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Homework Problems:

- a) Return the names of every employee who works in the "Hardware", "Software", and "Research" departments. (0.25 points)

```
SELECT emp.ename  
FROM emp  
WHERE emp.eid IN (  
    SELECT works.eid  
    FROM works  
    WHERE works.did = 3  
)  
AND emp.eid IN (  
    SELECT works.eid  
    FROM works  
    WHERE works.did = 5  
)  
AND emp.eid IN (  
    SELECT works.eid  
    FROM works  
    WHERE works.did = 8  
);
```

- b) Return the names of every department without any employee. (0.25 points)

```
SELECT dept.dname  
FROM dept  
WHERE dept.did NOT IN (  
    SELECT works.did  
    FROM works  
);
```

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

```
SELECT managerid  
FROM dept  
WHERE budget > 1500000;
```

- d) Print the name of employees whose salary is less than or equal to the salary of every employee. (0.5 points)

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

);

- e) Print the enames of managers who manage the departments with the largest budget.  
(0.5 points)

```
SELECT emp.ename  
FROM emp, dept  
WHERE emp.eid = dept.managerid  
AND dept.budget >= ALL (  
    SELECT dept.budget  
    FROM dept  
);
```

- f) 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 points)

```
SELECT dept.dname, AVG(emp.salary)  
FROM dept, works, emp  
WHERE dept.did = works.did  
AND works.eid = emp.eid  
AND dept.budget >= 50  
GROUP BY dept.dname;
```

- g) 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. (0.5 points)

```
SELECT managerid  
FROM (SELECT sum(budget) as totalBudget, managerid  
    FROM dept  
    GROUP BY managerid)  
HAVING totalBudget=max(totalBudget);
```

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

```
SELECT managerid  
FROM (SELECT sum(budget) as totalBudget, managerid  
    FROM dept  
    GROUP BY managerid)  
HAVING totalBudget=max(totalBudget);
```