PROBLEM 1
Borrowed from https://www.w3resource.com/sql-exercises/subqueries/index.php

DATABASE INSTANCE:

Emp_details

EMP_IDNO	EMP_FNAME	EMP_LNAME	EMP_DEPT
127323	Michale	Robbin	57
526689	Carlos	Snares	63
843795	Enric	Dosio	57
328717	Jhon	Snares	63
444527	Joseph	Dosni	47
659831	Zanifer	Emily	47
847674	Kuleswar	Sitaraman	57
748681	Henrey	Gabriel	47
555935	Alex	Manuel	57
539569	George	Mardy	27
733843	Mario	Saule	63
631548	Alan	Snappy	27
839139	Maria	Foster	57

Emp_department

DPT_CODE	DPT_NAME	DPT_ALLOTMENT
57	IT	65000
63	Finance	15000
47	HR	240000
27	RD	55000
89	QC	75000

QUESTIONS:

1. Write a query in SQL to find the *names of departments* where *more than two employees* are working.
2. Draw a Relational Algebra plan for your query.
3. Given the following statistics, estimate the cardinality of the output of each operator in your relational algebra plan.
    a. T(Emp_details) = 13, V(Emp_details, emp_dept) = 4
    b. T(Emp_department) = 5, V(Emp_department, dpt_allotment) = 5

PROBLEM 2
Borrowed from https://www.w3resource.com/sql-exercises/subqueries/index.php

DATABASE INSTANCE:

Emp_details

EMP_IDNO	EMP_FNAME	EMP_LNAME	EMP_DEPT
127323	Michale	Robbin	57
526689	Carlos	Snares	63
843795	Enric	Dosio	57
328717	Jhon	Snares	63
444527	Joseph	Dosni	47
659831	Zanifer	Emily	47
847674	Kuleswar	Sitaraman	57
748681	Henrey	Gabriel	47
555935	Alex	Manuel	57
539569	George	Mardy	27
733843	Mario	Saule	63
631548	Alan	Snappy	27
839139	Maria	Foster	57

Emp_department

DPT_CODE	DPT_NAME	DPT_ALLOTMENT
57	IT	65000
63	Finance	15000
47	HR	240000
27	RD	55000
89	QC	75000

QUESTIONS:

1. Write a query in SQL to find the *first name* and *last name* of employees working for departments whose allotment is *second lowest*.
2. Draw a Relational Algebra plan for your query.
3. Given the following statistics, estimate the cardinality of the output of each operator in your relational algebra plan.
    a. T(Emp_details) = 13, V(Emp_details, emp_dept) = 4
    b. T(Emp_department) = 5, V(Emp_department, dpt_allotment) = 5

HINT: First write the query / RA to find the *lowest* department allotment.
Next write the query / RA for the department with *second lowest* allotment.
Next write the full query / RA.