CSE6242 / CX4242: Data & Visual Analytics

Scaling Up
Hive

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Hive

Use SQL to run queries on large datasets

Developed at Facebook

Similar to Pig, Hive runs on client computer that submit jobs (no need to install on Hadoop cluster)

- You write **HiveQL** (Hive's query language), which gets converted into MapReduce jobs

Example: starting Hive

```
% hive
hive>


hive> SHOW TABLES;
OK
Time taken: 10.425 seconds
```

Example: create table, load data

```
CREATE TABLE records (year STRING, temperature INT,
quality INT)
ROW FORMAT DELIMITED
  FIELDS TERMINATED BY '\t';
```

Specify that data file is tab-separated

```
LOAD DATA LOCAL INPATH 'input/ncdc/micro-tab/sample.txt'
OVERWRITE INTO TABLE records;
```

Overwrite old file

This data file will be copied to Hive's internal **data directory**

Example: Query

```
hive> SELECT year, MAX(temperature)
    > FROM records
    > WHERE temperature != 9999
    >   AND (quality = 0 OR quality = 1 OR quality = 4 OR
quality = 5 OR quality = 9)
    > GROUP BY year;
1949    111
1950    22
```

So simple and boring! Or is it?

Same thing done with Pig

```
records = LOAD 'input/ ncdc/ micro-tab/ sample.txt'
  AS (year:chararray, temperature:int, quality:int);

filtered_records =
  FILTER records BY temperature != 9999
  AND (quality = = 0 OR quality = = 1 OR
       quality = = 4 OR quality = = 5 OR
       quality = = 9);

grouped_records = GROUP filtered_records BY year;

max_temp = FOREACH grouped_records GENERATE
  group, MAX( filtered_records.temperature);

DUMP max_temp;
```