

# CSE 370: Database Systems

## Lab Homework 3

Spring 2022

### Question 1

Here is a **table**, with the name of its **columns** below its name:

<b>orders</b>				
order_no	purchase_amt	order_date	customer_id	salesman_id

a) Find the order\_no(s) which are priced higher than the average of all purchase\_amt

Answer: **SELECT order\_no from orders where (select avg(purchase\_amt) from orders)<order\_no;**

b) Find all the orders generated by the salesman who sold to the customer with customer\_id 309.

Answer: **SELECT \* from orders where salesman\_id=(select salesman\_id from orders where customer\_id=309);**

c) Find the order\_no and order date of the sales in 2021 that have a higher purchase amount from all sales in 2020.

Answer: **SELECT order\_no, order\_date from orders where (SELECT MAX(purchase\_amt) from orders where order\_date between '2020-01-01' and '2020-12-31') < purchase\_amt and order\_date between '2021-01-01' and '2021-12-31';**

### Question 2

Here is a table, with the name of its column below its name:

<b>employees</b>					
employee_id	first_name	last_name	job_id	salary	department_id

a) Find the employees whose salary is between the smallest salary and 2500.

Answer: **SELECT \* from employees where salary between (SELECT min(salary) from employees) and 2500;**

b) Find all the employees whose salary matches the lowest salary. Return the first\_name, last\_name and department\_id.

Answer: `SELECT first_name, last_name, department_id from employees where salary=(SELECT (min(salary) from employees));`

c) For each department, find the employees whose salary is the lowest in their own department. Return the first\_name, last\_name, salary and department\_id.

Answer: `SELECT first_name, last_name, salary, department_id from employees where (department_id, salary) in (select department_id, min(salary) from employees group by department_id);`

### Question 3

Here is a table, with the name of its column below its name:

final_marks					
student_id	name	dept	lab_marks	theory_marks	cgpa

a) Find the Student ID and Name of the students who have obtained minimum marks in

Lab. Answer: `SELECT student_id, name from final_marks where lab_marks=(SELECT min(lab_marks) from final_marks);`

b) Find the Student ID, Name and cgpa of the students who have obtained maximum marks in Theory in each department that have more than 2 students. Answer: `SELECT`

`student_id, name, cgpa FROM final_marks WHERE theory_marks=(SELECT MAX(theory_marks) FROM final_marks GROUP by dept HAVING COUNT(*)>2);`

c) Retrieve the name of the students who are from **BBS** department with higher cgpa than

at least one student from **ENH** department. Answer: `SELECT name FROM final_marks WHERE dept="BBS" AND cgpa>any (SELECT cgpa FROM final_marks WHERE dept="ENH");`

d) Retrieve the name, student id and lab marks of the students who are from **CSE** department and got

higher theory\_marks than everyone from **CS** department. Answer: `SELECT name, student_id, lab_marks from final_marks WHERE dept="CSE" AND theory_marks> ALL (SELECT theory_marks from final_marks WHERE dept="CS");`