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

2. Consider a database with relations Students(id, name, year), Courses(id, title, ta), and Enrolls(student, course, credits). A tuple $(i, n, y) \in$ Students denotes a student with student-identifier $i$, name $n$, and year $y$. A tuple $(i, t, a) \in$ Courses denotes a course with course-identifier $i$, title $t$, and whose teaching assistant’s student-identifier is $a$. A tuple $(s, c, r) \in$ Enrolls denotes the enrollment of the student with identifier $s$ in the class with identifier $c$, for $r$ credits.

We say student $t$ is a TA of student $s$, for $r$ credits, if $s$ is enrolled for $r$ credits in a course whose TA is $t$. We say a TA $t$ is responsible for $r$ credits if $r$ is the sum of credits of all student enrollments in all courses whose TA is $t$.

Write a SQL statement to create a view that provides the names and IDs of the TAs who are the TAs of the maximum number of students for $r$ credits, for each distinct value of $r$ occurring in the database.
3. Write an extended algebra query that is equivalent to the query of Question 2.
4. Prove or disprove: Bag intersection may be expressed using bag union and difference.

5. Provide formal definitions of each of the bag algebra operators: selection, projection, cross product, union, difference.
6. Provide expressions for the minimum and maximum cardinalities of the result of each of the operators of Question 5 as a function of the cardinalities of its operands. Justify your answers.