Exam 2020

1. Write a query that allows you to inspect the schema of the naep table.

SELECT column\_name, data\_type

FROM information\_schema.columns

WHERE table\_name = 'naep';

2. Continue to follow these conventions in this exam and beyond

select \*

from naep

limit 50

3. Write a query that returns summary statistics for avg\_math\_4\_score by state. Make sure to sort the results alphabetically by state name.

SELECT state,

COUNT(\*) as count,

AVG(avg\_math\_4\_score) as avg,

MIN(avg\_math\_4\_score) as min,

MAX(avg\_math\_4\_score) as max FROM naep

GROUP BY state

ORDER BY state ASC;

4. Write a query that alters the previous query so that it returns only the summary statistics for avg\_math\_4\_score by state with differences in max and min values that are greater than 30.

SELECT state, count(\*), avg(avg\_math\_4\_score) as avg , min(avg\_math\_4\_score) as minimum, max(avg\_math\_4\_score) as maximum

FROM naep

GROUP BY state

HAVING MAX(avg\_math\_4\_score) - MIN(avg\_math\_4\_score) > 30 ORDER BY state;

5. Write a query that returns a field called bottom\_10\_states that lists the states in the bottom 10 for avg\_math\_4\_score in the year 2000.

SELECT state AS bottom\_10\_states

FROM naep

WHERE year = '2000'

ORDER BY avg\_math\_4\_score

LIMIT 10;

6. Write a query that calculates the average avg\_math\_4\_score rounded to the nearest 2 decimal places over all states in the year 2000

SELECT round(AVG(avg\_math\_4\_score), 2)

FROM naep

WHERE year = '2000';

7. Write a query that returns a field called below\_average\_states\_y2000 that lists all states with an avg\_math\_4\_score less than the average over all states in the year 2000.

SELECT state below\_average\_states\_y2000

FROM naep

WHERE avg\_math\_4\_score < (

SELECT ROUND(AVG(avg\_math\_4\_score), 2) avg\_math4\_2000

FROM naep

WHERE year = 2000)

AND year = 2000;

8. Write a query that returns a field called scores\_missing\_y2000 that lists any states with missing values in the avg\_math\_4\_score column of the naep data table for the year 2000.

SELECT state as scores\_missing\_y2000

FROM naep

WHERE year = '2000' AND avg\_math\_4\_score IS NULL;

9. Be sure to round avg\_math\_4\_score to the nearest 2 decimal places, and then filter out NULL from avg\_math\_4\_scores in order to see the results more clearly.

SELECT naep.state, ROUND(naep.avg\_math\_4\_score, 2) as round, finance.total\_expenditure

FROM naep LEFT OUTER JOIN finance ON naep.id = finance.id

WHERE naep.year = '2000'

AND avg\_math\_4\_score IS NOT NULL ORDER BY finance.total\_expenditure DESC;