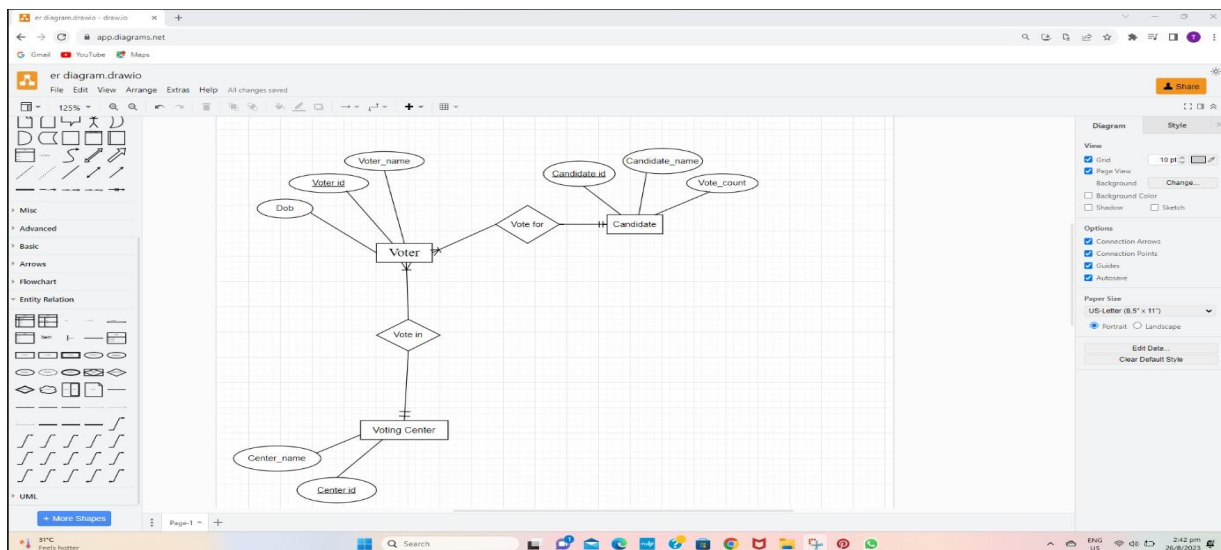
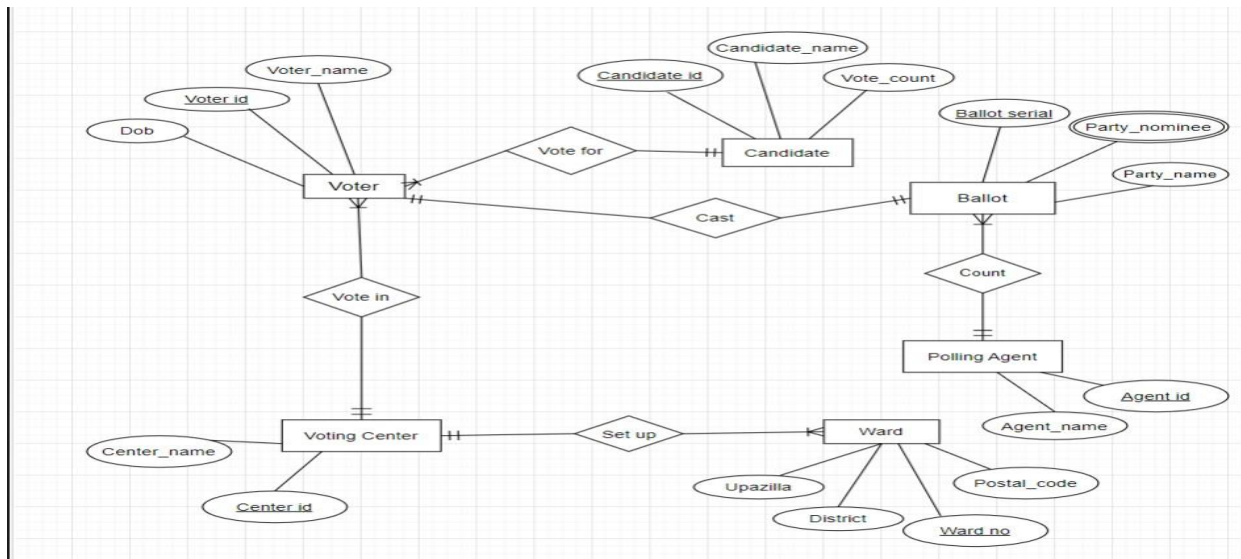


Voting Management System

In a voting management system, a voter can cast a ballot to elect a candidate. A ballot is identified by the ballot_serial. Party_nominee and party_name are also stored in the system. There may be multiple party_nominee in a ballot. A voter is identified by voter_id. The system also stores voter_name, date of birth. A voter can vote for exactly one candidate. A candidate can be voted by multiple voters. A candidate is identified by candidate_id. Candidate_name, vote_count are also stored in the system. A Polling Agent can count many ballots. A ballot can be counted by exactly one Polling Agent. In Polling Agent each agent has a unique Agent_id and their Agent_name. A voter has to vote in voting center. Voting centers has center_name and a unique center_id. Voting centers are set up in different Ward. The detail information about the wards such as unique ward_no, upazilla, district along with postal_code will be stored in the system. A voter can cast a vote in exactly one voting center. In a voting center multiple voters can vote.





CAST:

UNF:

1st : voter_id,voter_name,dob,ballot_serial,party_nominee,party_name

1NF:

1st : voter_id,voter_name,dob,ballot_serial,party_nominee,party_name

2NF:

1st : voter_id,voter_name,dob

2nd : ballot_serial, party_nominee,party_name,voter_id

3NF:

1st : voter_id, voter_name,dob

2nd : ballot_serial, party_nominee, party_name,voter_id

SET UP:

UNF: center_id, center_name, ward_no, Upazilla, district, postal_code

1NF:

center_id, center_name, ward_no, Upazilla, district, postal_code

2NF:

1st: center_id, center_name

2nd: ward_no, postal_code, Upazilla, district, center_id

3NF:

1st: center_id, center_name

2nd: ward_no, center_id, postal_code

3rd: postal_code, Upazilla, district

COUNT:

UNF: ballot_serial, party_nominee, party_name, agent_id, agent_name

1NF:

1st: ballot_serial, party_nominee, party_name, agent_id, agent_name

2NF:

1st: ballot_serial, party_nominee, party name, agent_id

2nd: agent_id, agent_name

3NF:

1st: ballot_serial, party_nominee, party name, agent_id

2nd: agent_id, agent_name

VOTE FOR:

UNF: 1st: candidate_id, candidate_name, vote_count, voter_id, voter_name, dob

1NF:

1st: candidate_id, candidate_name, vote_count, voter_id, voter_name, dob

2NF:

1st: voter_id, voter_name, dob, candidate_id

2nd : candidate_id, candidate_name, vote_count

3NF:

1st : voter_id , voter_name, dob, candidate_id

2nd : candidate_id, candidate_name, vote_count

VOTE IN:

UNF: 1st : voter_id , voter_name ,dob ,center_id, center_name

1NF: 1st : voter_id , voter_name ,dob ,center_id, center_name

2NF:

1st : voter_id, voter_name, dob, center_id

2nd : center_id, center_name

3NF:

voter_id, voter_name, dob, center_id

center_id, center_name

FINAL TABLE

ballot_serial, party_nominee ,party_name,voter_id

center_id,center_name

ward_no ,center_id,postal_code

postal_code,upazilla,district

ballot_serial, party_nominee, party name, agent_id

agent_id, agent_name

voter_id , voter_name,dob,candidate_id

candidate_id, candidate_name, vote_count

voter_id, voter_name, dob, center_id

Table Creation with screenshots:

Table Creation: Center

create table Center (center_id number(4) constraint center_center_id_pk primary key, center_name varchar2(80) default 'NO CENTER NAME')

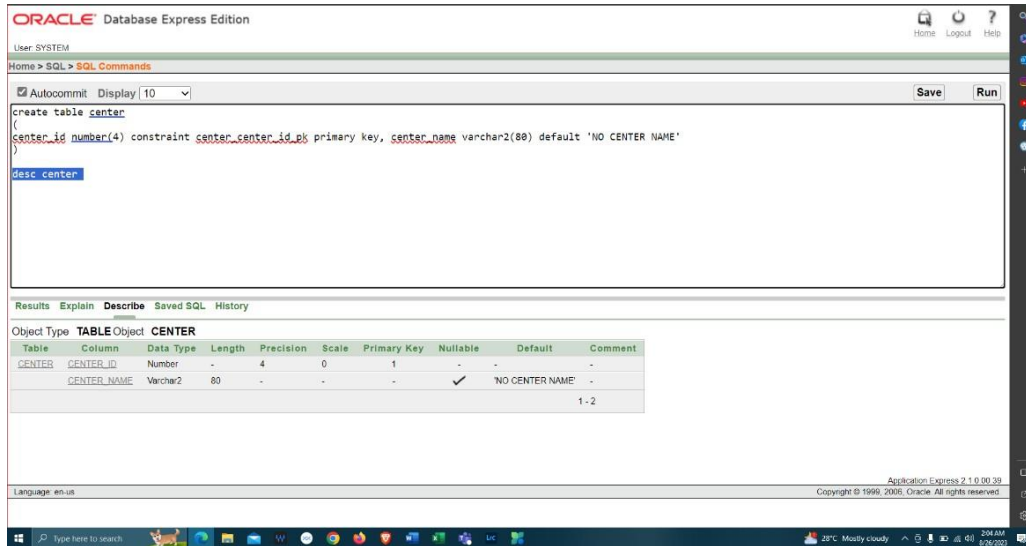


Table Creation: REGION

create table region(postal_code number(4) primary key,upazilla varchar2(20) not null, district Varchar2(10) not null)

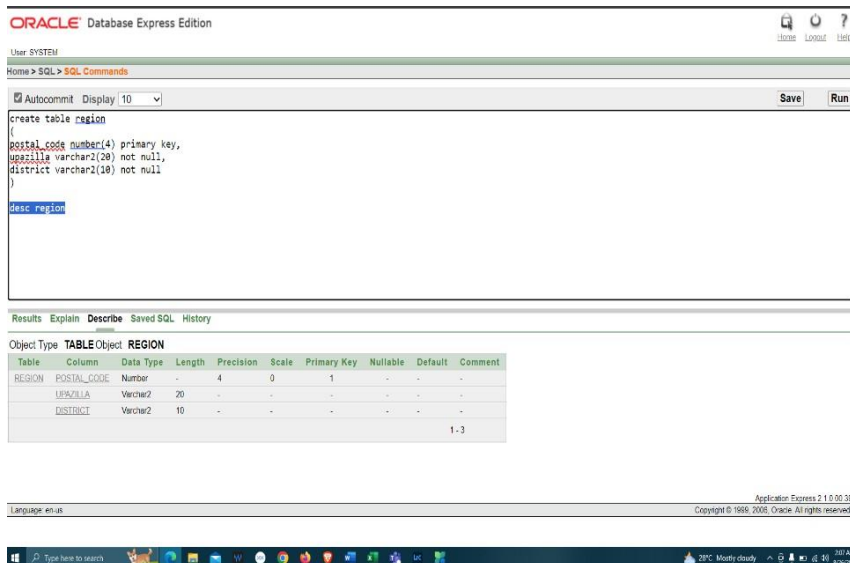


Table Creation: Agent Information

create table Agent_Information

(agent_id number(3) primary key,agent_name varchar2(10) not null)

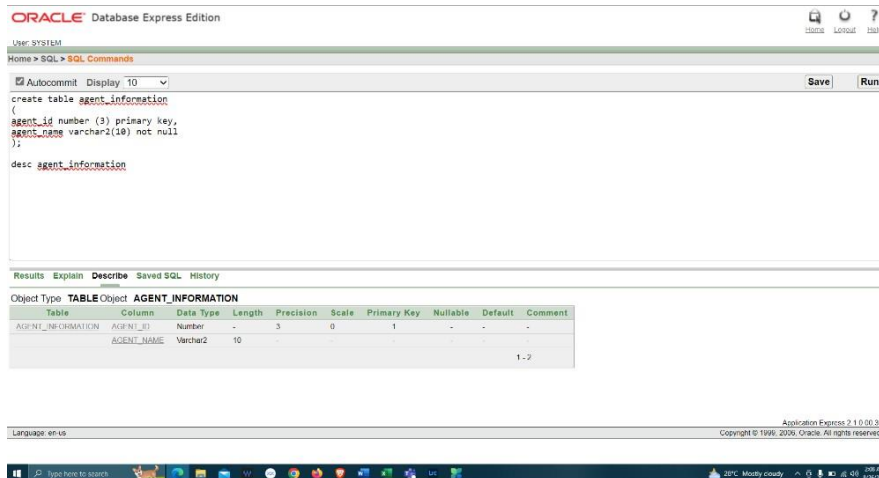


Table Creation: Candidates

```

create table candidates(
  candidate_id number(5) constraint candidates_candidate_id_pk primary key,
  candidate_name varchar2(80) not null,
  vote_count number(2) constraint candidates_vote_count_ck check(vote_count >=0)
)

```

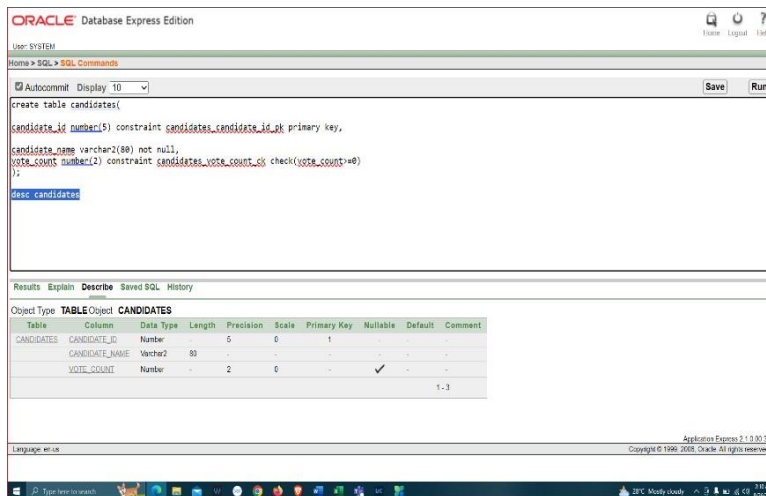


Table Creation: Voter

```

Create Table Voter(voter_id number(4) constraint voter_voter_id_PK primary key,voter_name
varchar2(80) not null,dob date not null,center_id number(4) constraint voter_center_id_FK

```

referencesCenter(center_id))

The screenshot shows the SQL Developer interface with the following SQL command executed:

```
create table voter(voter_id number(4) constraint voter_id_pk primary key,  
voter_name varchar2(80) not null, dob date not null, center_id number(4) constraint voter_center_id_fk references center(center_id))  
desc voter;
```

The results pane displays the table structure for VOTER:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
VOTER	VOTER_ID	Number	4		0	1	-	-	-
	VOTER_NAME	Varchar2	80	-	-	-	-	-	-
	DOB	Date	7	-	-	-	-	-	-
	CENTER_ID	Number	4		0	-	✓	-	-

Table Creation: Ballot

create table ballot(ballot_serial number(5) constraint ballot_serial_PK primary key, party_nominee varchar2(80) not null, party_name varchar2(80) default 'Independent', voter_id number(4) constraint ballot_voter_id_FK references voter(voter_id))

The screenshot shows the SQL Developer interface with the following SQL command executed:

```
create table ballot(ballot_serial number(5) constraint ballot_serial_PK primary key, party_nominee varchar2(80) not null, party_name varchar2(80) default 'Independent', voter_id number(4) constraint ballot_voter_id_FK references voter(voter_id))  
desc ballot;
```

The results pane displays the table structure for BALLOT:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BALLOT	BALLOT_SERIAL	Number	5		0	1	-	-	-
	PARTY_NOMINEE	Varchar2	80	-	-	-	-	-	-
	PARTY_NAME	Varchar2	80	-	-	-	-	Independent	-
	VOTER_ID	Number	4		0	-	✓	-	-

Table Creation: Vote Count

create table Vote_Count(ballot_serial number(5) constraint vote_count_ballot_serial_pk primary key, party_nominee varchar2(80) not null, party_name varchar2(80) default 'Independent', agent_id number(3) constraint vote_count_agent_id_FK references Agent_Information(agent_id))

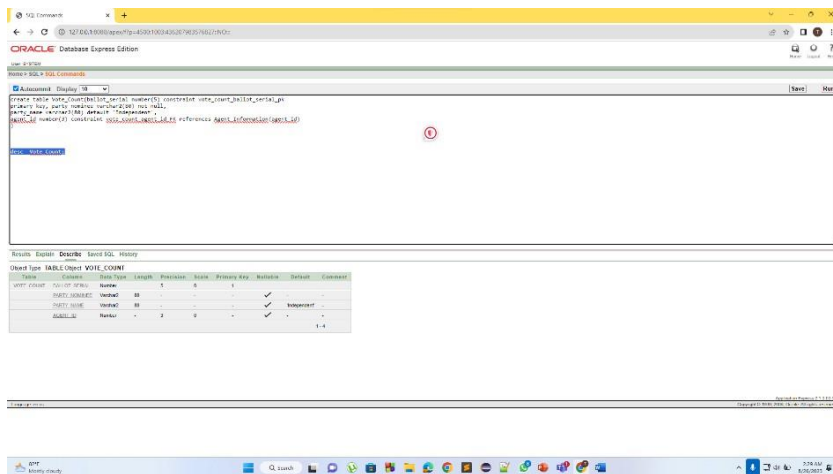


Table Creation: Votes

create table votes(

voter_id number(4) constraint votes_voter_id_pk primary key,

voter_name varchar2(80) not null,

dob date not null,

candidate_id number(5) constraint votes_candidate_id_fk references candidates(candidate_id))

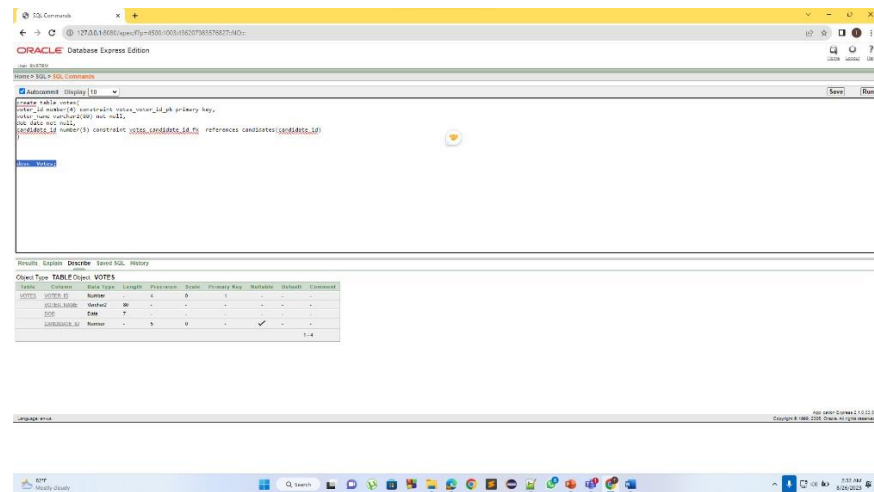


Table Creation: Ward

create table Ward(ward_no number(3) primary key,center_id number(4) constraint ward_center_id_fk references Center(center_id),postal_code number(4) constraint ward_postal_code_fk references Region(postal_code))

The screenshot shows the Oracle Database Express Edition interface. The SQL Command window contains the following code:

```
create table Ward
(
  ward_no number(3) primary key,
  center_id number(4) constraint ward_center_id_fk references Center(center_id),
  postal_code number(4) constraint ward_postal_code_fk references Region(postal_code)
)

desc ward;
```

Below the command window, the 'Results' tab displays the table structure for 'WARD'.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
WARD	WARD_NO	Number	-	3	0	1	-	-	-
	CENTER_ID	Number	-	4	0	-	✓	-	-
	POSTAL_CODE	Number	-	4	0	-	✓	-	-

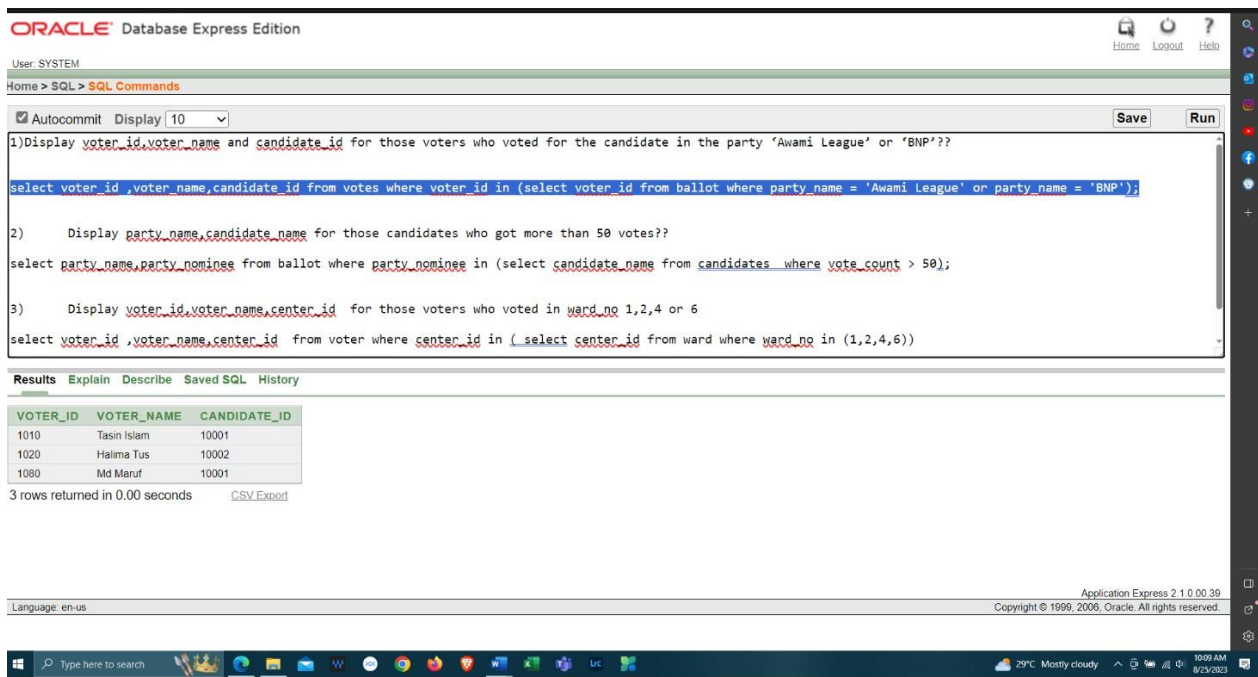
At the bottom of the screenshot, the Windows taskbar is visible, showing the system clock as 2:36 AM on 8/26/2023.

Queries :

SUB QUERIES:

1) Display voter_id, voter_name and candidate_id for those voters who voted for the candidate in the party 'Awami League' or 'BNP'??

```
select voter_id ,voter_name,candidate_id from votes where voter_id in (select voter_id from ballot where party_name = 'Awami League' or party_name = 'BNP');
```



The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains three queries. The first query is selected and its results are displayed in the Results window.

Query 1: Display voter_id, voter_name and candidate_id for those voters who voted for the candidate in the party 'Awami League' or 'BNP'??

```
select voter_id ,voter_name,candidate_id from votes where voter_id in (select voter_id from ballot where party_name = 'Awami League' or party_name = 'BNP');
```

Query 2: Display party_name, candidate_name for those candidates who got more than 50 votes??

```
select party_name,party_nominee from ballot where party_nominee in (select candidate_name from candidates where vote_count > 50);
```

Query 3: Display voter_id, voter_name, center_id for those voters who voted in ward_no 1,2,4 or 6

```
select voter_id ,voter_name,center_id from voter where center_id in (select center_id from ward where ward_no in (1,2,4,6))
```

Results:

VOTER_ID	VOTER_NAME	CANDIDATE_ID
1010	Tasin Islam	10001
1020	Halima Tus	10002
1080	Md Maruf	10001

3 rows returned in 0.00 seconds

2) Display party_name, candidate_name for those candidates who got more than 50 votes??

```
select party_name,party_nominee from ballot where party_nominee in (select candidate_name from candidates where vote_count > 50);
```

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

1) Display voter_id, voter_name and candidate_id for those voters who voted for the candidate in the party 'Awami League' or 'BNP'??

```
select voter_id, voter_name, candidate_id from votes where voter_id in (select voter_id from ballot where party_name = 'Awami League' or party_name = 'BNP');
```

2) Display party_name, candidate_name for those candidates who got more than 50 votes??

```
select party_name, party_nominee from ballot where party_nominee in (select candidate_name from candidates where vote_count > 50);
```

3) Display voter_id, voter_name, center_id for those voters who voted in ward_no 1,2,4 or 6

```
select voter_id, voter_name, center_id from voter where center_id in (select center_id from ward where ward_no in (1,2,4,6));
```

Results Explain Describe Saved SQL History

PARTY_NAME	PARTY_NOMINEE
BNP	Obaidur Kader

1 rows returned in 0.00 seconds CSV Export

Application Express 2.1.0.00.39
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Language: en-us

29°C Mostly cloudy 10:09 AM 8/25/2023

3) Display voter_id, voter_name, center_id for those voters who voted in ward_no 1,2,4 or 6

select voter_id, voter_name, center_id from voter where center_id in (select center_id from ward where ward_no in (1,2,4,6));

ORACLE Database Express Edition

User: SYSTEM

Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
select voter_id, voter_name, candidate_id from votes where voter_id in (select voter_id from ballot where party_name = 'Awami League' or party_name = 'BNP');
```

2) Display party_name, candidate_name for those candidates who got more than 50 votes??

```
select party_name, party_nominee from ballot where party_nominee in (select candidate_name from candidates where vote_count > 50);
```

3) Display voter_id, voter_name, center_id for those voters who voted in ward_no 1,2,4 or 6

```
select voter_id, voter_name, center_id from voter where center_id in (select center_id from ward where ward_no in (1,2,4,6));
```

Results Explain Describe Saved SQL History

VOTER_ID	VOTER_NAME	CENTER_ID
1070	Tingu	7707
1080	Md Maruf	8808
1090	Rabbani Bhai	9909

3 rows returned in 0.00 seconds CSV Export

Application Express 2.1.0.00.39
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Language: en-us

29°C Mostly cloudy 10:09 AM 8/25/2023

Joining:

1) Display all the voters whose center is in Monipur High School?

select v.* from voter v, center c where v.center_id=c.center_id and c.center_name in ('Monipur High School')

The screenshot shows the Oracle Database Express Edition interface. The SQL command entered is: `select v.* from voter v, center c where v.center_id=c.center_id and c.center_name in ('Monipur High School')`. The results table displays two rows of voter information.

VOTER_ID	VOTER_NAME	DOB	CENTER_ID
1010	Tasin Islam	08-AUG-23	1101
1090	Rabbani Bhai	01-JAN-23	9909

2 rows returned in 0.00 seconds

2)select voter_id,voter_name,dob,candidate_id for all the matching and non-matching records from votes and candidates table?

select VOTER_ID,VOTER_NAME,DOB,CANDIDATES.CANDIDATE_ID from votes full join candidates on votes.candidate_id=candidates.candidate_id

The screenshot shows the Oracle Database Express Edition interface. The SQL command entered is: `select VOTER_ID,VOTER_NAME,DOB,CANDIDATES.CANDIDATE_ID from votes full join candidates on votes.candidate_id=candidates.candidate_id`. The results table displays two rows of data.

VOTER_ID	VOTER_NAME	DOB	CANDIDATE_ID
1010	Tasin Islam	08-AUG-23	1101
1090	Rabbani Bhai	01-JAN-23	9909

2 rows returned in 0.00 seconds

3) Display all the vote_count information for all the existing agents?

select vc.* from vote_count vc, agent_information ai where vc.agent_id(+)=ai.agent_id

Autocommit Display 1000 Save Run

3) Display all the vote_count information for all the existing agents?

```
select vc.* from vote_count vc, agent_information ai where vc.agent_id(+) = ai.agent_id
```

4) display voter_id and voter_name for those whose candidate_id is 10001 by using self-joining;

```
select v.voter_id, c.voter_name
from votes v, votes c
where v.voter_id = c.voter_id and c.candidate_id = 10001
```

Results Explain Describe Saved SQL History

BALLOT_SERIAL	PARTY_NOMINEE	PARTY_NAME	AGENT_ID
1101	Obaidur Kader	BNP	202
1102	Mushfiqur Hossain	JP E	201
1103	Saifur Rahman	IAB	203
1104	Kazi Alam	Jamaat-e-Islami	209
1105	Sabrina Sultana	Awami League	205
1106	M Mosharaf	Independent	208
1107	S M Mosharaf	CPB	207
1108	Zafar ali	Independent	208
1109	Saifuddin Ahmed	Awami League	206
1110	Kazi Alam	CPB	204
1111	Tasin Islam	Awami League	210

11 rows returned in 0.00 seconds CSV Export

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4) display voter_id and voter_name for those whose candidate_id is 10001 by using self-joining??

```
select v.voter_id, c.voter_name from votes v, votes c where v.voter_id = c.voter_id and c.candidate_id = 10001
```

ORACLE Database Express Edition

User SYSTEM Home Logout Help

Home > SQL > SQL Commands

Autocommit Display 1000 Save Run

3) Display all the vote_count information for all the existing agents?

```
select vc.* from vote_count vc, agent_information ai where vc.agent_id(+) = ai.agent_id
```

4) display voter_id and voter_name for those whose candidate_id is 10001 by using self-joining;

```
select v.voter_id, c.voter_name
from votes v, votes c
where v.voter_id = c.voter_id and c.candidate_id = 10001
```

Results Explain Describe Saved SQL History

VOTER_ID	VOTER_NAME
1010	Tasin Islam
1030	Sayed Saifur
1080	Md Maruf
1090	Rabbani Bhai

4 rows returned in 0.00 seconds CSV Export

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THE END