

Quiz 3 solution

Write your name on the exam. Write something for every question. Students who do not write something for everything lose out over students who write down wild guesses. You will get some points if you attempt a solution but nothing for a blank sheet of paper. Write something down, even wild guesses. Problems take long to read but can be answered concisely.

Problem	Maximum	Score
1	14	
2	6	
Total	20	

Problem 1 – SQL

An internal database used by a company has the following tables:

employee (employeeID, firstname, lastname, email, rank, salary)

branch (branchID, name, address, floorspace)

worksat (branchID, employeeID)

manages (managerID, subordinateID)

a) (2 points) Give the SQL query that lists the first and last names of employees with a salary above \$50,000.

```
SELECT E.firstname, E.lastname
FROM employee E
WHERE E.salary > 50000
```

b) (4 points) Give the SQL query that lists the emails of all employees that work in branches smaller than 5,000 square feet.

```
SELECT DISTINCT E.email
FROM employee E, branch B, worksat W
WHERE E.employeeID = W.employeeID AND B.branchID = W.branchID AND
B.floorspace < 5000
```

c) (4 points) Give the SQL query that lists for each branch its name, the number of employees working there and their total salary.

```
SELECT B.name, COUNT(employeeID), SUM(E.salary)
FROM employee E, branch B, worksat W
WHERE E.employeeID = W.employeeID AND B.branchID = W.branchID
GROUP BY B.branchID
```

d) (4 points) Give the SQL query that lists all employees that make more than their manager. For each such employee list their first name, last name, salary and rank together with the salary of their manager.

```
SELECT S.firstname, S.lastname, S.salary, S.rank, B.salary
FROM employee S, employee B, manages M
WHERE S.employeeID = M.subordinateID AND B.employeeID = M.managerID and
S.salary > B.salary
```

Problem 2 – ODBC

a) (2 points) Describe the role of the `ExecuteNonQuery()` method of `System.Data.Odbc.OdbcCommand` class.

The role of this method is to run database commands that are not queries and do not return any results. For example the SQL commands UPDATE, INSERT INTO, and DELETE FROM would be executed through a call to this method.

b) (4 points) Give an example of a code snippet using this method that starts with the instruction below.

```
OdbcCommand command = connection.CreateCommand()  
command.CommandText = "update people set city=? where  
state=?";  
command.Parameters.AddWithValue("@city", "Madison");  
command.Parameters.AddWithValue("@state", "wi");  
command.ExecuteNonQuery();
```