Task 3 (3 marks)
An objective of this task is to interpret a query processing plan created by a query optimizer and to draw a syntax tree of a query processing plan

Consider the following fragment of query processing plan.

```
--------------------------------------------------------------------------------
| Id  | Operation           | Name     | Rows  | Bytes | Cost (%CPU)| Time     |
---------------------------------------------------------------------------------
|   0 | SELECT STATEMENT    |          |   819 |   151K|  3100   (1)| 00:00:01 |
|*  1 |  HASH JOIN ANTI     |          |   819 |   151K|  3100   (1)| 00:00:01 |
|*  2 |   HASH JOIN         |          |  4418 |   776K|   402   (1)| 00:00:01 |
|*  3 |    TABLE ACCESS FULL| NATION   |     3 |    81 |    12   (0)| 00:00:01 |
|*  4 |    TABLE ACCESS FULL| CUSTOMER | 36818 |  5501K|   390   (1)| 00:00:01 |
|*  5 |   TABLE ACCESS FULL | ORDERS   |   450K|  3955K|  2697   (1)| 00:00:01 |
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Predicate Information (identified by operation id):
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   1 - access("C_CUSTKEY"="O_CUSTKEY")
   2 - access("C_NATIONKEY"="N_NATIONKEY")
   3 - filter("N_NAME"='ARGENTINA' OR "N_NAME"='AUSTRALIA' OR
              "N_NAME"='SINGAPORE')
   4 - filter("C_ACCTBAL">1000 AND "C_NATIONKEY">=0)
   5 - filter("O_TOTALPRICE">100 AND "O_CUSTKEY">=0)
```
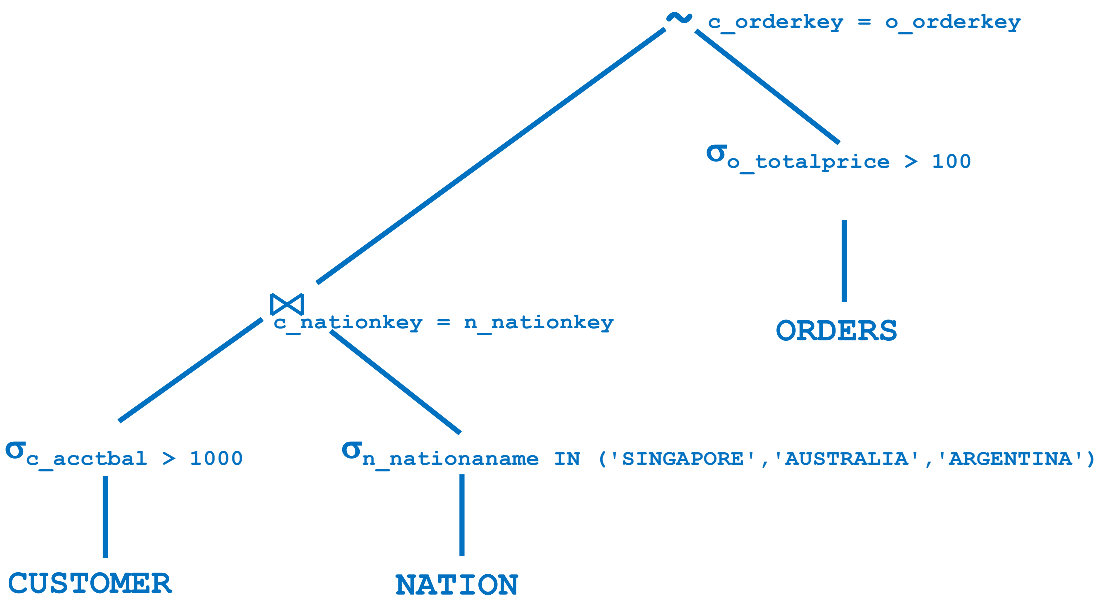

Find and draw a syntax tree of the query processing plan listed above. To draw a syntax tree, use the relational algebra operations explained during the lecture classes. Assume that the operations `HASH JOIN` and `HASH JOIN ANTI` used in a query processing plan is the same as the operations of join and antijoin in the relational algebra. Please remember, that you must create a syntax tree with the relational algebra operations explained to you during the lecture classes and NOT with the implementations of such operations by Oracle database system. Save a drawing of a syntax tree in a file `solution3.pdf`.

Deliverables
A file `solution3.pdf` with a drawing of syntax tree of the given query processing plan. A syntax tree must use the relational algebra operations explained to you during the lecture classes. You are allowed to use any line drawing tool to draw a syntax tree. A scanned/photographed copy of a neat hand drawing is also acceptable.

Solution


~ c_orderkey = o_orderkey
σo_totalprice > 100
ORDERS
⋈ c_nationkey = n_nationkey
σc_acctbal > 1000
σn_nationaname IN ('SINGAPORE','AUSTRALIA','ARGENTINA')
CUSTOMER
NATION

End of sample solution