

**Query 1: Students who did not enroll in 2013**

```
SELECT LastName, FirstName, SID
```

```
FROM student
```

```
WHERE sid NOT IN (SELECT studentID
```

```
FROM enrolled
```

```
WHERE year = 2013);
```

Join:

```
SELECT s.LastName, s.FirstName, s.SID
```

```
FROM student s
```

```
LEFT JOIN enrolled e ON s.SID = e.studentID AND e.year = 2013
```

```
WHERE e.studentID IS NULL;
```

The screenshot shows the MySQL Workbench interface. The 'Query 1' editor contains the following SQL query:

```
SELECT s.LastName, s.FirstName, s.SID
FROM student s
LEFT JOIN enrolled e ON s.SID = e.studentID AND e.year = 2013
WHERE e.studentID IS NULL;
```

The 'Result Grid' displays the results of the query, showing 8 rows of data with columns: LastName, FirstName, and SID.

LastName	FirstName	SID
Winter	Abigail	11035
Patel	Deepa	14662
Degroff	Jarvis	14998
Johnson	Peter	32105
Skelly	Trinity	58992
Patel	Prakash	75234
Snowdon	Jennifer	93321

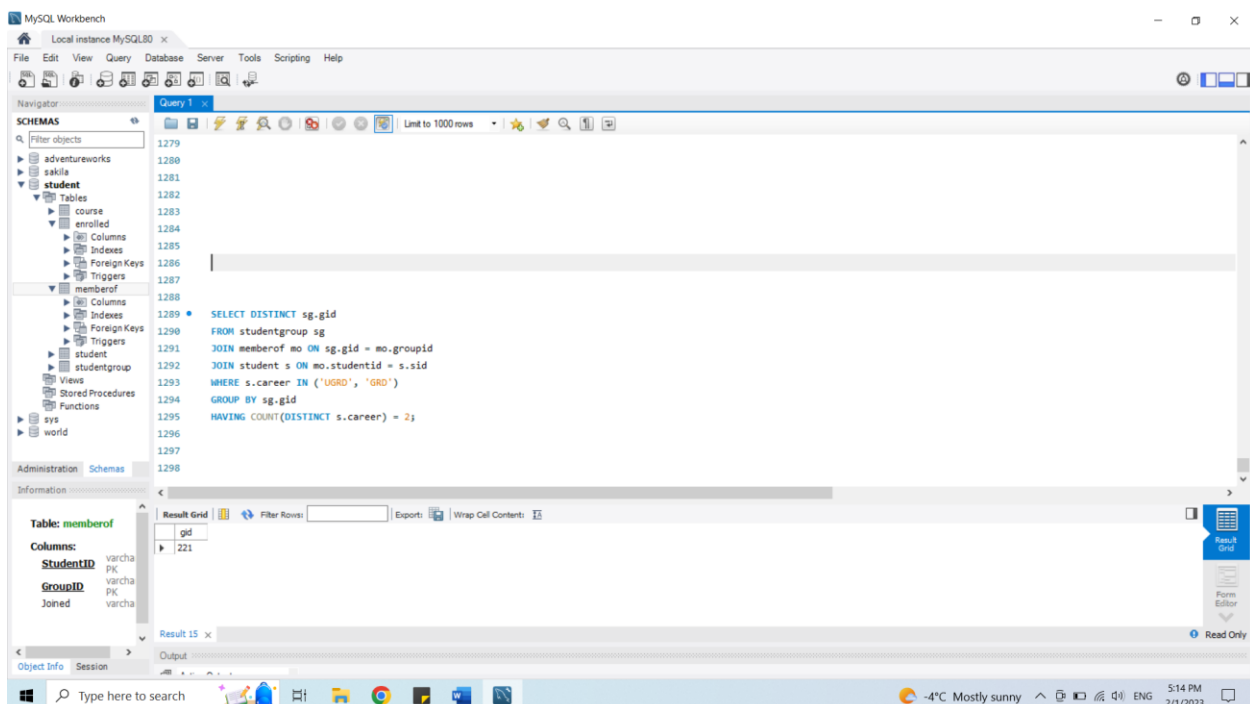
The 'Table: memberof' information panel shows the following columns:

- StudentID: varchar, PK
- GroupID: varchar, PK
- Joined: varchar

The status bar at the bottom indicates the system is at -2°C Sunny, 4:05 PM, 2/1/2023.

**Query 2: With Join:**

```
SELECT DISTINCT sg.gid
FROM studentgroup sg
JOIN memberof mo ON sg.gid = mo.groupid
JOIN student s ON mo.studentid = s.sid
WHERE s.career IN ('UGRD', 'GRD')
GROUP BY sg.gid
HAVING COUNT(DISTINCT s.career) = 2;
```

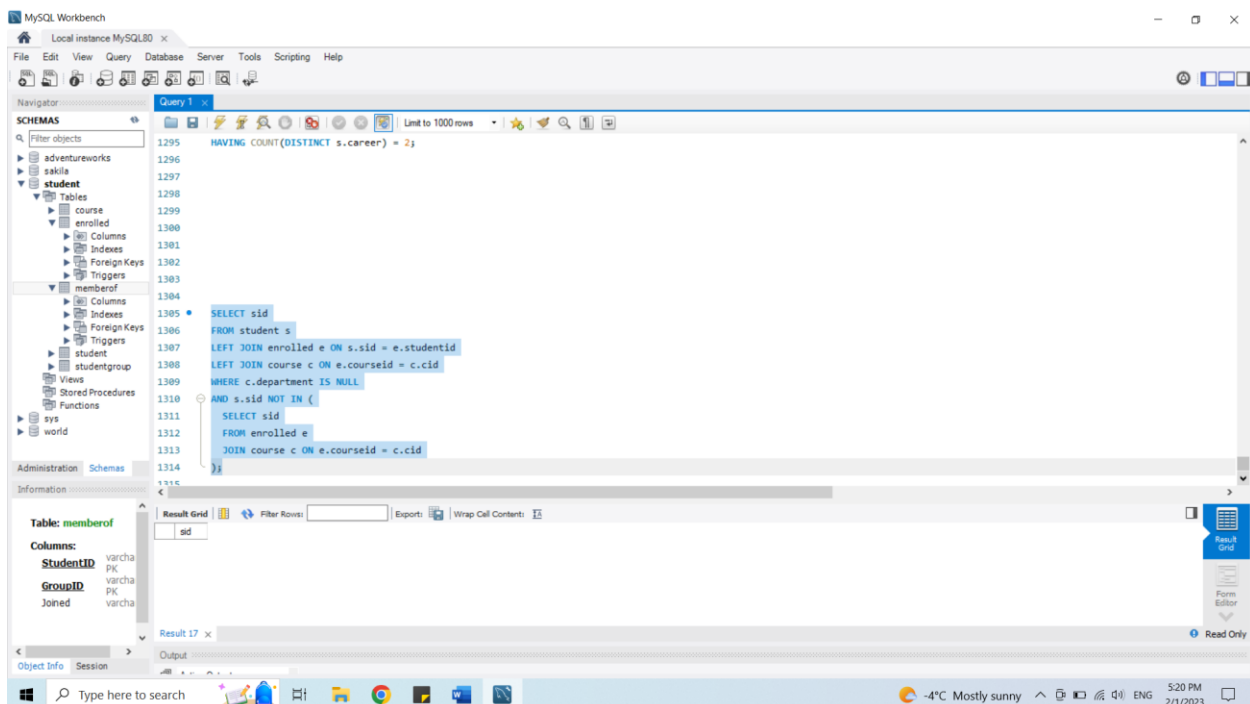


This query performs a join between the "studentgroup", "memberof", and "student" tables and filters the results to only include the group IDs (gid) where the career of the members is either "UGRD" or "GRD". The query then uses the "GROUP BY" clause to group the results by group ID, and the "HAVING" clause to only include the groups where there are 2 distinct values of the "career" column, indicating that the group has both graduate and undergraduate members. The "DISTINCT" keyword ensures that the same group ID is not counted multiple times.

**Query 3:** I provided two different queries for this part.

**First Query:**

```
SELECT sid
FROM student s
LEFT JOIN enrolled e ON s.sid = e.studentid
LEFT JOIN course c ON e.courseid = c.cid
WHERE c.department IS NULL
AND s.sid NOT IN (
    SELECT sid
    FROM enrolled e
    JOIN course c ON e.courseid = c.cid
);
```



### Second query

```
SELECT DISTINCT student.sid  
FROM student  
JOIN enrolled ON student.sid = enrolled.studentid  
JOIN course ON enrolled.courseid = course.cid  
GROUP BY student.sid  
HAVING COUNT(DISTINCT course.department) =  
      (SELECT COUNT(DISTINCT department) FROM course)  
;
```

