

Query - get the rollnumber , name of students in computer science department where the sex of student and the advisor is same whose start year is 2002

When running the query using explain command which will give output of how the query happened before creating index

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

```
6 • create index n on student(year);
7 • create index m on department(name);
8 • explain
9 • select s.rollNo,s.name
10 • from student as s,department as d, professor as p
11 • where s.deptNo = deptId and d.name = "Comp. Sci" and p.empId = s.advisor and s.sex = p.sex
12 • and s.year = 2002
```

The 'Result Grid' tab is selected, displaying the execution plan for the query. The plan shows three rows, all of type 'SIMPLE'. The first row is for the 'student' table, the second for the 'department' table, and the third for the 'professor' table. The 'Extra' column for each row indicates 'Using where'.

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	d	HULL	ALL	PRIMARY				20	10.00	Using where
1	SIMPLE	s	HULL	ref	deptNo,advisor,student	deptNo	83	academic_insti.d.deptId	100	38.49	Using where
1	SIMPLE	p	HULL	eq_ref	PRIMARY	PRIMARY	22	academic_insti.s.advisor	1	10.00	Using where

The 'Action Output' tab shows the execution of the query, with a message indicating that 3 rows were returned.

After then creating the indices below is the following output for the written query

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

```
2 • get the rollnumber , name of students in computer science department where the sex of student and the advisor is same
3 • whose start year is 2002
4 • */
5 •
6 • create index n on student(year);
7 • create index m on department(name);
8 • explain
```

The 'Result Grid' tab is selected, displaying the execution plan for the query. The plan shows three rows, all of type 'SIMPLE'. The first row is for the 'student' table, the second for the 'department' table, and the third for the 'professor' table. The 'Extra' column for each row indicates 'Using index', 'Using where', and 'Using where' respectively.

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	d	HULL	ref	PRIMARY,m	m	83	const	1	100.00	Using index
1	SIMPLE	s	HULL	ref	deptNo,advisor,student,n	deptNo	83	academic_insti.d.deptId	100	38.49	Using where
1	SIMPLE	p	HULL	eq_ref	PRIMARY	PRIMARY	22	academic_insti.s.advisor	1	10.00	Using where

The 'Action Output' tab shows the execution of the query, with a message indicating that 3 rows were returned.