Subqueries & Nested Queries Assignment

Employee Dataset:

Employee

# emp_id	name	department_id	salary
101	Abhishek	1	60000
102	Shubham	2	50000
103	Adyut	1	70000
104	Shashank	3	55000
105	Naresh	2	72000
106	Sakshi	3	48000
107	Kusum	1	41000
108	Sejal	2	56000
109	Bhomika	1	69000
110	Vikash	1	71000
111	Vikram	3	59000
112	Anku	2	54000
113	Jimmy	1	64000
114	Hritik	3	52000
115	Swapnil	2	54000

Department Dataset:

Department

department_id	department_name
1	IT
2	HR
3	Sales

Sales Dataset:

Sales

sale_id	emp_id	sale_amount	sale_date
4	104	4500	2024-01-09
5	105	8000	2024-01-11
6	106	2500	2024-01-12
7	107	3000	2024-01-15
8	108	4200	2024-01-16
9	109	6500	2024-01-18
10	110	3100	2024-01-19
11	111	4400	2024-01-22
12	112	6000	2024-01-23
13	113	6700	2024-01-25
14	114	5100	2024-01-29
15	115	4900	2024-01-31

Basic Level

Question 1: Retrieve the names of employees who earn more than the average salary of all employees.

Solution:

```
SELECT * FROM employees WHERE salary>(SELECT AVG(salary) FROM employees);
```

Question 2: Find the employees who belong to the department with the highest average salary.

Solution:

```
SELECT * FROM employees WHERE dept_id=(SELECT dept_id FROM employees GROUP BY dept_id ORDER BY AVG(salary) DESC LIMIT 1);
```

Question 3: List all employees who have made at least one sale.

Solution:

```
SELECT DISTINCT e.* FROM employees e JOIN sales s ON e.emp_id=s.emp_id;
```

Quesiton 4: Find the employee with the highest sale amount.

Solution:

```
SELECT * FROM employees WHERE emp_id=(SELECT emp_id FROM sales ORDER BY amount DESC LIMIT 1);
```

Question 5: Retrieve the names of employees whose salaries are higher than Shubham's salary

Solution:

```
SELECT * FROM employees WHERE salary>(SELECT salary FROM employees WHERE emp_name='Shubham');
```

Intermediate Level

Question 6: Find employees who work in the same department as Abhishek.

Solution:

```
SELECT * FROM employees WHERE dept_id=(SELECT dept_id FROM employees WHERE emp_name='Abhishek');
```

Question 7: List departments that have at least one employee earning more than $60,000

Solution:

```
SELECT DISTINCT dept_name FROM departments WHERE dept_id IN(SELECT dept_id FROM employees WHERE salary>60000);
```

Question 8: Find the department name of the employee who made the highest sale

Solution:

```
SELECT dept_name FROM departments WHERE dept_id=(SELECT dept_id FROM employees WHERE emp_id=(SELECT emp_id FROM sales ORDER BY amount DESC LIMIT 1));
```

Question 9: Retrieve employees who have made sales greater than the average sale amount

Solution:

```
SELECT DISTINCT e.* FROM employees e JOIN sales s ON e.emp_id=s.emp_id WHERE s.amount>(SELECT AVG(amount) FROM sales);
```

Question 10: Find the total sales made by employees who earn more than the average salary.

Solution:

```
SELECT SUM(amount) FROM sales WHERE emp_id IN(SELECT emp_id FROM employees WHERE salary>(SELECT AVG(salary) FROM employees));
```

Advanced Level

Question 11: Find employees who have not made any sales

Solution:

```
SELECT * FROM employees WHERE emp_id NOT IN(SELECT emp_id FROM sales);
```

Question 12: List employees who work in departments where the average salary is above $55,000

Solution:

```
SELECT * FROM employees WHERE dept_id IN(SELECT dept_id FROM employees GROUP BY dept_id HAVING AVG(salary)>55000);
```

Question 13: Retrieve department names where the total sales exceed $10,000

Solution:

```
SELECT dept_name FROM departments WHERE dept_id IN(SELECT dept_id FROM employees e JOIN sales s ON e.emp_id=s.emp_id GROUP BY dept_id HAVING SUM(amount)>10000);
```

Question 13: Find the employee who has made the second-highest sale.

Solution:

```
SELECT * FROM employees WHERE emp_id=(SELECT emp_id FROM sales ORDER BY amount DESC LIMIT 1 OFFSET 1);
```

Question 15: Retrieve the names of employees who have a salary greater than the highest sales amount recorded.

Solution:

```
SELECT * FROM employees WHERE salary>(SELECT MAX(amount) FROM sales);
```