

CS 210: Data Management for Data Science

Midterm 2 sample

Fall 2023

Name: _____ NetID: _____

This is a closed book, closed notes exam, only 5 pages of HAND
WRITTEN NOTES allowed.

No electronic devices are permitted.

Name: _____

1. Consider this table

DeptID	DepartmentName	Manager
1	IT	James
2	HR	Lisa
3	Finance	Robert
4	Marketing	Susan
5	Sales	Michael
6	R&D	Karen

Write an SQL query to select department names managed by either "James" or "Michael".

```
SELECT DepartmentName  
FROM Department  
WHERE Manager IN ('James', 'Michael');
```

Name: _____

2. (30 points) Consider the table Inventory:

ItemID	ItemName	Stock
P1	Pencil	50
P2	Notebook	100
P3	Pencil	30
P4	Eraser	60
P5	Notebook	150
P6	Pencil	25

(a) (15 points): Write an SQL query to display the items(whole row) in ascending order of Stock.

```
SELECT *  
FROM Inventory  
ORDER BY Stock ASC;
```

(b) (15 points): Write an SQL query to display the total stock for each item, grouped by ItemName.

```
SELECT ItemName, SUM(Stock) AS TotalStock  
FROM Inventory  
GROUP BY ItemName;
```

Name: _____

3. (20 points) Consider the table Purchases:

PurchaseID	Item	Amount
201	Chair	100
202	Desk	150
203	Shelf	80
204	Sofa	300
205	Rug	50
206	Desk	120

(a) (10 points): Write an SQL query to find the total amount spent on all items.

```
SELECT SUM(Amount) AS TotalAmountSpent  
FROM Purchases;
```

(b) (10 points): Write an SQL query to find the highest and lowest amount spent on the items.

```
SELECT MAX(Amount) AS HighestAmountSpent, MIN(Amount)  
AS LowestAmountSpent  
FROM Purchases;
```

Name: _____

4. (30 points) Consider the tables Teachers and Subjects:

Teachers:

TeacherID	TeacherName
T1	Ella
T2	Tom
T3	Danny
T4	Sarah

Subjects:

TeacherID	Subject
T1	Biology
T2	Chemistry
T3	Biology
T4	Physics

- (a) (15 points): Write an SQL query to join the two tables on TeacherID and display the teacher's name with their teaching subject.

```
SELECT Teachers.TeacherName, Subjects.Subject  
FROM Teachers  
INNER JOIN Subjects ON Teachers.TeacherID =  
Subjects.TeacherID;
```

- (b) (15 points): Write an SQL query to find the names of teachers who teach the "Biology" subject.

```
SELECT Teachers.TeacherName  
FROM Teachers  
INNER JOIN Subjects ON Teachers.TeacherID =  
Subjects.TeacherID  
WHERE Subjects.Subject = 'Biology'
```

Name: _____

5. (10 points) Given the following strings, which includes various website URLs:

```
"https://www.example.edu"  
"http://www.test.com"  
"https://www.example.net"  
"ftp://files.example.com"  
"https://www.example.edu"  
...
```

Write a regular expression to match strings that start with 'https://' and have the domain name 'example' and ends with '.com'

r"^https://www\.example\.com\$"

Name: _____

6. (Extra Credit: 10 points) Consider the table Movies:

MovieID	Name	Category	Rating
1	The Pursuit of Happyness	Drama	8
2	Interstellar	Sci-fi	9
3	Titanic	Romance	8
4	Inception	Sci-fi	9
5	The Shawshank Redemption	Drama	9
6	A Walk to Remember	Romance	7

Write an SQL query to select movies that are either of category "Sci-fi" OR have a rating above 8, but NOT of category "Drama".

```
SELECT *  
FROM Movies  
WHERE (Category = 'Sci-fi' OR Rating > 8) AND Category <> 'Drama';
```

Name: _____

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