

CS 540- Database Management Systems

Assignment 2

Submitted by :

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Write the following queries in SQL.

1. Return names of every employee who works in the "Hardware", "Software", and "Research" departments (0.5 point).

```
SELECT ename FROM emp

WHERE eid IN ( SELECT eid FROM works

WHERE did IN (SELECT did FROM dept

WHERE dname IN ('Hardware', 'Software', 'Research'))

GROUP BY eid HAVING COUNT(eid) >= 3);
```

2. Return the names of every department without any employee (0.5 point).

```
SELECT depart.dname FROM dept depart

WHERE depart.did NOT IN ( SELECT d.did FROM emp e, works w, dept d WHERE

e.eid = w.eid and w.did = d.did);
```

3. Print the managerid of managers who manage only departments with budgets greater than \$1.5 million. (0.5 point)

```
SELECT DISTINCT d.managerid FROM dept d

WHERE 1500000 < ALL (SELECT d1.budget FROM dept d1

WHERE d1.managerid = d.managerid);
```

4. Print the name of employees whose salary is less than or equal to the salary of every employee (0.5 point).

```
SELECT ename
FROM emp
WHERE salary <= ALL (SELECT salary FROM emp);
```

5. Print the enames of managers who manage the departments with the largest budget (0.5 point).

```
SELECT ename FROM emp
WHERE eid IN (SELECT d.managerid FROM dept d
WHERE d.budget = (SELECT MAX(d1.budget) FROM dept d1));
```

6. Print the name of every department and the average salary of the employees of that department. The department must have a budget more than or equal to \$50. (0.5 point)

```
SELECT d.dname, AVG(e.salary)
FROM dept d INNER JOIN works w ON d.did = w.did
INNER JOIN emp e ON e.eid = w.eid
WHERE d.budget > 50 GROUP BY w.did;
```

7. Print the managerids of managers who control the largest amount of total budget. As an example, if a manager manages two departments, the amount of total budget for him/her will be the sum of the budgets of the two departments. We want to find managers that have max total budget. (1 point)

```
SELECT managerid
FROM dept
GROUP BY managerid HAVING SUM(budget) >= ALL (SELECT SUM(budget)
FROM dept GROUP BY managerid);
```

8. Print the name of every employee who works only in the "Hardware" department. (1 point)

```
SELECT ename FROM emp
```

```
WHERE eid IN (SELECT eid FROM works WHERE eid NOT IN ( SELECT eid FROM  
works WHERE did NOT IN (SELECT did FROM dept WHERE dname = "Hardware")));
```