

ICS 33 - Assignment 3 - Query Analysis

SQL Queries

Query 1a:

```
SELECT name
FROM employees
WHERE department = 'engineering'
      AND salary > 85000
ORDER BY salary DESC;
```

Query 1b:

```
SELECT ROUND(AVG(salary), 2) as avg_salary
FROM employees
WHERE title LIKE '%Senior%';
```

Lazy Evaluation Explanation

The `filtered_names()` function is implemented as a generator function using a generator expression, which makes it lazy. This means it processes data on-demand rather than all at once. When called, it returns a generator object that will yield one matching employee name at a time as it's being iterated over, without creating intermediate lists in memory. This lazy evaluation provides significant memory efficiency, especially for large datasets, as it only loads and processes one record at a time. It also enables better performance when the full result set isn't needed, as iteration can stop early once the desired number of results is found. This approach allows for processing of infinite or very large data streams that wouldn't fit in memory all at once.