**NAME** :- Manish Shashikant Jadhav

**UID** :- 2023301005.

**BRANCH** :- Comps -B. **BATCH:** B.

**EXPERIMENT 7: To perform aggregate function, group by and having clause for university database.**

**SUBJECT** :- DBMS (DATABASE MANAGEMENT SYSTEM)

1. **Count:**

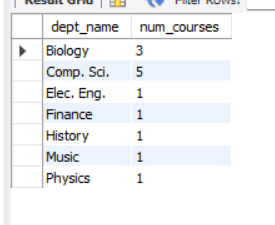
**Query:**

SELECT dept\_name, COUNT(\*) AS num\_courses

FROM course

GROUP BY dept\_name;

**Output:**

****

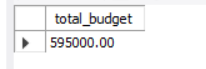
1. **Sum:**

**Query:**

SELECT SUM(budget) AS total\_budget

FROM department;

**Output:**

****

1. **Avg:**

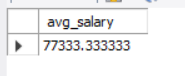
**Query:**

SELECT AVG(salary) AS avg\_salary

FROM instructor

WHERE dept\_name = 'Comp. Sci.';

**Output:**

****

1. **Max:**

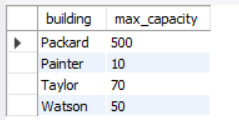
**Query:**

SELECT building, MAX(capacity) AS max\_capacity

FROM classroom

GROUP BY building;

**Output:**

****

1. **Min:**

**Query:**

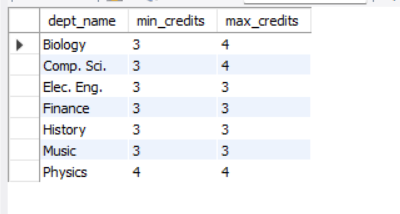
SELECT dept\_name, MIN(credits) AS min\_credits,

MAX(credits) AS max\_credits

FROM course

GROUP BY dept\_name;

**Output:**

****

**Group by Having clause:**

**1) List departments with an average instructor salary greater than $70,000.**

**2) Show courses with an average grade greater than or equal to 'B' (grade code).**

**3) List instructors who have taught at least 2 courses.**

**4) Find departments with an average budget greater than $80,000.**

**Query 1:**

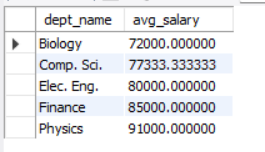
SELECT dept\_name, AVG(salary) AS avg\_salary

FROM instructor

GROUP BY dept\_name

HAVING AVG(salary) > 70000;

**Output:**

****

**Query 2:**

SELECT course\_id, AVG(CASE WHEN grade >= 'B' THEN 1 ELSE 0 END)

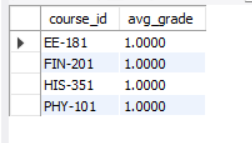
AS avg\_grade

FROM takes

GROUP BY course\_id

HAVING avg\_grade >= 0.8;

**Output:**

****

**Query 3:**

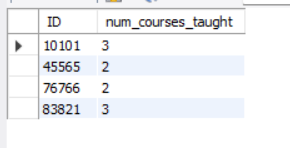
SELECT ID, COUNT(\*) AS num\_courses\_taught

FROM teaches

GROUP BY ID

HAVING num\_courses\_taught >= 2;

**Output:**

****

**Query 4:**

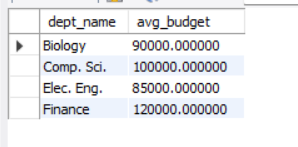
SELECT dept\_name, AVG(budget) AS avg\_budget

FROM department

GROUP BY dept\_name

HAVING AVG(budget) > 80000;

**Output:**

****

**Conclusion:** Hence by completing this experiment I cameto perform aggregate function, group by and having clause for university database.