Task 2 (3 marks)
An objective of this task is to express the queries in a notation of the relational algebra expressions

Consider the following queries related to the relational tables included in `TPC-HR` sample database.

(1) Find the names of parts (`P_NAME`) ordered by the customers in `1994` (`year(O_ORDERDATE)`).

$project_{P\_NAME}($
        $(project_{L\_PARTKEY}($LINEITEM join
                $(select_{year(O\_ORDERDATE=1994)}($ORDERS$)))$join
                               PART$)$

(2) Find the names of customers (`C_NAME`) living in `Singapore` (`city(C_ADDRESS)`) and the names of suppliers (`S_NAME`) living in Sydney (`city(S_ADDRESS)`) ordered in the ascending order of names. Use an operation `sort` to order the names.

$sort_{C\_NAME\ or\ S\_NAME}$
$(select_{N\_NATION='Singapore'}($CUSTOMER join NATION$)$
 UNION
 $select_{N\_NATION='Sydney'}($SUPPLIER join NATION$))$

(3) Find the keys and the names of customers (`C_CUSTKEY, C_NAME`) who submitted no orders in `1994`.

$project_{C\_CUSTKEY,C\_NAME}($CUSTOMER antijoin
                          $select_{year(O\_ORDERDATE=1994)}($ORDERS$))$

Write the implementations of the queries listed above as expressions of the relational algebra.

Please note that you MUST use the relational algebra operations explained to you during the lecture classes in the subject AND NOT the operations used in the query processing plans created by the Oracle query optimizer.

Save the relational algebra expressions implementing the queries listed above in a file `solution2.pdf`.

Deliverables
A file `solution2.pdf` that contains implementation of the queries listed above as the expressions of the relational algebra. The handwritten and scanned/photographed implementations of the queries are acceptable. Please note that you MUST use the relational algebra operations explained to you during the lecture classes in the subject AND NOT the operations used in the query processing plans created by the Oracle query optimizer.