CS 338 Mid-Term Exam Practice Problems on Lectures 09-11

Not for handing in

Model Solutions will be posted on Tuesday, June 23

1 Lecture 09

Topics

1. SQL: Data Manipulation Basics
   (a) SELECT ⟨ attribute list ⟩
   FROM ⟨ table list ⟩
   WHERE ⟨ condition ⟩
   (b) SELECT *
   (c) Prefixes
   (d) Aliases
   (e) FROM Two tables
   (f) No WHERE clause

Questions

1. Write a query to return all the department numbers and locations.
2. Write a query to return the name(s) of employees having dependents and who work on the 'Newbenefits' project.

2 Lecture 10

Topics

1. Extension to SELECT
   (a) DISTINCT
   (b) AS
   (c) expression
   (d) aggregated
2. Extension to FROM
   (a) Nested query
   (b) Join

Questions

1. Write a query to return all the department numbers (AS DEPT_NUM) and locations (AS DEPT_LOC).
2. Write a query to return all the distinct surnames of employees.
3. Write a query to return the hours worked for each ESSN on project number 30, with the hours decreased by multiplying by 0.9 (we may have assumed that all employees are overstating their hours worked).
4. Write a query to return the total hours worked on project number 30.

5. Write a query to return the employee SSN(s) having an above-average salary. Use a nested subquery in the FROM clause.
6. Write a query to return the project names for all projects that belong to the 'Software' department. Use a JOIN in the FROM clause.

3 Lecture 11

Topics

1. Extension to WHERE
   (a) Boolean and comparator
   (b) Pattern matching
   (c) Subquery
      i. Correlated, or not?

Questions

1. Write a query to return the names of employees having salaries between $50,000 and $70,000, inclusive.
2. Write a query to return the names of employees having the first character of their first names starting with H, K or N.
3. Write a query to return the employee SSN(s) having an above-average salary. Use a nested subquery in the WHERE clause.
4. Is the nested subquery in the WHERE clause of the previous query correlated, or uncorrelated? Briefly justify your answer.

4 Company Database Schema

1. **DEPARTMENT**

DNAME	DNUMBER	MGRSSN	MGRSTARTDATE

2. **DEPENDENT**

ESSN	DEPENDENT_NAME	SEX	BDATE	RELATIONSHIP

3. **DEPT_LOCATIONS**

DNUMBER	DLOCATION

4. **EMPLOYEE**

FNAME	MINIT	LNAME	SSN	BDATE	ADDRESS	SEX	SALARY	SUPERSSN	DNO

5. **PROJECT**

PNAME	PNUMBER	PLOCATION	DNUM

6. **WORKS_ON**

ESSN	PNO	HOURS