#1644 - Availability must be less than or equal to Capacity
```