1. List the members of your group below. Underline your name.

2. Consider the relational instance from the previous class exercise: $R_1(B, N, C, D)$, representing the building name (B), room number (N), capacity (C), and description (D) of rooms on campus.

$$
\begin{array}{cccc}
\text{B} & \text{N} & \text{C} & \text{D} \\
\hline
\text{Neville} & 227 & 30 & \text{cramped seating, blackboard} \\
\text{Neville} & 120 & 25 & \text{nice chairs, whiteboard, videoconferencing} \\
\text{Neville} & 225 & 2 & \text{office} \\
\text{Neville} & 224 & 3 & \text{office} \\
\text{East Annex} & 225 & 10 & \text{lab} \\
\text{East Annex} & 227 & 3 & \text{office} \\
\end{array}
$$

Evaluate the following SQL queries on this instance.

(a) \quad \text{select C,D from R1}

(b) \quad \text{select *}
     \text{from R1}
     \text{where lower(D) like '%%board%%' and not lower(N) like '%%office%%'}
(c) \[ \text{select } 1, 2+3 \text{ from } R1 \]

(d) \[ \text{select } \min(S.N), \sum(T.C) \]
\[ \text{from } R1 S, R1 T \]

(e) \[ \text{select } B, N, C \]
\[ \text{from } R1 \]
\[ \text{where } B = (\text{select } B \text{ from } R1 \text{ where } C = 30) \]
3. Provide SQL queries for the following.

(a) The building names and room numbers of rooms with a capacity between 10 and 50.

(b) Pairs of rooms \((a, b)\) in the same building with the capacity of \(b\) greater than that of \(a\).

(c) Pairs as in Question 3b, but with the added constraint that there is no room \(c\) in the same building with capacity between those of \(a\) and \(b\).

(d) The rooms with the largest capacities in each building.
4. Provide relational algebra equivalents of the SQL queries in Questions 2 and 3.