INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Project on : Courier Management System

Course code: CSE-2424

Course title: Database Management Systems Lab

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COURIER MANAGEMENT SYSTEM

What is courier?

➤ A courier is a person or organization that delivers a message, package or letter from one place or person to another place or person.

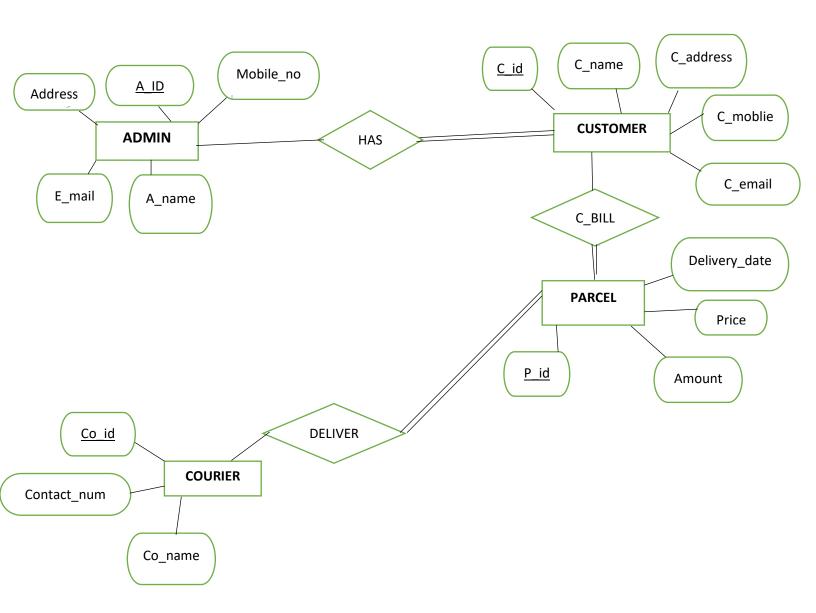
What does mean courier management system?

- ➤ A courier delivery management system, or CMS, is business software that simplifies courier management and routing.
- ➤ Courier management refers to the organization and coordination of last-mile -delivery operations. It involves scheduling deliveries, assigning couriers, managing operations, optimizing routes, and controlling fuel and expense costs. A courier management system, also known as courier software, manages the transportation of shipments from the warehouse to the customer. It automates the many operations involved in delivery businesses, such as real-time tracking.

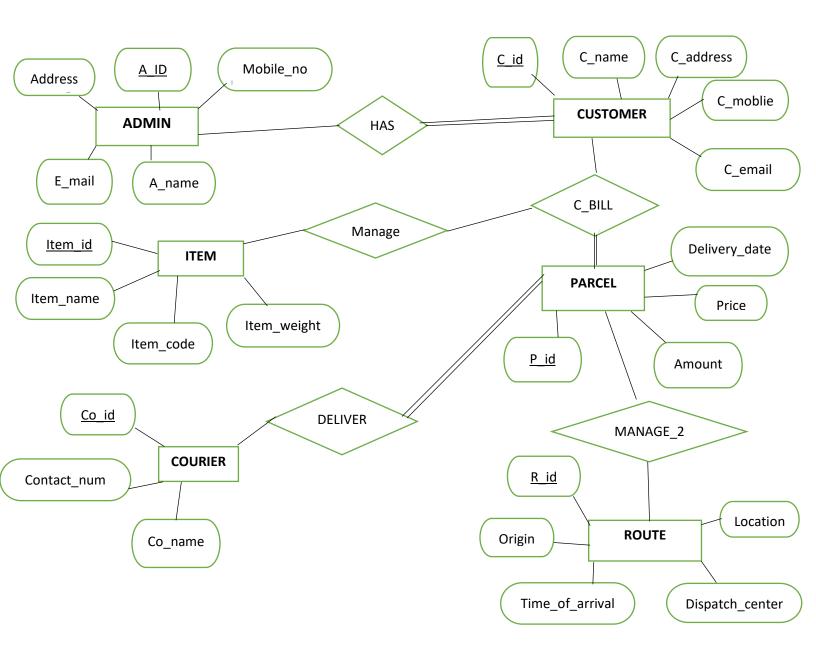
Advantage of courier management system:

- ➤ They help transport businesses manage the dispatch of packages. With the rise of next-day and same-day delivery demands, a reliable courier management system is a must-have
- ➤ There are three main objectives of courier management: Deliver products to customers. Support the couriers delivering those products. Ensure that customers have a great buying experience, so they come back for more.

CONCEPTUAL ER-DIAGRAM



NORMALIZED ER-DIAGRAM



DATABASE SCHEMA

```
ADMIN (A ID, A NAME, MOBILE NO, EMAIL, ADDRESS)
COURIER (CO ID, CONTACT NUM, CO NAME)
CUSTOMER
(C_ID,C_NAME,C_EMAIL,C_MOBILE_NO,C_ADDRESS)
ITEM (ITEM_ID,ITEM_NAME,ITEM_CODE,ITEM_WEIGHT)
PARCEL (P ID, AMOUNT, PRICE, DELIVERY DATE)
ROUTE
(R ID, ORIGIN, TIME OF ARRIVAL, LOCATION, DISPATCH CENTER
HAS(A_ID,C_ID)
C_BILL(C ID,P ID)
MANAGE(C_ID,P_ID,ITEM_ID)
MANAGE 2(P ID,R ID)
DELIVER(P_ID,CO_ID)
```

DDL STATEMENT

> ADMIN TABLE

						ADMIN					
Table Data	Indexes Mo	del Co	onstraints	Grants			ults	Trigger	s Depe	ndencies	SQL
Add Column	Modify Column	Rena	ıme Column	Drop C	olumn Re	name C	ору	Drop 1	runcate	Create Lo	okup
Column Na	ne Data T	уре	Nullable	Defau	It Prima	ry Key					
A_ID	VARCHAR	R2(200)	No	-		1					
A_NAME	VARCHAR	R2(100)	No	-		-					
MOBILE_NO	VARCHAF	R2(15)	No	-		-					
EMAIL	VARCHAF	R2(100)	Yes	-		-					
ADDRESS	VARCHAF	R2(400)	Yes	-		-					
					1 - 5						

<u>SQL</u>

```
CREATE TABLE "ADMIN"
```

```
( "A_ID" VARCHAR2(200) NOT NULL ENABLE,

"A_NAME" VARCHAR2(100) NOT NULL ENABLE,

"MOBILE_NO" VARCHAR2(15) NOT NULL ENABLE,

"EMAIL" VARCHAR2(100),

"ADDRESS" VARCHAR2(400),

CONSTRAINT "ADMIN_PK" PRIMARY KEY ("A_ID") ENABLE
)
```

> COURIER TABLE



SQL

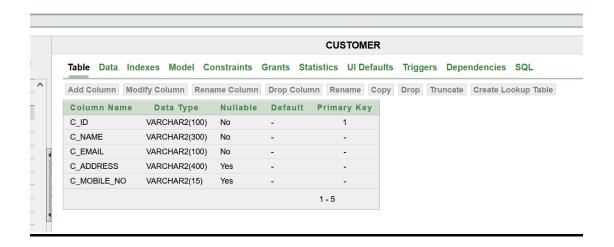
```
CREATE TABLE "COURIER"

( "CO_ID" VARCHAR2(400) NOT NULL ENABLE,

"CONTACT_NUM" VARCHAR2(400) NOT NULL ENABLE,

"CO_NAME" VARCHAR2(400) NOT NULL ENABLE
)
```

> CUSTOMER TABLE



<u>SQL</u>

```
CREATE TABLE "CUSTOMER"

( "C_ID" VARCHAR2(100) NOT NULL ENABLE,

"C_NAME" VARCHAR2(300) NOT NULL ENABLE,

"C_EMAIL" VARCHAR2(100) NOT NULL ENABLE,

"C_ADDRESS" VARCHAR2(400),

"C_MOBILE_NO" VARCHAR2(15),

CONSTRAINT "CUSTOMER_PK" PRIMARY KEY ("C_ID") ENABLE
)
```

> ITEM TABLE

				ITEM			
le Data I	ndexes Model Co	onstraints	Grants Stat	istics UI Defau	ts Trigge	ers Depe	ndencies SQL
Column	Modify Column Rena	ıme Column	Drop Colum	n Rename Co	Drop	Truncate	Create Lookup Table
umn Name	e Data Type	Nullable	Default	Primary Key			
/_ID	VARCHAR2(400)	No	-	1			
NAME	VARCHAR2(400)	No	-	-			
CODE	NUMBER(5,0)	No	-	-			
WEIGHT	VARCHAR2(40)	No					

SQL

```
CREATE TABLE "ITEM"
```

```
( "ITEM_ID" VARCHAR2(400) NOT NULL ENABLE,

"ITEM_NAME" VARCHAR2(400) NOT NULL ENABLE,

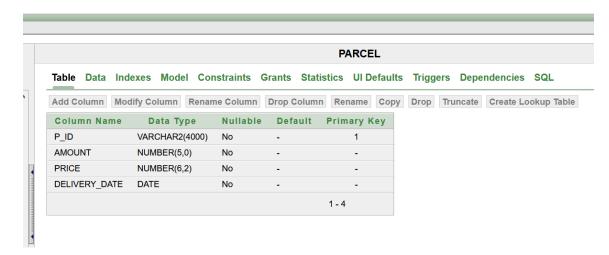
"ITEM_CODE" NUMBER(5,0) NOT NULL ENABLE,

"ITEM_WEIGHT" VARCHAR2(40) NOT NULL ENABLE,

CONSTRAINT "ITEM_PK" PRIMARY KEY ("ITEM_ID") ENABLE,

CONSTRAINT "ITEM_CK1" CHECK (Item_Weight<'50kg') ENABLE
)
```

> PARCEL TABLE



SQL

```
CREATE TABLE "PARCEL"
```

```
( "P_ID" VARCHAR2(4000) NOT NULL ENABLE,
```

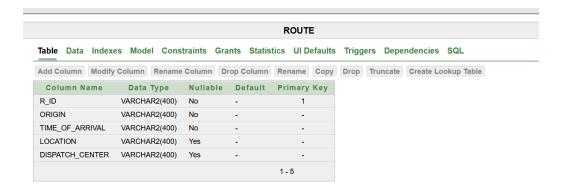
"AMOUNT" NUMBER(5,0) NOT NULL ENABLE,

"PRICE" NUMBER(6,2) NOT NULL ENABLE,

"DELIVERY_DATE" DATE NOT NULL ENABLE,

CONSTRAINT "PARCEL_PK" PRIMARY KEY ("P_ID") ENABLE

> ROUTE TABLE



SQL

```
CREATE TABLE "ROUTE"

( "R_ID" VARCHAR2(400) NOT NULL ENABLE,
 "ORIGIN" VARCHAR2(400) NOT NULL ENABLE,
 "TIME_OF_ARRIVAL" VARCHAR2(400) NOT NULL ENABLE,
 "LOCATION" VARCHAR2(400),
 "DISPATCH_CENTER" VARCHAR2(400),
 CONSTRAINT "ROUTE_PK" PRIMARY KEY ("R_ID") ENABLE

)

/

C_BILL
```



<u>SQL</u>

```
CREATE TABLE "C_BILL"

( "C_ID" VARCHAR2(400) NOT NULL ENABLE,
  "P_ID" VARCHAR2(400) NOT NULL ENABLE,
  CONSTRAINT "C_BILL_FK" FOREIGN KEY ("C_ID")
  REFERENCES "CUSTOMER" ("C_ID") ENABLE,
  CONSTRAINT "C_BILL_FK2" FOREIGN KEY ("P_ID")
  REFERENCES "PARCEL" ("P_ID") ENABLE

)
/
```

> HAS

```
Table Data Indexes Model Constraints Grants Statistics UI Defaults Triggers Dependencies SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table |

Column Name | Data Type | Nullable | Default | Primary Key |
A_ID | VARCHAR2(400) | No | - | - |

C_ID | VARCHAR2(400) | No | 1 - 2
```

<u>SQL</u>

```
CREATE TABLE "HAS"

( "A_ID" VARCHAR2(400) NOT NULL ENABLE,
```

```
"C_ID" VARCHAR2(400) NOT NULL ENABLE,
CONSTRAINT "HAS_FK" FOREIGN KEY ("A_ID")
REFERENCES "ADMIN" ("A_ID") ENABLE,
CONSTRAINT "HAS_FK2" FOREIGN KEY ("C_ID")
REFERENCES "CUSTOMER" ("C_ID") ENABLE
)
```

> MANAGE

				MA	NAGE
Table Data	Indexes Model	Constraints	Grants Sta	atistics UI Defaults	Triggers Dependencies SQL
Add Column	Modify Column F	Rename Column	Drop Colun	nn Rename Copy	Drop Truncate Create Lookup Table
Column Na	me Data Type	Nullable	Default	Primary Key	
C_ID	VARCHAR2(40	00) No	-	-	
P_ID	VARCHAR2(40	00) No			
ITEM_ID	VARCHAR2(40	00) No		-	
				1 - 3	

<u>SQL</u>

```
CREATE TABLE "MANAGE"

( "C_ID" VARCHAR2(400) NOT NULL ENABLE,
 "P_ID" VARCHAR2(400) NOT NULL ENABLE,
 "ITEM_ID" VARCHAR2(400) NOT NULL ENABLE,
 CONSTRAINT "MANAGE_FK" FOREIGN KEY ("C_ID")
 REFERENCES "CUSTOMER" ("C_ID") ENABLE,
 CONSTRAINT "MANAGE_FK2" FOREIGN KEY ("P_ID")
 REFERENCES "PARCEL" ("P_ID") ENABLE,
 CONSTRAINT "MANAGE_FK3" FOREIGN KEY ("ITEM_ID")
 REFERENCES "ITEM" ("ITEM_ID") ENABLE
```

> DELIVER

```
DELIVER

Table Data Indexes Model Constraints Grants Statistics Ul Defaults Triggers Dependencies SQL

Add Column Modify Column Rename Column Drop Column Rename Copy Drop Truncate Create Lookup Table

Column Name Data Type Nullable Default Primary Key
P_ID VARCHAR2(4000) Yes - -
CO_ID VARCHAR2(4000) Yes - -

1 - 2
```

SQL

```
CREATE TABLE "DELIVER"

( "P_ID" VARCHAR2(4000),
 "CO_ID" VARCHAR2(400)

)
```

➤ MANAGE_2



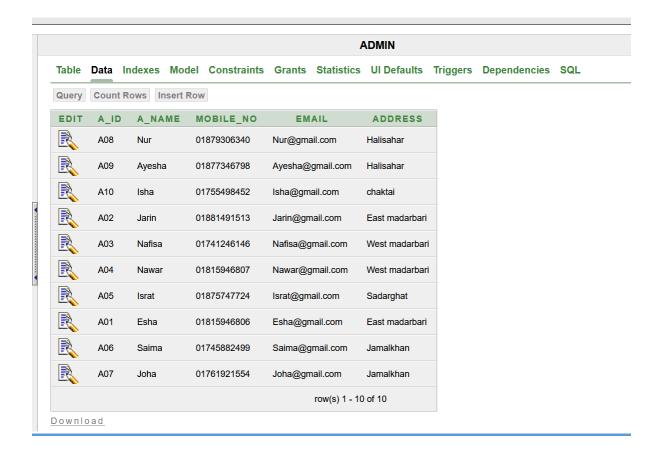
<u>SQL</u>

```
CREATE TABLE "MANAGE_2"

( "P_ID" VARCHAR2(4000),
 "R_ID" VARCHAR2(400)
)
```

DML STATEMENT

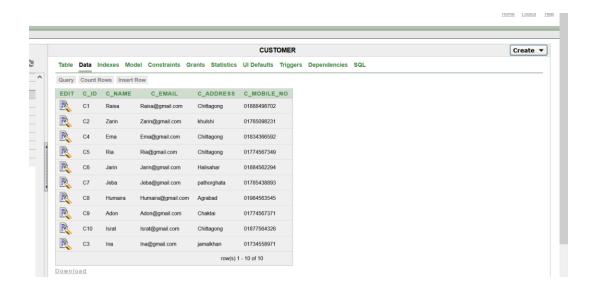
> DATA IN ADMIN TABLE



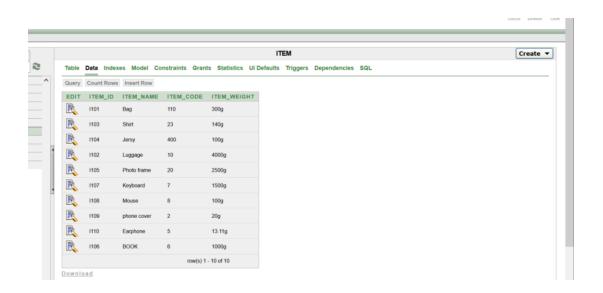
> DATA IN COURIER TABLE



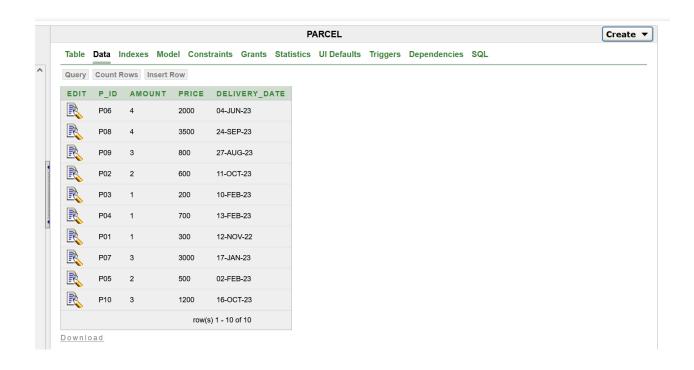
> DATA IN CUSTOMER TABLE



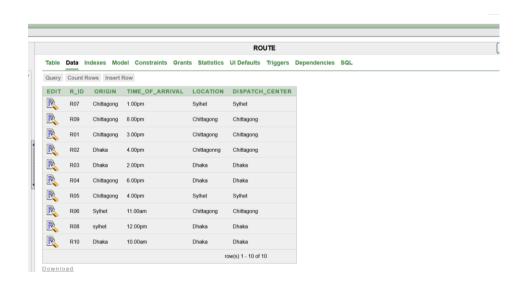
> DATA IN ITEM TABLE



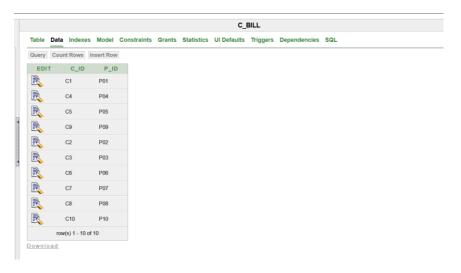
> DATA IN PARCEL TABLE



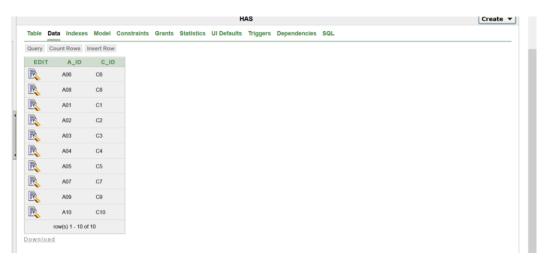
> DATA IN ROUTE TABLE



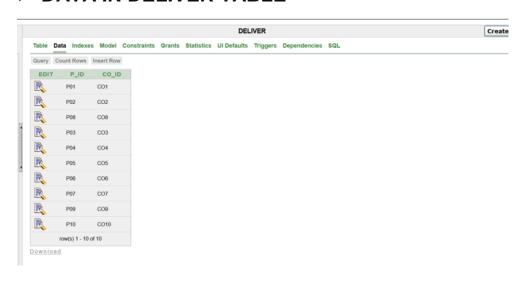
> DATA IN C_BILL TABLE



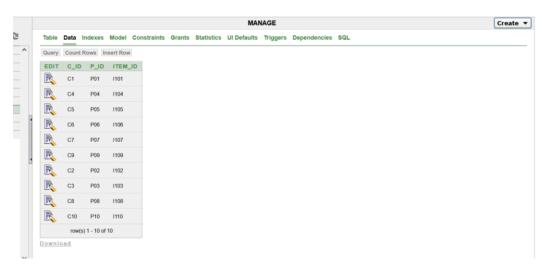
> DATA IN HAS TABLE



> DATA IN DELIVER TABLE



> DATA IN MANAGE TABLE



> DATA IN MANAGE_2 TABLE



SEARCHING DATA FROM INDIVIDUAL TABLE:

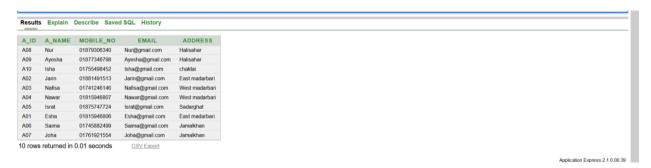
QUERY 1:

Find all information of Admin.

SQL:

SELECT*

FROM ADMIN



QUERY 2:

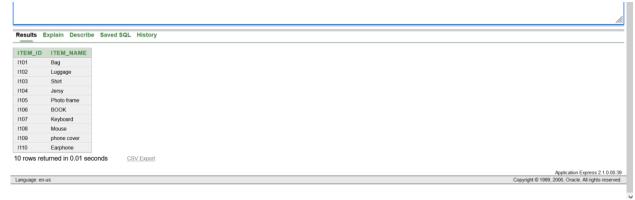
Show ITEM_ID increasing order from item.

SQL:

SELECT ITEM_ID,ITEM_NAME

FROM ITEM

ORDER BY ITEM_ID;



QUERY 3:

Find those customer who live in Bangladesh.

SQL:

SELECT*

FROM CUSTOMER

WHERE C_ADDRESS='Chittagong';



QUERY 4:

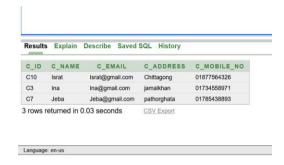
Find that customer whose id is C3, C7, C10.

SQL:

SELECT *

FROM CUSTOMER

WHERE C_ID IN ('C7', 'C3', 'C10');



QUERY 5:

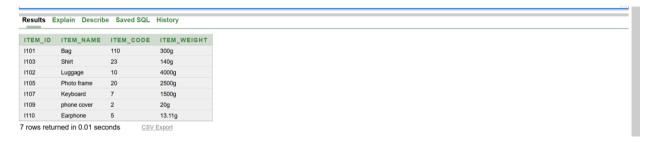
Find that item which weight between 10g to 4000kg.

SQL:

SELECT *

FROM ITEM

WHERE ITEM_WEIGHT BETWEEN '10g' and '4000g';



QUERY 6:

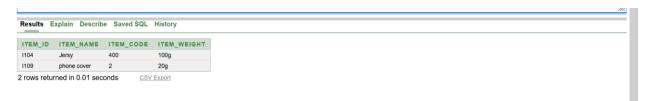
Find that name of items which strings 'er'.

SQL:

SELECT *

FROM ITEM

WHERE ITEM_NAME LIKE '%er%';



QUERY 7:

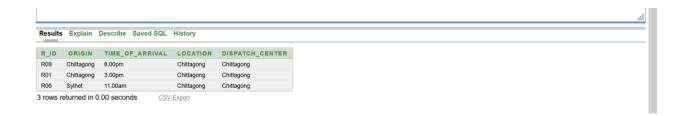
Find those parcel which location and dispatch center is in same district Chittagong.

SQL:

SELECT*

FROM ROUTE

WHERE LOCATION='Chittagong' and DISPATCH_CENTER='Chittagong';



QUERY 8:

Find Total admin from the table Admin.

SQL:

SELECT COUNT (DISTINCT A_ID)

FROM ADMIN;



QUERY 9:

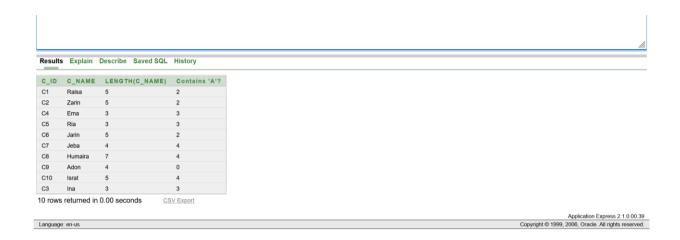
Find the length of customer name and contains "a" from customer table.

SQL:

SELECT C_ID, C_NAME,

LENGTH (C_NAME), INSTR (C_NAME, 'a') "Contains 'a'?"

FROM CUSTOMER



QUERY 10:

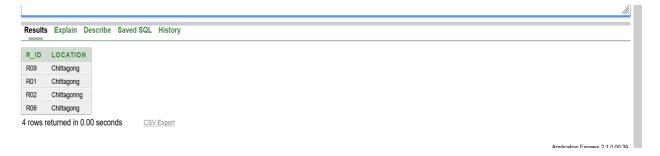
Find those parcels location which not belongs to Dhaka and Sylhet from route table.

SQL:

SELECT R_ID, LOCATION

FROM ROUTE

WHERE LOCATION NOT IN ('Dhaka', 'Sylhet');



SEARCHING DATA FROM MULTIPLE TABLE

QUERY 1:

Show the all data of table Customer and Parcel using full outer join.

SQL:

SELECT*

From CUSTOMER NATURAL JOIN C_BILL NATURAL JOIN PARCEL

WHERE PRICE <700;

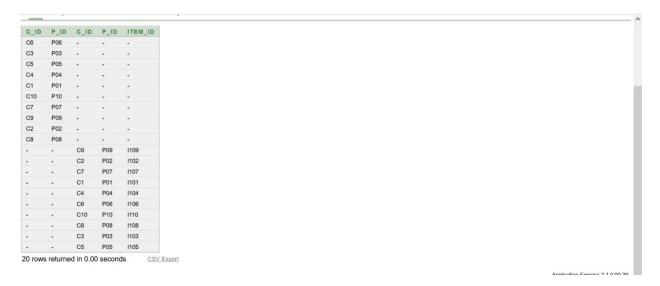


QUERY 2:

Show the all data of table C_BILL and Manage using full outer join.

SQL:

SELECT B.C_ID, B.P_ID, M.C_ID, M.P_ID, M.ITEM_ID FROM C_BILL B FULL OUTER join MANAGE M
ON (B.C_ID=M.P_ID);



QUERY 3:

Show the CUSTOMER who paid amount less than 3500 TK.

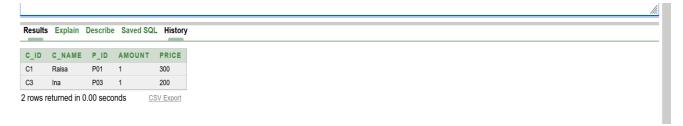
SQL:

SELECT C.C_ID, C.C_NAME, P.P_ID, P.AMOUNT, P.PRICE

FROM CUSTOMER C LEFT OUTER join PARCEL P

ON (C.C_ID=P.P_ID)

WHERE PRICE < 350;



QUERY 4:

Show customer id, parcel id & item id.

SQL:

SELECT *

FROM MANAGE



QUERY 5:

Show the all data of table courier and Parcel using full outer join where price is 800.

SQL:

SELECT*

From COURIER NATURAL JOIN C_BILL NATURAL JOIN PARCEL

WHERE PRICE=800;

P_ID	CO_ID	CONTACT_NUM	CO_NAME	C_ID	AMOUNT	PRICE	DELIVERY_DATE
P09	CO9	01741246145	Ishra	C9	3	800	27-AUG-23
P09	CO2	01881491513	Jarin	C9	3	800	27-AUG-23
P09	CO1	01815946806	Nafisa	C9	3	800	27-AUG-23
P09	CO3	01815946807	Nawar	C9	3	800	27-AUG-23
P09	CO4	01945248748	Mehanaz	C9	3	800	27-AUG-23
P09	CO5	01741220708	Humaira	C9	3	800	27-AUG-23
P09	CO6	01822597911	Sadia	C9	3	800	27-AUG-23
P09	CO7	01872313886	Elahi	C9	3	800	27-AUG-23
P09	CO10	01883566866	Manisha	C9	3	800	27-AUG-23
P09	CO8	01994672231	Israt	C9	3	800	27-AUG-23

SUB QUERY

QUERY 1:

Give information of all admin whose admin name is same as Jarin.

SQL:

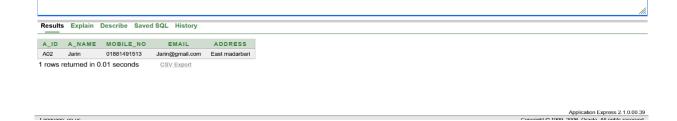
SELECT *

FROM ADMIN

WHERE A_NAME=(SELECT A_NAME

FROM ADMIN

WHERE A_NAME='Jarin')



QUERY 2:

Show the customer details whose customer address is not 'Dhaka'.

SQL:

SELECT *

FROM CUSTOMER

WHERE C_ADDRESS NOT IN (SELECT C_ADDRESS

FROM CUSTOMER

WHERE C_ADDRESS='Dhaka')



QUERY 3:

Show the courier name of courier id 'CO1'.

SQL:

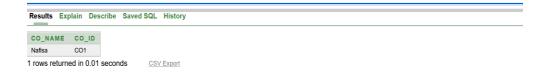
SELECT CO_NAME,CO_ID

FROM COURIER

WHERE CO_NAME =(SELECT CO_NAME

FROM COURIER

WHERE CO_ID='CO1');



QUERY 4:

Select all the rows from the CUSTOMER table with the maximum id number.

SQL:

SELECT *

FROM CUSTOMER

WHERE C_ID=(SELECT MAX(C_ID)

FROM CUSTOMER);



QUERY 5:

Show the delivery date with their courier names.

SQL:

SELECT DELIVERY_DATE,CO_NAME

FROM PARCEL NATURAL JOIN (SELECT *

FROM COURIER)



QUERIES WITH PL/SQL:

QUERY 1:

FIND the total customer from the customer table using pl/sql.

SQL:

DECLARE n NUMBER;

BEGIN SELECT COUNT (*) INTO n FROM CUSTOMER;

dbms_output_line ('Total Customer:' ||n);

END;



QUERY 2:

Show the details whose customer id is 'C3'.

SQL:

DECLARE

A CUSTOMER.C_ID%TYPE;

B CUSTOMER.C_NAME%TYPE;

C CUSTOMER.C_ADDRESS%TYPE;

BEGIN

SELECT C_ID,C_NAME,C_ADDRESS INTO A,B,C

FROM CUSTOMER

WHERE C_ID='C3';

DBMS_OUTPUT.PUT_LINE('CUSTOMER_DETAILS:');

DBMS_OUTPUT.PUT_LINE('CUSTOMER ID:'||A);

DBMS_OUTPUT.PUT_LINE('CUSTOMER NAME:'||B);

DBMS_OUTPUT.PUT_LINE('CUSTOMER ADDRESS:'||C);

END;

```
Results Explain Describe Saved SQL History

CUSTOMER_DETAILS:
CUSTOMER ID:C3
CUSTOMER NAME:Ina
CUSTOMER ADDRESS:jamalkhan

Statement processed.
```

QUERY 3:

Show the id info of customer named 'Jeba'.

SQL:

DECLARE

A CUSTOMER.C_ID%TYPE;

B CUSTOMER.C ADDRESS%TYPE;

```
BEGIN
```

SELECT C_ID,C_ADDRESS INTO A,B

FROM CUSTOMER

WHERE C_NAME='Jeba';

DBMS_OUTPUT.PUT_LINE('ID_NFO:');

DBMS_OUTPUT_LINE('CUSTOMER ID:'||A);

DBMS_OUTPUT.PUT_LINE('CUSTOMER ADDRESS:'||B);

END;

```
Results Explain Describe Saved SQL History

ID_NFO:
CUSTOMER ID:C7
CUSTOMER ADDRESS:pathorghata

Statement processed.

0.02 seconds
```

QUERY 4:

Show all customer names using cursor based record.

SQL:

DECLARE

CURSOR s_cur IS

SELECT*

FROM CUSTOMER;

s_rec s_cur%rowtype;

BEGIN

open s_cur;

LOOP

FETCH s_cur INTO s_rec;

dbms_output.put_line('CUSTOMER NAME & CUSTOMER ADDRESS:

'||s_rec.C_NAME||' '||s_rec.C_ADDRESS);

```
EXIT WHEN s_cur%notfound; END LOOP;
```

END;

```
CUSTOMER NAME & CUSTOMER ADDRESS:
Raisa Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
Zarin khulshi
CUSTOMER NAME & CUSTOMER ADDRESS:
Ema Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
Ema Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
Rais Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
Jarin Halisahar
CUSTOMER NAME & CUSTOMER ADDRESS:
Jeba pathorghata
CUSTOMER NAME & CUSTOMER ADDRESS:
Humaira Agrabad
CUSTOMER NAME & CUSTOMER ADDRESS:
Adon Chaktai
CUSTOMER NAME & CUSTOMER ADDRESS:
Israt Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
Israt Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
Israt Chittagong
CUSTOMER NAME & CUSTOMER ADDRESS:
In jamalkhan
CUSTOMER NAME & CUSTOMER ADDRESS:
Ina jamalkhan
Statement processed.
```

QUERY 5:

Show all admin nameusing cursor based record.

SQL:

```
DECLARE
```

A ADMIN%rowtype;

cursor C IS

SELECT *

FROM ADMIN;

BEGIN

OPEN C;

dbms_output.put_line('ADMIN DETAILS:');

dbms_output.put_line(");

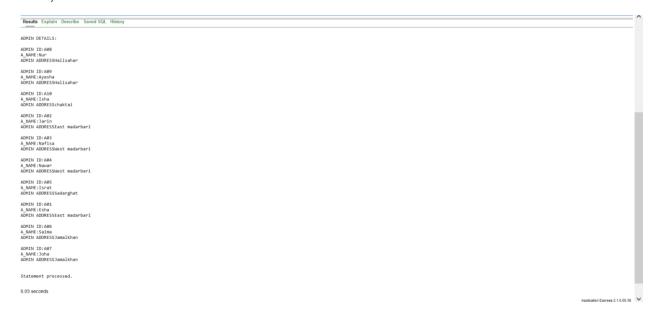
LOOP

FETCH C INTO A;

EXIT WHEN C%notfound;

dbms_output.put_line('ADMIN ID:'||A.A_ID);

```
dbms_output.put_line('A_NAME:'||A.A_NAME);
dbms_output.put_line('ADMIN ADDRESS'||A.ADDRESS);
dbms_output.put_line(");
END LOOP;
CLOSE C;
END;
```



CONCLUSION:

- ➤ The Courier Service System project provides user interface in to the application through an authentified admin and also its a modern way of usage to a Courier Service through a computer system.
- > The main proposed system of this web application is to remove the item details and check the current status of the user
- In conclusion, courier services provide several advantages, including fast and reliable delivery, secure transportation of sensitive items, and convenience.

