CSE302: Database Systems (Section 7) [Fall-2024]

Project Report

Vehicle Service Management System

https://apex.oracle.com/pls/apex/r/provapurva/gearguard/login?session=104351580107536

Submitted by:

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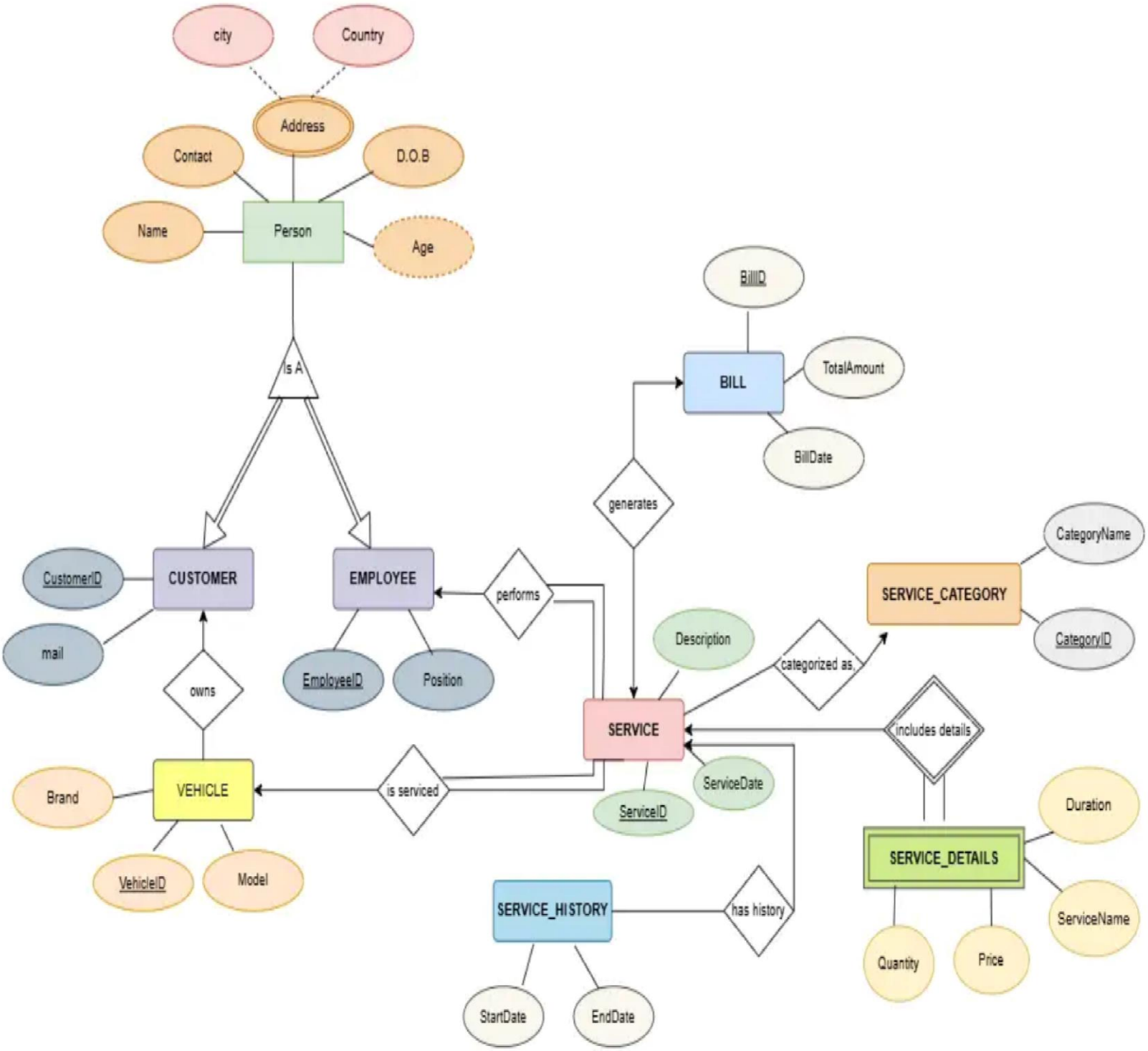
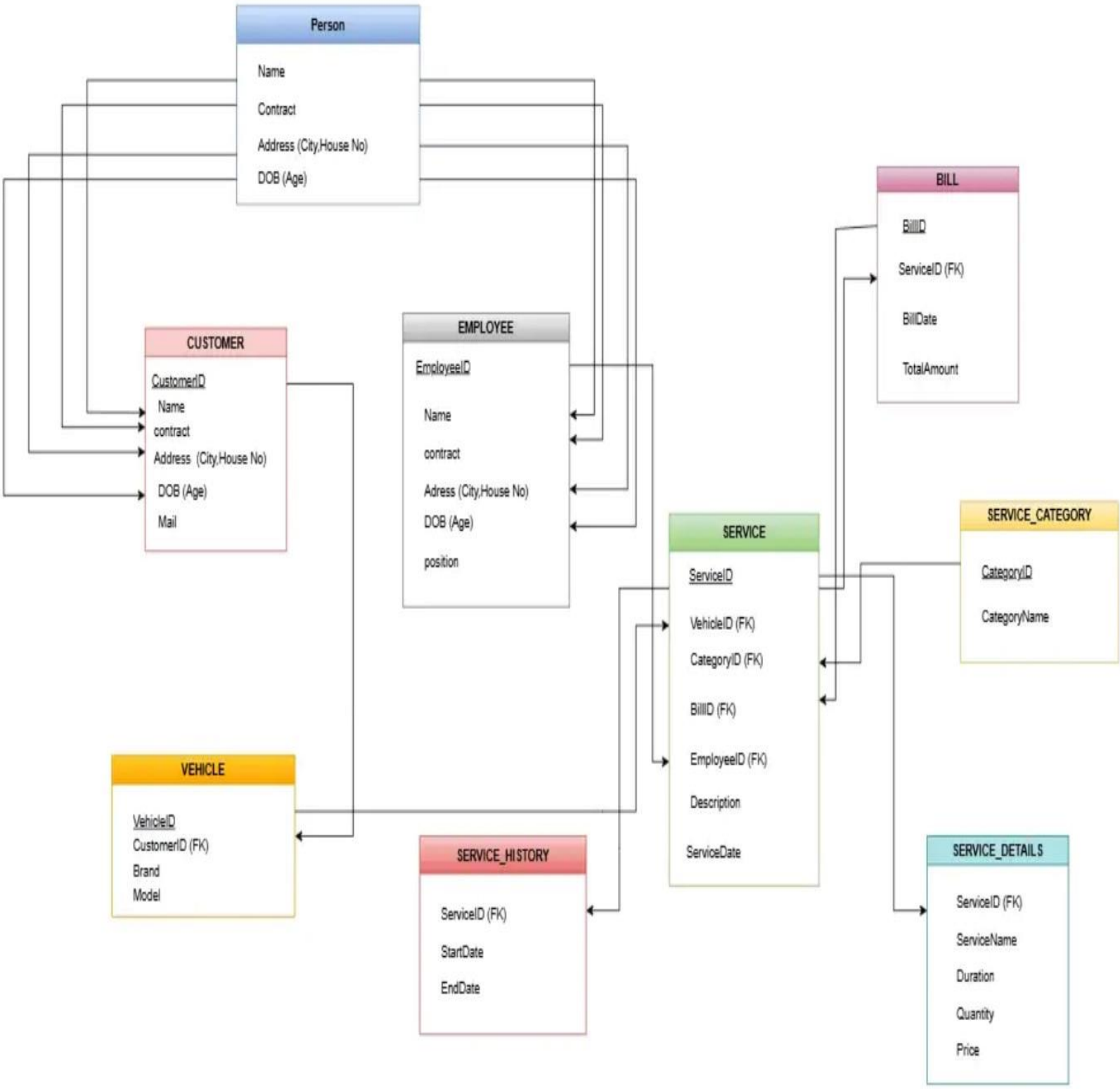
2023-1-60-202	Farhatun Nahar Priya	20%
2022-3-60-127	Sumaiya Binte Shahin	10%

E-R Model of the Project



Schema Design of the Project



Implementation Checklist

Description	Remarks
Project ID	47705
Workspace Name	ProVApurva
Workspace Email	provanuren@gmail.com
Workspace Password	12345678
Authentication Type	Custom
Username and Password to Login	
if you have multiple users, write all username and password correctly	Username: loser, Password:error404 Username: labib, Password: labib1234
Number of Reports with Forms	10
Number of Reports based on Queries, Aggregate Queries	10
Extra features	In our project, we use HTML forms for user interface design. The unique user ID is generated automatically through backend logic and displayed dynamically on the HTML form. This ensures that every new user is assigned a unique ID seamlessly during the creation process.
Unique functionality	There are lots of unique functionality in our app. We use authorization, custom authentication, nested subqueries and many things.

Reports with Forms

Report Page Number and Name	Form Page Number and Name	Table
11-Person	2-Person	Person
13-Employee	3-Employee	Employee
12-Customer	4-Customer	Customer
14-Vehicle	5-Vehicle	Vehicle
15-Service	6-Service	Service
16-service_category	7-service_category	Service_category
17-Service_details	8-Service_details	Service_details
18-Servic_history	9-Service_history	Service_history
19-Bill	10-Bill	Bill

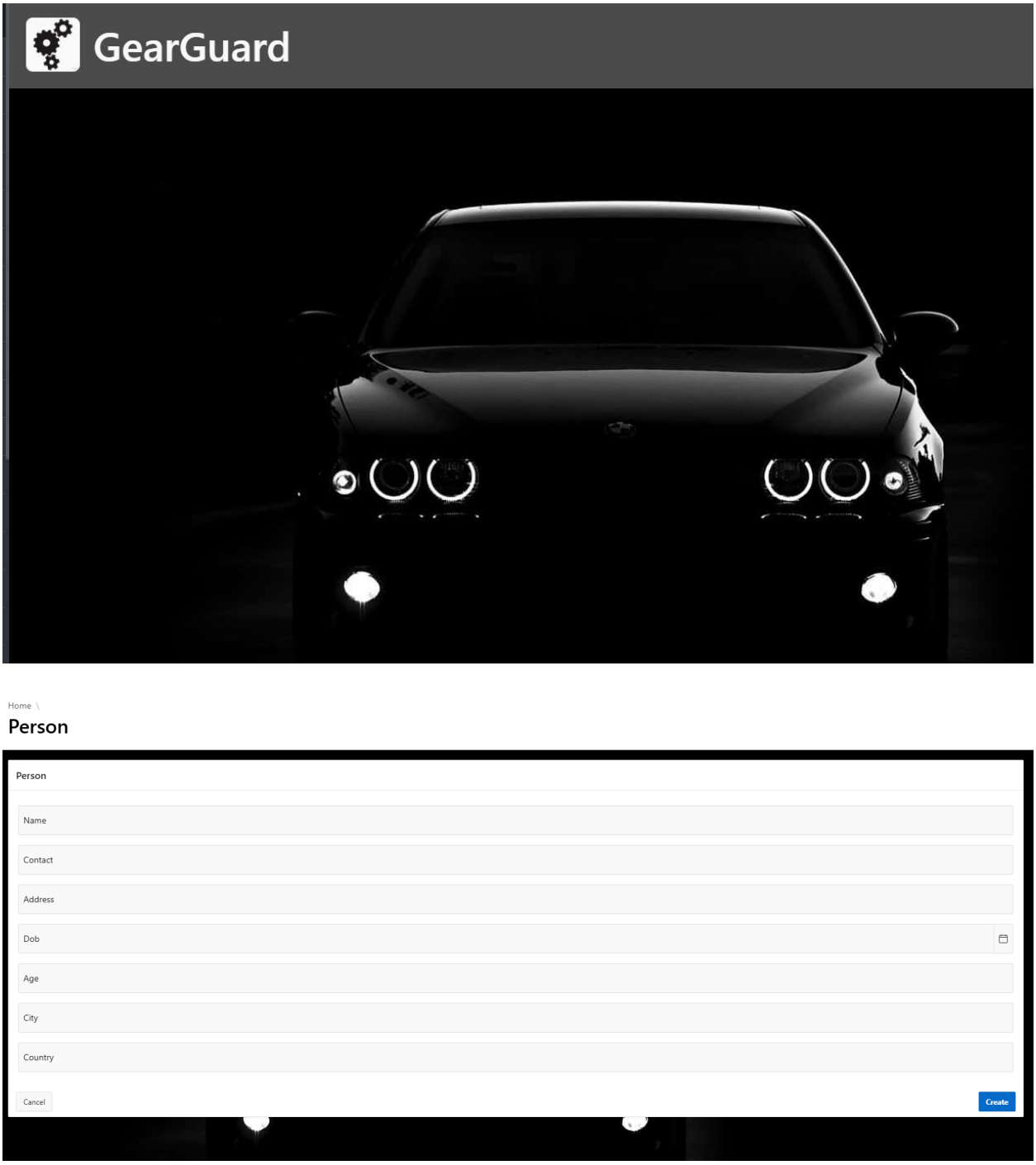

GearGuard
Home \
Person
Person
Name
Contact
Address
Dob
Age
City
Country
Cancel
Create

Figure: 4.1

Person

Go | Actions

Name	Contact	Address	Dob	Age	City	Country
Asif Mahmud	01710000007	Rangpur ,Bangladesh	6/18/1998	26	Rangpur	Bangladesh
Mahbub Alam	01710000011	Narayanganj, Bangladesh	5/6/1987	37	Narayanganj	Bangladesh
Nafisa Tabassum	01710000018	Brahmanbaria, Bangladesh	7/30/2001	23	Brahmanbaria	Bangladesh
Sumaiya Islam	01710000020	Feni, Bangladesh	2/10/1986	38	Feni	Bangladesh
Anika Hasan	01710000002	Chittagong, Bangladesh	7/25/1990	34	Chittagong	Bangladesh
Farhana Rahman	01710000008	Mymensingh, Bangladesh	2/28/1993	31	Mymensingh, Bangladesh	Bangladesh
Nusrat Jahan	01710000006	Barisal, Bangladesh	12/30/2000	24	Barisal	Bangladesh
Rahim Uddin	01710000001	Dhaka, Bangladesh	3/10/1985	39	Dhaka	Bangladesh
Rafiq Islam	01710000005	Rajshahi, Bangladesh	4/5/1988	36	Rajshahi	Bangladesh
Sharmin Akter	01710000016	Manikganj, Bangladesh	4/19/1989	35	Manikganj	Bangladesh
Wasimul Bari Rahat	01792547928	East West University	1/1/2010	15	Dhaka	Bangladesh
Arifa Sultana	01710000014	Bogura, Bangladesh	11/11/1991	33	Bogura	Bangladesh
Karim Ali	01710000003	Sylhet, Bangladesh	1/14/1975	50	Sylhet	Bangladesh
Sanjida Khatun	01710000012	Jashore, Bangladesh	3/15/1996	28	Jashore	Bangladesh
Ayesha Siddiqua	01710000010	Cumilla, Bangladesh	10/10/1999	25	Cumilla	Bangladesh
Tanvir Chowdhury	01710000019	Kishoreganj, Kishoregan	9/15/1992	32	Kishoreganj	Kishoregan
Sayed Hassan	01710000017	Noakhali, Bangladesh	6/23/1994	30	Noakhali	Bangladesh
Habib Rahman	01710000013	Pabna, Bangladesh	8/8/1983	41	Pabna	Bangladesh

Figure: 4.1

Home \

Employee

Employee

EmployeeID

Position

Name

Contract

Address

Dob

City

Country

Age

Cancel | Create

Figure: 4.2

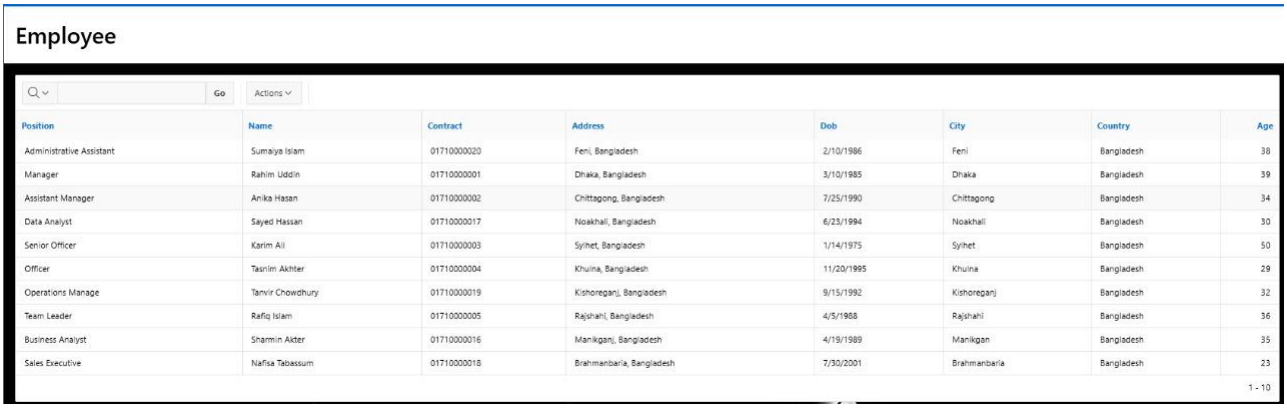


Figure: 4.2

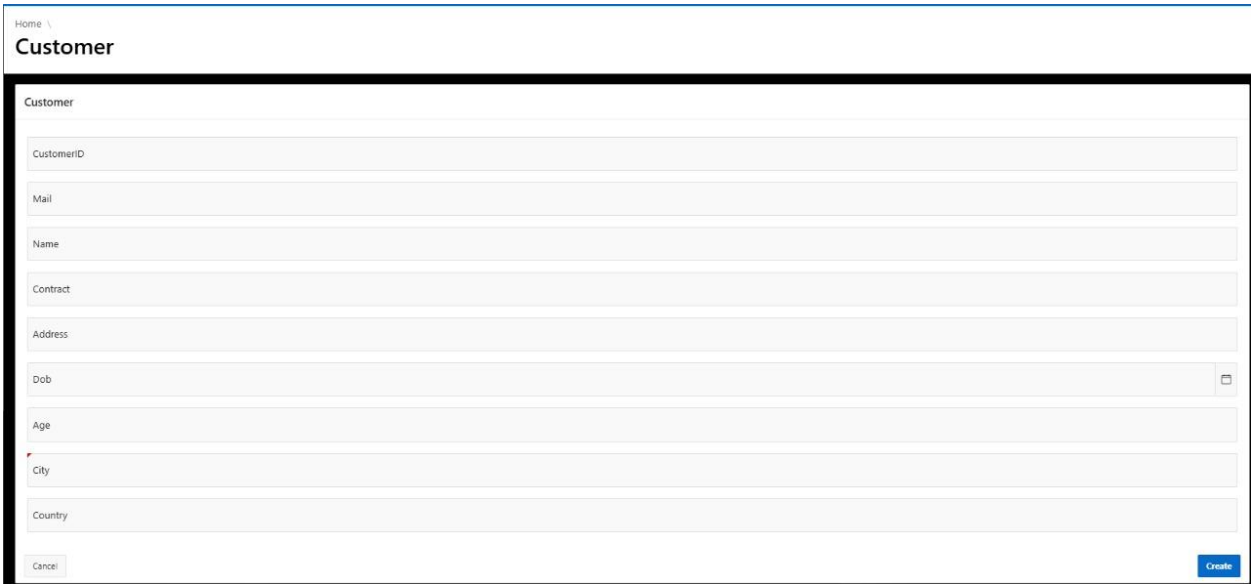


Figure: 4.3

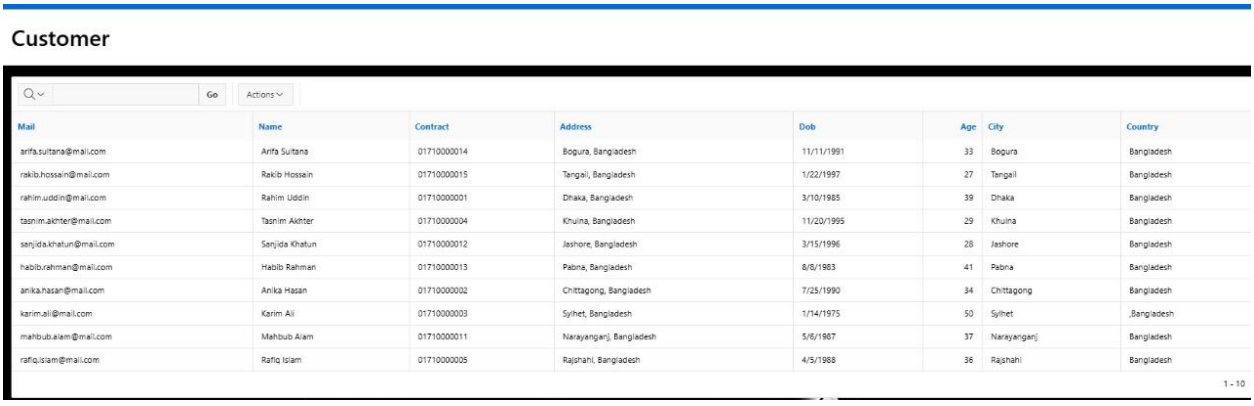


Figure: 4.3

Figure: 4.4

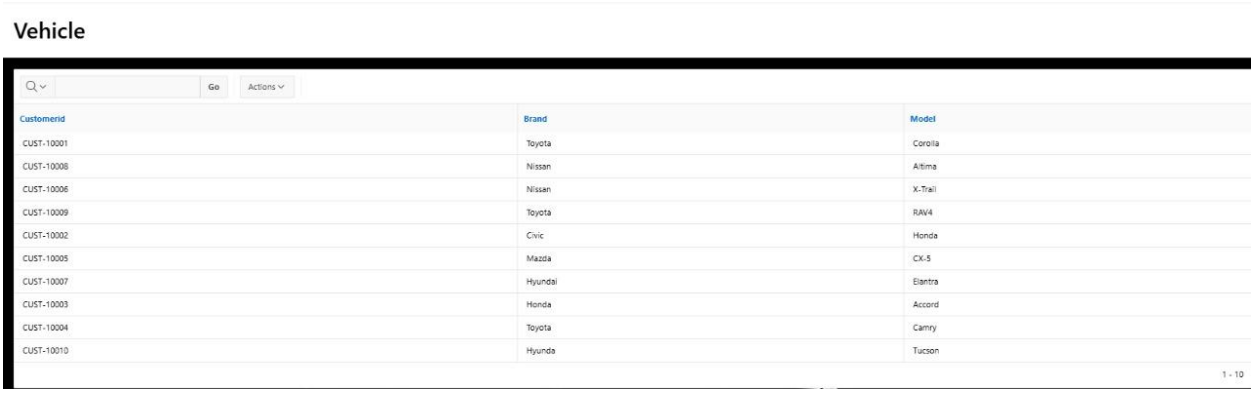


Figure: 4.4

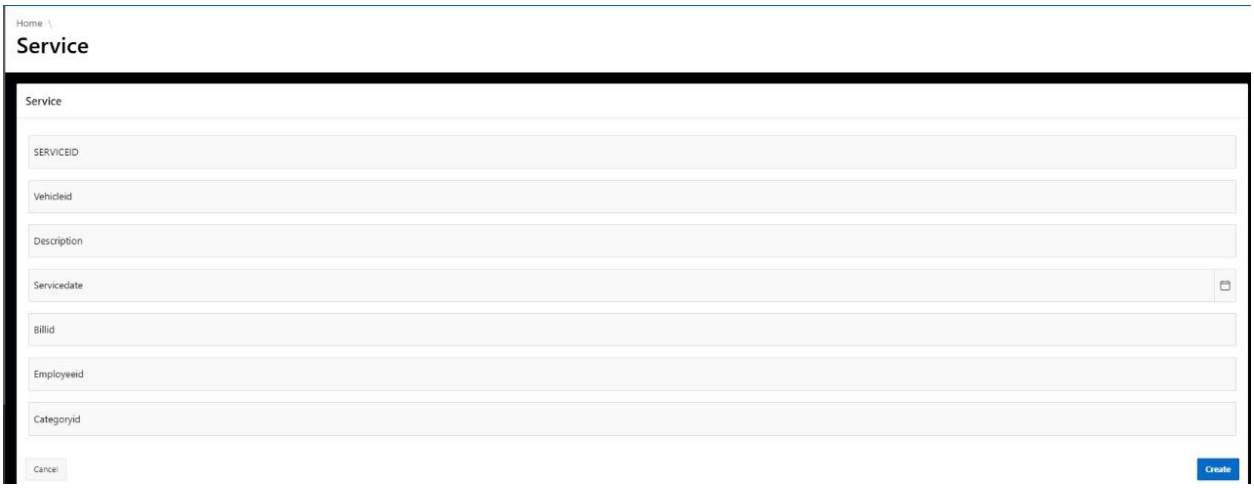


Figure: 4.5

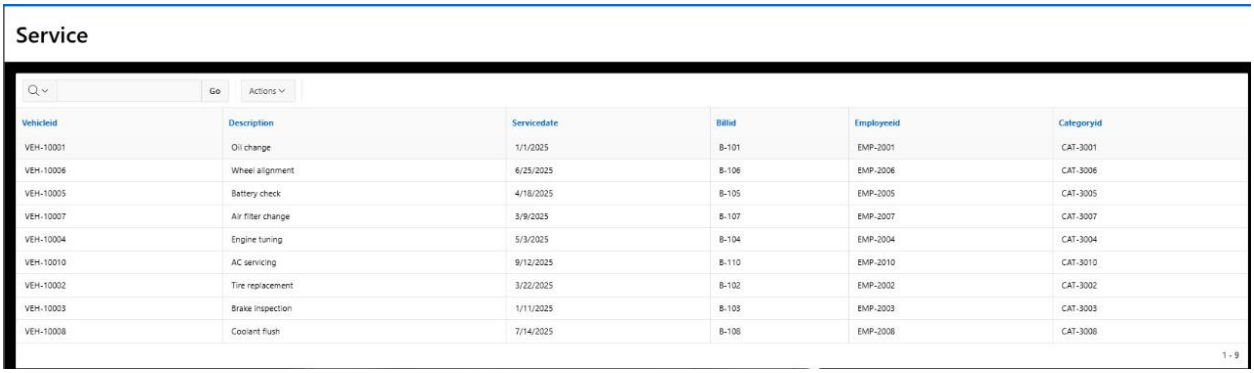


Figure: 4.5

Figure: 4.6

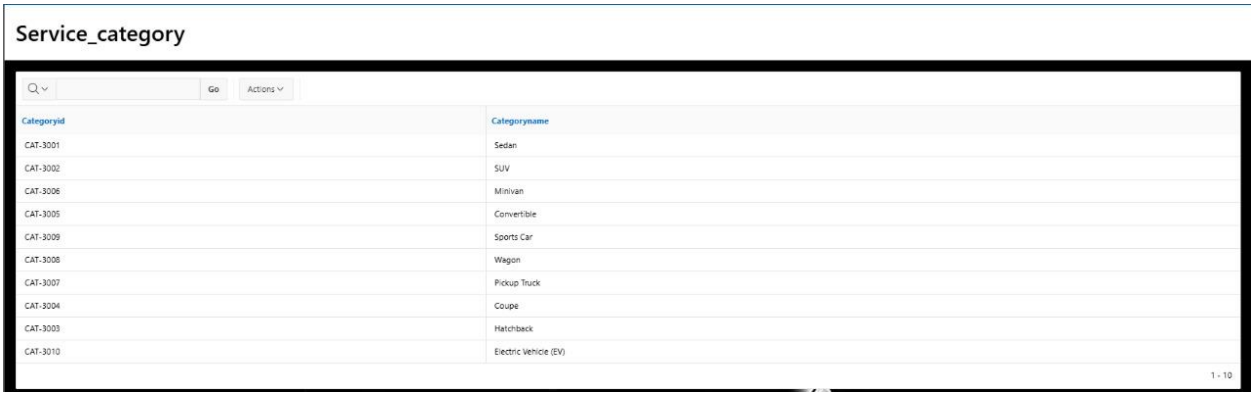


Figure: 4.6

Figure: 4.7

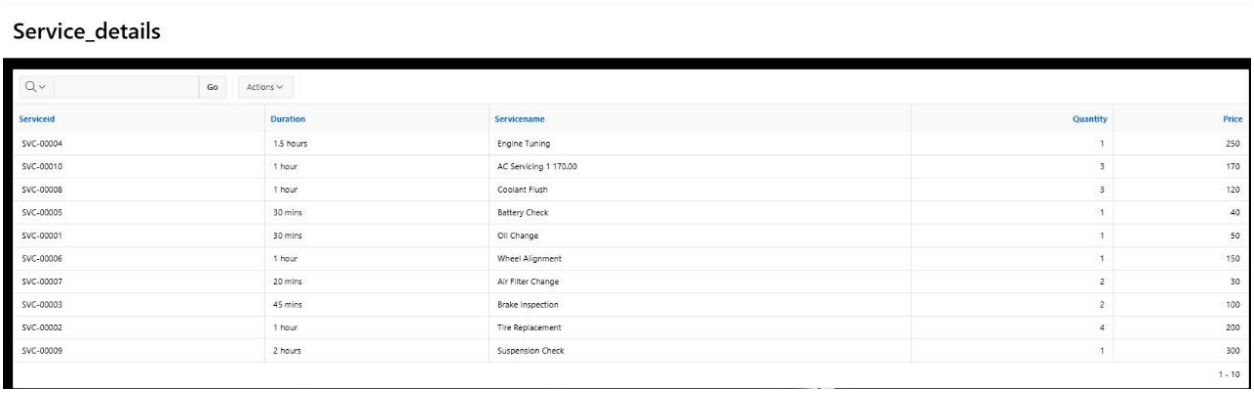


Figure: 4.7

Figure: 4.8

Service_history

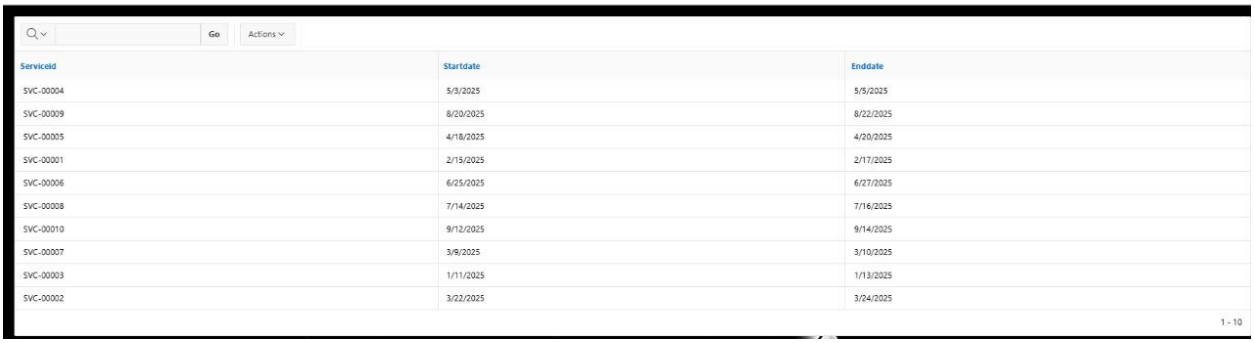


Figure: 4.8

Bill

Figure: 4.9

Bill

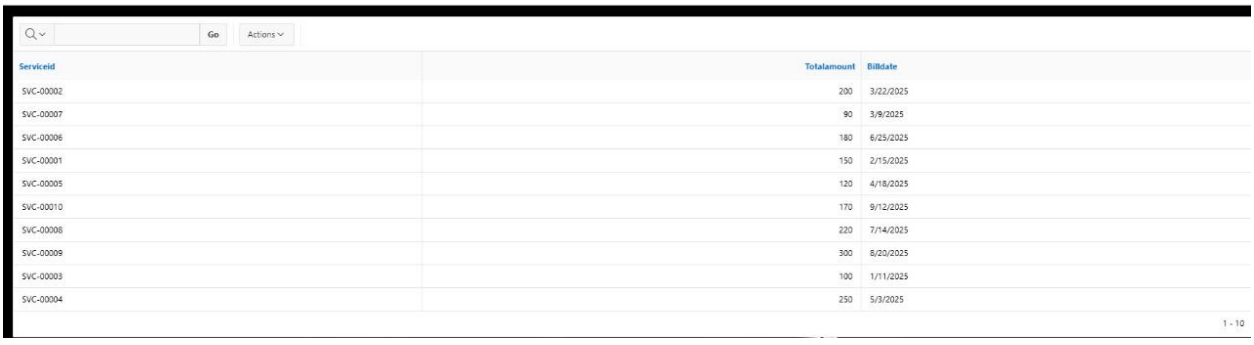
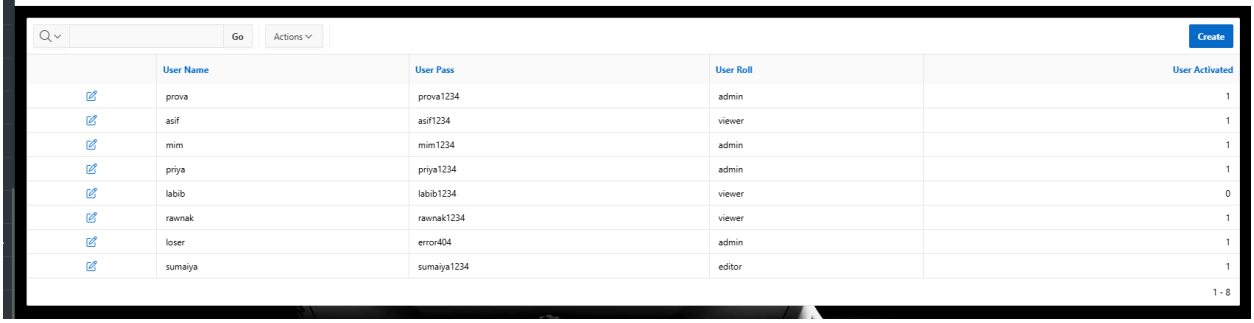


Figure: 4.9

USER_REPORT



Go Actions Create

	User Name	User Pass	User Roll	User Activated
	prova	prova1234	admin	1
	asif	asif1234	viewer	1
	mim	mim1234	admin	1
	priya	priya1234	admin	1
	labib	labib1234	viewer	0
	rawnak	rawnak1234	viewer	1
	loser	error404	admin	1
	sumaiya	sumaiya1234	editor	1

1 - 8

Reports based on Multi-Table and Aggregate Queries

Page Number and Name	Query Type	Report description
20- CUSTOMER_EMPLOYEE_ OVERLAP	View Creation with Join Condition	The query creates a view to identify overlapping records between CUSTOMER and EMPLOYEE tables based on matching Name, Address, and DOB.
21- CUSTOMER_OWNED_VEH ICLES	View Creation with LEFT JOIN	The query creates a view to list customers and their owned vehicles, including customers without associated vehicles, by performing a LEFT JOIN on the CUSTOMER and VEHICLE tables based on CustomerID.
22- INACTIVE_CUSTOMERS	View Creation with LEFT JOIN and Filtering	The query creates a view to list customers who have no associated vehicle services by performing LEFT JOINs between the CUSTOMER, VEHICLE, and SERVICE tables, and filtering out customers with active services
24- CITYWISE_CUSTOMER_DI STRIBUTION	View Creation with Grouping and Aggregation	The query creates a view to display the total number of customers in each city by grouping the CUSTOMER table by City and counting the number of CustomerIDs per city.
25- SERVICE_BILL_SUMMAR Y	View Creation with LEFT JOIN	The query creates a view to display service details along with corresponding billing information by performing a LEFT JOIN between the SERVICE and BILL tables based on ServiceID.

26- WITHINDATESERVICE	View Creation with JOIN and Date Filtering	The query creates a view to display service details with history, filtered for services with an EndDate between '01/01/2025' and '05/10/2025'.
28- CUSTOMER_AGE_DEMOGRAPHICS	View Creation with Conditional Grouping	The query creates a view to categorize customers into age ranges and count the total customers in each range using a CASE statement for grouping.
30- RECENT_BILLS	View Creation with Date Filtering and Ordering	The query creates a view to display bills from the last 30 days, ordered by BillDate in descending order.
23- EMPLOYEE_NOT_CUSTOMER	View Creation with Subquery (NOT EXISTS)	The query creates a view to list employees who are not customers by using a NOT EXISTS subquery to check for non-matching records in the CUSTOMER table.
27- VEHICLEREVENUE	View Creation with JOIN, Aggregation, and Ordering	The query creates a view to calculate and display total revenue for each vehicle brand and model, ordered by revenue in descending order.

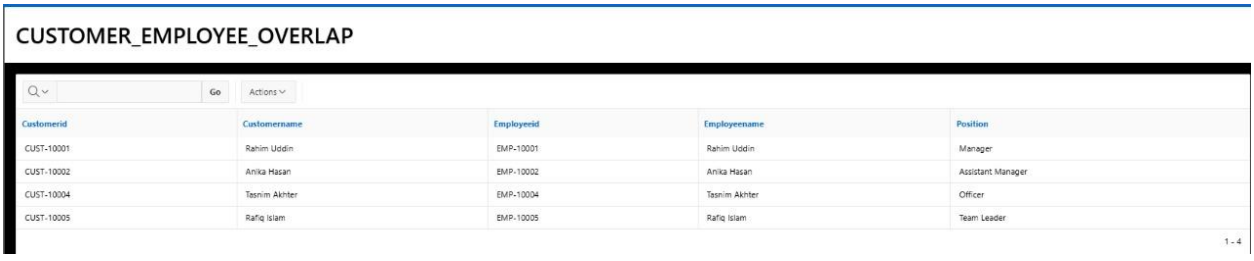
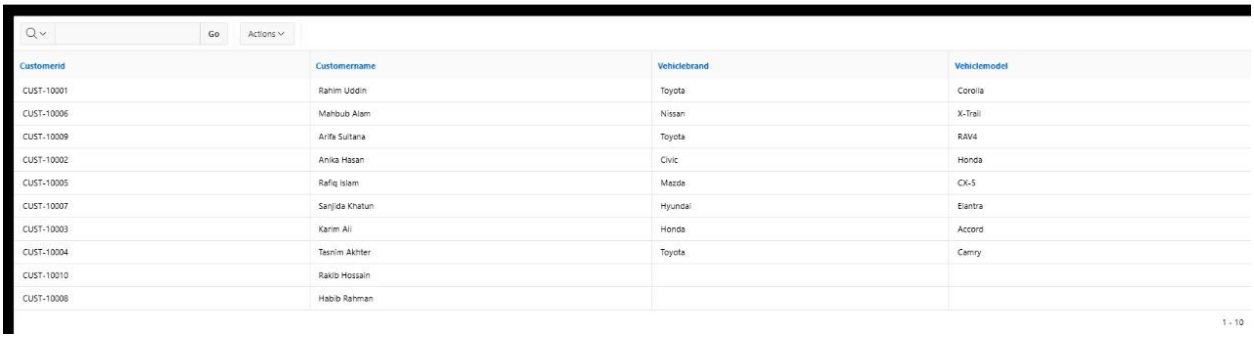


Figure: 6.1

CUSTOMER_OWNED_VEHICLES



Go Actions

Customerid	Customername	Vehiclebrand	Vehiclemodel
CUST-10001	Rahim Uddin	Toyota	Corolla
CUST-10006	Mahbub Alam	Nissan	X-Trail
CUST-10009	Arifa Sultana	Toyota	RAV4
CUST-10002	Anika Hasan	Civic	Honda
CUST-10005	Rafiq Islam	Mazda	CX-5
CUST-10007	Sanjida Khatun	Hyundai	Elantra
CUST-10003	Karim Ali	Honda	Accord
CUST-10004	Tasnim Akhter	Toyota	Camry
CUST-10010	Rakib Hossain		
CUST-10008	Habib Rahman		

1 - 10

Figure: 6.2

INACTIVE_CUSTOMERS

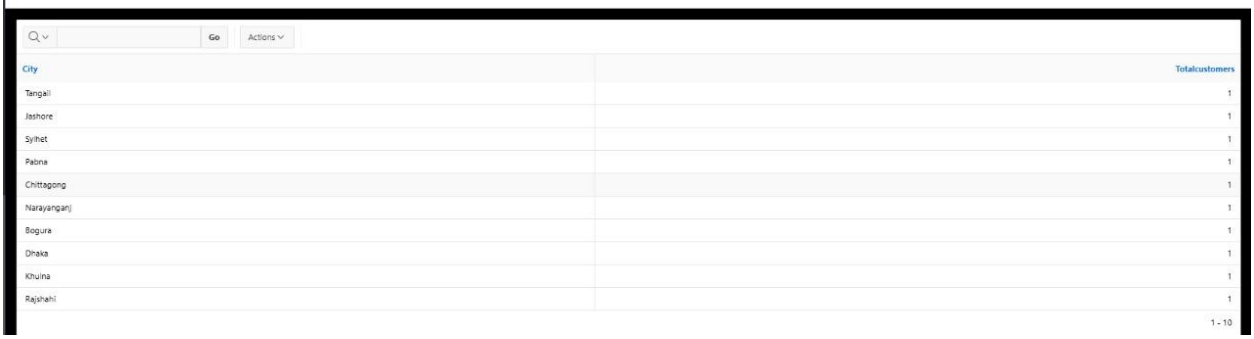
Go Actions

Customerid	Customername	Mail
CUST-10009	Arifa Sultana	arifa.sultana@mail.com
CUST-10010	Rakib Hossain	rakib.hossain@mail.com
CUST-10008	Habib Rahman	habib.rahman@mail.com
CUST-10006	Mahbub Alam	mahbub.alam@mail.com

1 - 4

Figure: 6.3

CITYWISE_CUSTOMER_DISTRIBUTION



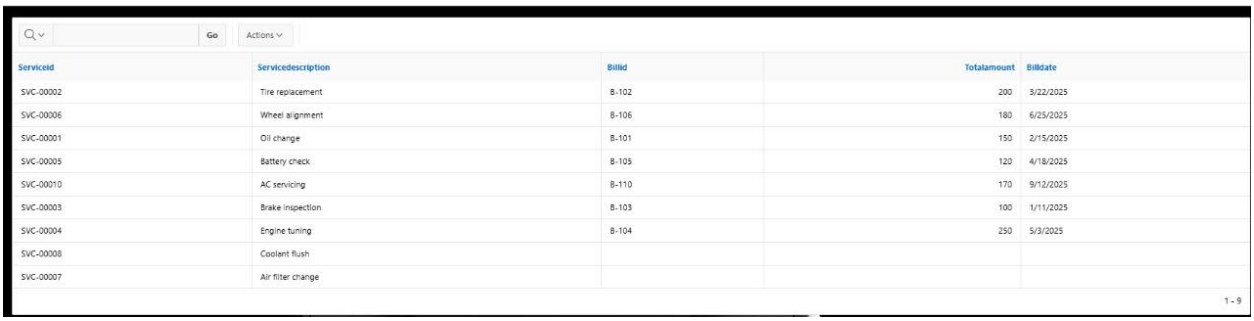
Go Actions

City	Totalcustomers
Tangail	1
Jashore	1
Sylhet	1
Pabna	1
Chittagong	1
Narayanganj	1
Bogura	1
Dhaka	1
Khulna	1
Rajshahi	1

1 - 10

Figure: 6.4

SERVICE_BILL_SUMMARY



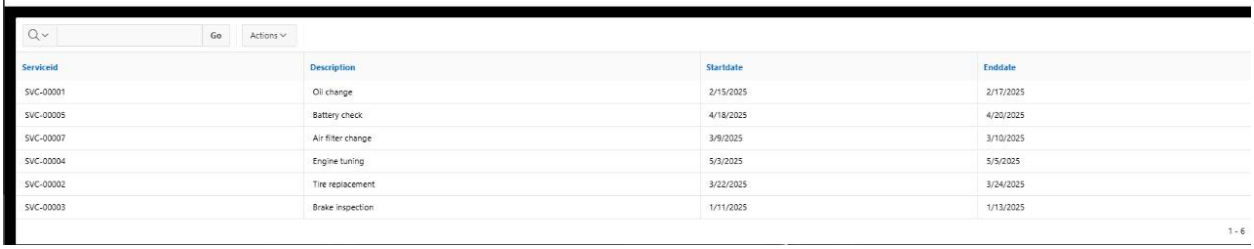
Go Actions

Serviceid	Servicedescription	Billid	Totalamount	Billdate
SVC-00002	Tire replacement	B-102	200	3/22/2025
SVC-00006	Wheel alignment	B-106	180	6/25/2025
SVC-00001	Oil change	B-101	150	2/15/2025
SVC-00005	Battery check	B-105	120	4/18/2025
SVC-00010	AC servicing	B-110	170	9/12/2025
SVC-00003	Brake inspection	B-103	100	1/11/2025
SVC-00004	Engine tuning	B-104	250	5/3/2025
SVC-00008	Coolant flush			
SVC-00007	Air filter change			

1 - 9

Figure: 6.5

WITHINDATESERVICE



Serviceid	Description	Startdate	Enddate
SVC-00001	Oil change	2/15/2025	2/17/2025
SVC-00005	Battery check	4/18/2025	4/20/2025
SVC-00007	Air filter change	3/9/2025	3/10/2025
SVC-00004	Engine tuning	5/3/2025	5/5/2025
SVC-00002	Tire replacement	3/22/2025	3/24/2025
SVC-00003	Brake inspection	1/11/2025	1/13/2025

1 - 6

Figure: 6.6

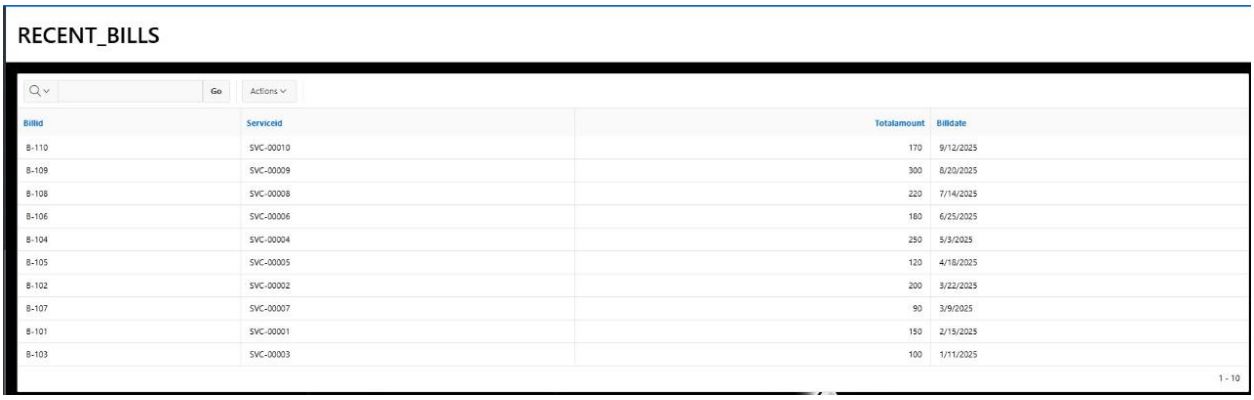
CUSTOMER_AGE_DEMOGRAPHICS

Agerange	Totalcustomers
26-35	5
36-50	5

1 - 2

Figure: 6.7

RECENT_BILLS

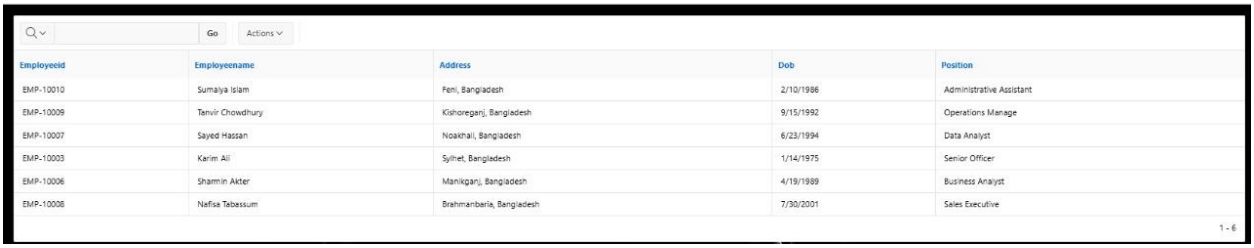


Billid	Serviceid	Totalamount	Billdate
B-110	SVC-00010	170	9/12/2025
B-109	SVC-00009	300	8/20/2025
B-108	SVC-00008	220	7/14/2025
B-106	SVC-00006	180	6/25/2025
B-104	SVC-00004	250	5/3/2025
B-105	SVC-00005	120	4/18/2025
B-102	SVC-00002	200	3/22/2025
B-107	SVC-00007	90	3/9/2025
B-101	SVC-00001	150	2/15/2025
B-103	SVC-00003	100	1/11/2025

1 - 10

Figure: 6.8

EMPLOYEE_NOT_CUSTOMER



Employeeid	Employeename	Address	Dob	Position
EMP-10010	Sumaiya Islam	Feni, Bangladesh	2/10/1986	Administrative Assistant
EMP-10009	Tanvir Chowdhury	Kishoreganj, Bangladesh	9/15/1992	Operations Manage
EMP-10007	Sayed Hassan	Noakhali, Bangladesh	6/23/1994	Data Analyst
EMP-10003	Karim Ali	Sylhet, Bangladesh	1/14/1975	Senior Officer
EMP-10006	Sharmin Akter	Manikganj, Bangladesh	4/19/1989	Business Analyst
EMP-10008	Nafisa Tabassum	Brahmanbaria, Bangladesh	7/30/2001	Sales Executive

1 - 6

Figure: 6.9

VEHICLEREVENUE

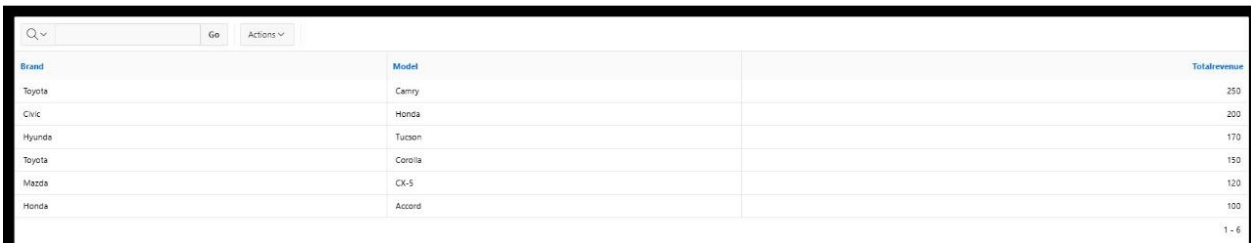


Figure: 6.10

Authorization and User Role Assignment

User Role Assignment

User name	Password	Role
loser	Error404	Administrator
prova	prova1234	Administrator
asif	asif1234	viewer
mim	mim1234	Administrator
sumaiya	sumaiya1234	editor

Concluding Remarks

In conclusion, a Vehicle Management System (VMS) is key to managing vehicle data efficiently in an organization. By bringing together information on vehicles, drivers, maintenance, fuel usage, and billing in one system, we can make operations smoother, reduce manual work, and ensure everything is accurate. The system helps with planning, reporting, and improving decisions. With a VMS, we can use vehicles more effectively, save money, and keep track of safety and legal requirements. It also helps to improve routes, reduce costs, and increase overall fleet efficiency.