SC3020 Database Systems Principles
Project 2
GitHub | Report | Dataset

Connect to Database

This project needs to connect to PostgreSQL database. If you have already set up the database with TPC-H, you can directly click the Connect button. Otherwise, you need to click the Load Data button, it will download and load the data automatically from Hugging Face. It will take a while as the data is a bit large.

Host	Port	Database	Username	Password
localhost	5432	mydb	sc3020	••••••

Connect   Load Data

Status
```
1  ▼ {
2      "status": "Connected",
3      "host": "localhost:5432",
4      "dbname": "mydb",
5      "user": "sc3020"
6  }
```
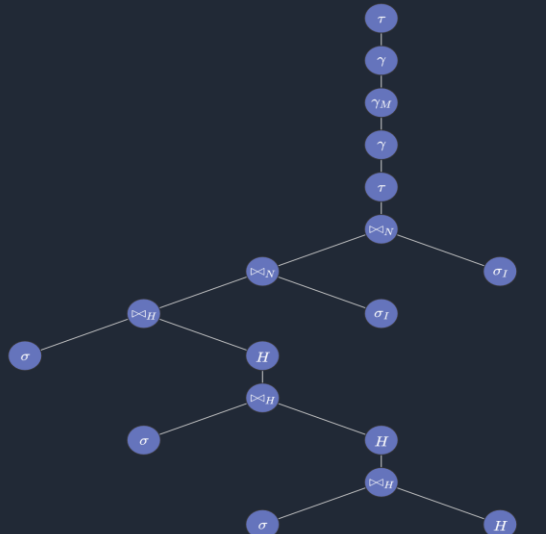
a)

Query
```
1   SELECT
2       n_name,
3       SUM(l_extendedprice * (1 - l_discount)) AS revenue
4   FROM
5       customer,
6       orders,
7       lineitem,
8       supplier,
9       nation,
10      region
11  WHERE
12      c_custkey = o_custkey
13      AND l_orderkey = o_orderkey
14      AND l_suppkey = s_suppkey
15      AND c_nationkey = s_nationkey
16      AND s_nationkey = n_nationkey
17      AND n_regionkey = r_regionkey
18      AND r_name = 'ASIA'
19      AND o_orderdate >= '1994-01-01'
20      AND o_orderdate < '1995-01-01'
21      AND c_acctbal > 10
22      AND s_acctbal > 20
23  GROUP BY
24      n_name
25  ORDER BY
26      revenue DESC;
```

Query Plan

b)

Estimate Startup Cost	Estimate Total Cost
811420.33	1429613.95

What if change scan to ...   What if change join to ...

Default   Default

Explain

Step 1: Perform Parallel Seq Scan on lineitem

Step 2: Perform Seq Scan on supplier and filtering on (s_acctbal > '20'::numeric)

Step 3: Perform Seq Scan on nation

Step 4: Perform Seq Scan on region and filtering on (r_name = 'ASIA'::bpchar)

Step 5: Perform Hash

Step 6: Perform Hash Join and do Hash with condition on (nation.n_regionkey = region.r_regionkey)

Step 7: Perform Hash

Step 8: Perform Hash Join and do Hash with condition on (supplier.s_nationkey = nation.n_nationkey)

c)

Result (Top 100 rows)

n_name	revenue
INDONESIA	45725603.5903
VIETNAM	45448434.1933
CHINA	42484738.5357
INDIA	42390691.0550
JAPAN	37556124.1326

Logs
```
1  ▼ {
2      "status": "Success",
3      "message": "Returned 5 rows",
4      "execution_time": "2.985 seconds"
5  }
```

d)