

JOHNATHAN WITH

BUSINESS INTELLIGENCE PORTFOLIO

PREPARED FOR

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DAX and SQL examples available at: https://github.com/WithNuggets/portfolio_examples

MICROSOFT POWER BI

PROFESSIONAL WORK DEMONSTRATION

Microsoft Power BI Data Model 1:

The data model below is for a Gradebook report that is used internally to analyze grades based on schools, courses, periods, teachers, and more. The data model is constructed in a star schema with the dimension tables built around the main fact table. The schema was built from SQL queries written against the data in the warehouse and is pulled in.



Microsoft Power BI Data Model 2:

The data model below is for a Student Information System report that pulls in everything and anything related to a student - attendance, grades, enrollment, test history, etc. - which is why the data model is rather large and built in a snowflake schema. This is the largest data model in terms of individual tables that has been produced for the district.



Course Grade DAX:

The DAX below calculates a student's overall score in a given course. The student's overall score is determined by taking 20% of their Daily Activities grade, 30% of their Quizzes grade, and 50% of their Tests grade. These are added together to determine the overall score. These percentages are established in the last three variables.

However, there are cases where one or more categories do not have grades, so the calculation must be adjusted for these situations.

```

1 _GradeClass =
2     VAR DA = [_GradeDaily]
3     VAR Q = [_GradeQuiz]
4     VAR T = [_GradeTest]
5     VAR DAW = 0.2
6     VAR QW = 0.3
7     VAR TW = 0.5
8
9     RETURN
10    IF(
11        // Grades in all assignment types
12        DA <> "N/A" && Q <> "N/A" && T <> "N/A"
13        , (DA * DAW) + (Q * QW) + (T * TW)
14        // No Daily Activities
15        , IF(
16            DA = "N/A" && Q <> "N/A" && T <> "N/A"
17            , (Q * (QW * DIVIDE(10, 8))) + (T * (TW * DIVIDE(10, 8)))
18            // No Quizzes
19            , IF(
20                DA <> "N/A" && Q = "N/A" && T <> "N/A"
21                , (DA * (DAW * DIVIDE(10, 7))) + (T * (TW * DIVIDE(10, 7)))
22                // No Tests
23                , IF(
24                    DA <> "N/A" && Q <> "N/A" && T = "N/A"
25                    , (DA * (DAW * 2)) + (Q * (QW * 2))
26                    // Only Daily Activities
27                    , IF(
28                        DA <> "N/A" && Q = "N/A" && T = "N/A"
29                        , DA
30                        // Only Quizzes
31                        , IF(
32                            DA = "N/A" && Q <> "N/A" && T = "N/A"
33                            , Q
34                            // Only Tests
35                            , IF(
36                                DA = "N/A" && Q = "N/A" && T <> "N/A"
37                                , T
38                                // ERROR
39                                , "UH OH"))))))))
```

Color Condition DAX:

The DAX below assigns a number to scores based on the year and score range the test score falls under. For this example, i-Ready percentile ranks are separated into four categories, but the ranges changed starting in the 2019-2020 school year. A value of 4 corresponds to red (lacking), 3 to yellow (growing), 2 to green (proficient), and 1 to blue (mastery). These values can then be used to assign the proper colors to a visual (See Page 12, Top Visual for example).

```

1 _ColorCondition = MAXX(Scores,
2     IF(
3         SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) > 0 && AVERAGE(Scores[Score]) < 12, 4
4         ,IF(
5             SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) >= 12 && AVERAGE(Scores[Score]) < 25, 3
6             ,IF(
7                 SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) >= 25 && AVERAGE(Scores[Score]) < 50, 2
8                 ,IF(
9                     SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) >= 50, 1,
10                     IF(
11                         SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) > 0 && AVERAGE(Scores[Score]) < 9, 4
12                         ,IF(
13                             SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) >= 9 && AVERAGE(Scores[Score]) < 25, 3
14                             ,IF(
15                                 SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) >= 25 && AVERAGE(Scores[Score]) < 50, 2
16                                 ,IF(
17                                     SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) >= 50, 1,
18                                     0))))))))))
```

Honor Roll DAX:

The DAX shown right calculates the percent of students who were on the honor roll for Quarter 1 based on having a GPA of 3.0 or higher.

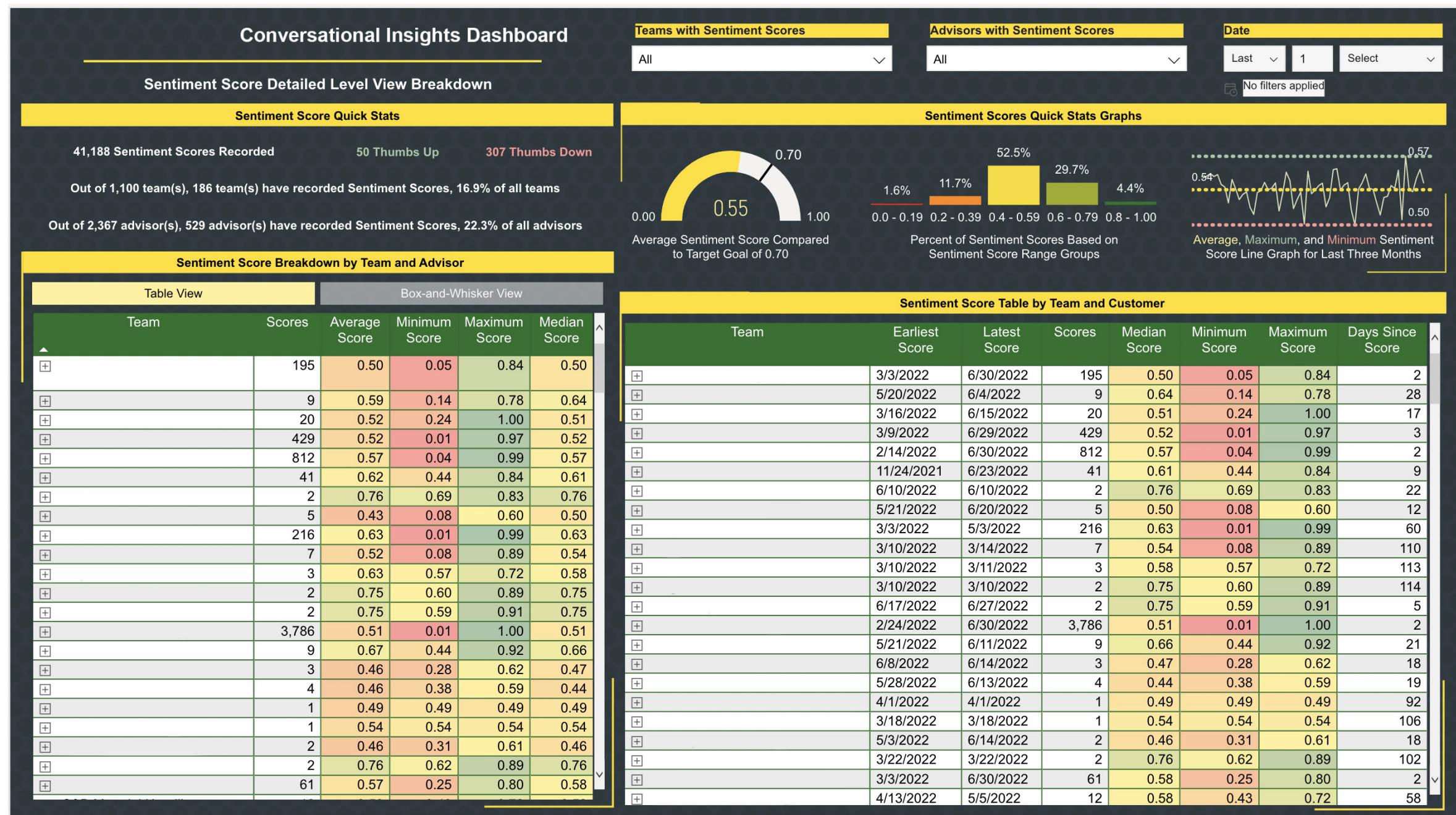
The first section counts students in the current school year who are enrolled and a non-blank GPA of 3.0 or higher. The second section counts all unique students with a non-blank GPA.

```

1 _04AHonorRollQ1 =
2     DIVIDE(
3         CALCULATE(
4             DISTINCTCOUNT(FactMain[StudentId])
5             , FactMain[AcademicYear] = "2020-2021"
6             , FILTER(FactMain, [_GPAQ1] >= 3)
7             , FactMain[EndDate] = BLANK()
8             , VALUE(GPA[CumulativeGPA]) <> BLANK())
9         , CALCULATE(
10             DISTINCTCOUNT(FactMain[StudentId])
11             , FactMain[AcademicYear] = "2020-2021"
12             , FactMain[EndDate] = BLANK()
13             , VALUE(GPA[CumulativeGPA]) <> BLANK()))
```

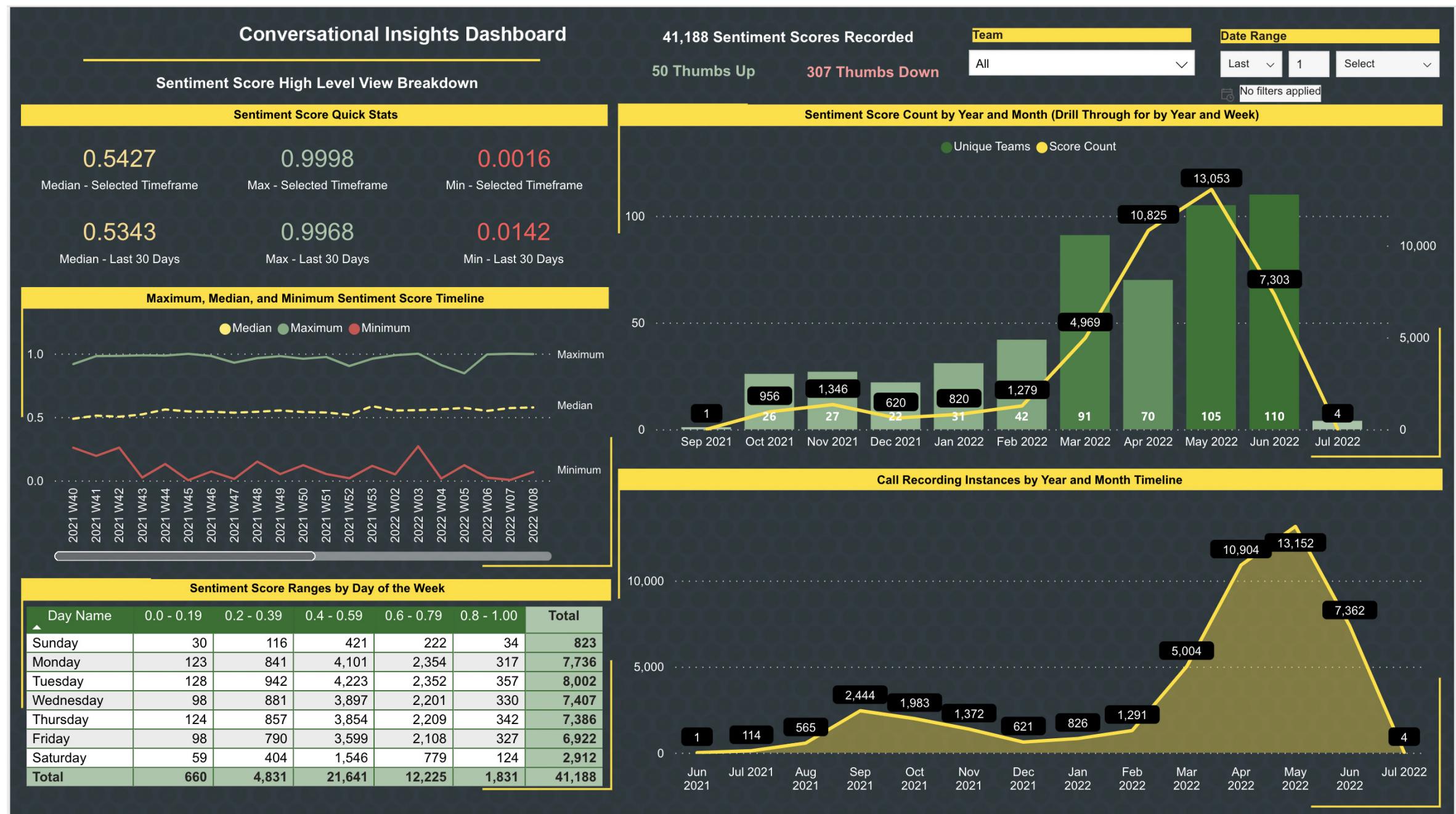
Sentiment Scores (1):

The dashboard tab below showcases visualized data for Sentiment Scores data gathered from conversations with customers. This goes into more detail views based on the team that conversation was had with with stepped options for either advisor or customer in the two tables. There are some quick stats that provide insights at a glance such as distribution of scores and teams or advisors with scores.



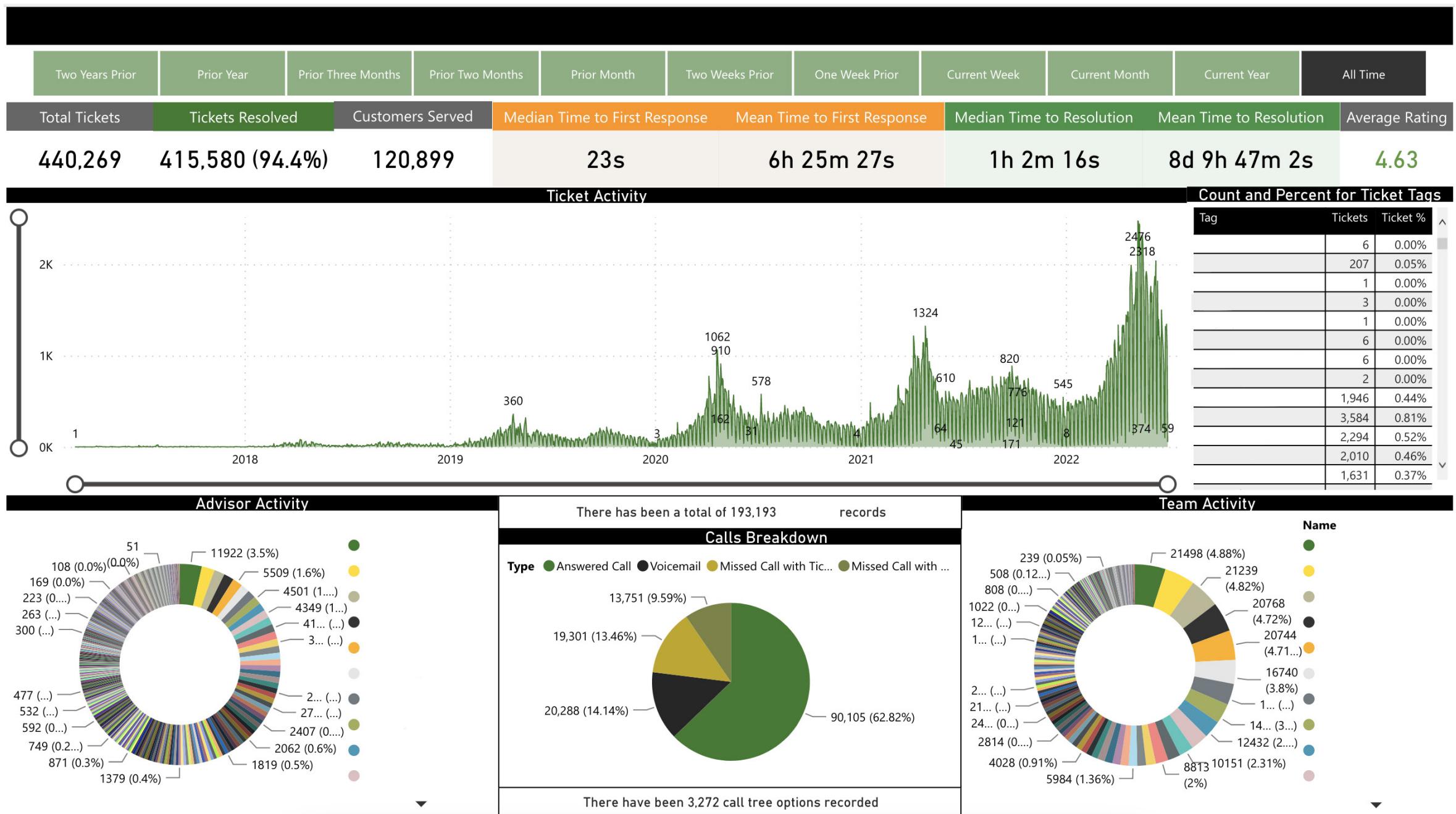
Sentiment Scores (2):

The dashboard tab below showcases visualized data for Sentiment Scores data gathered from conversations with customers. This goes into more high-level view to see where scores are ranging based on selected date ranges. This provides a look at how scores changes by day of the week along with the count over time.



Insights:

The dashboard tab below showcases visualized data for ticket data. Based on the select range, insights on tickets resolved, time to first response or resolution, and rating can be seen quickly. Ticket activity over time along with what teams and/or advisors are most active can be seen. The majority of visuals on this tab have tooltip hovers that provide a deeper look into each metric.



Assessment Report (1):

The dashboard tab below showcases visualized data for the Advanced Progress Monitoring (APM) test given by the district twice a year to judge a student's understanding in math and reading. There are filters at the top to sort, a reset page button to reset all filters, along with various visuals to show the breakdown in proficiency changes between the two diagnostics.

Reset Page

Year Grade School Gender Race ELL ESE ELL Code ESE Code LearningOption

All All All All All All All All All All

Assessment Report

03/15/2021
Last Test Score Update

APM
CQA/PMT
FSA
i-Ready

APM1 Proficiency Levels

| Proficiency | Math Proficiency | Reading Proficiency |
|--------------------|------------------|---------------------|
| Below Satisfactory | 1167 | 1815 |
| Inadequate | 2945 | 3280 |
| Satisfactory | 755 | 1500 |
| Proficient | 253 | 1172 |
| Mastery | 58 | 769 |

APM2 Proficiency Levels

| Proficiency | Math Proficiency | Reading Proficiency |
|--------------------|------------------|---------------------|
| Below Satisfactory | 1307 | 1881 |
| Inadequate | 2659 | 3192 |
| Satisfactory | 1169 | 1684 |
| Proficient | 560 | 1486 |
| Mastery | 183 | 988 |

| Part | Proficiency | APM1 | APM2 | Change |
|-------|--------------------|-------|-------|--------|
| MP | Below Satisfactory | 1167 | 1307 | 140 |
| MP | Inadequate | 2945 | 2659 | -286 |
| MP | Satisfactory | 755 | 1169 | 414 |
| MP | Proficient | 253 | 560 | 307 |
| MP | Mastery | 58 | 183 | 125 |
| RP | Below Satisfactory | 1815 | 1881 | 66 |
| RP | Inadequate | 3280 | 3192 | -88 |
| RP | Satisfactory | 1500 | 1684 | 184 |
| RP | Proficient | 1172 | 1486 | 314 |
| RP | Mastery | 769 | 988 | 219 |
| Total | | 13714 | 15109 | 1395 |

Quick Stats:
Avg. Math APM1 SS: 300
Avg. Reading APM1 SS: 321
Avg. Math APM2 SS: 306
Avg. Reading APM2 SS: 322

Select a Domain (Only Affects Bottom Visuals)

| | | |
|-------------------------|------------------------------------|-----------------------------------|
| Geometry | Measurement and Data | Operations and Algebraic Thinking |
| Language | Numbers and Operations - Fractions | Reading Information Text |
| Listening Comprehension | Numbers and Operations in Base 10 | Reading Literature |

APM1 Breakdown

| Performance | Percentage |
|------------------|------------|
| Above Standard | 9% |
| At/Near Standard | 18.56% |
| Below Standard | 20.78% |
| n/a | 51.66% |

239
Above Standard Change

94
At/Near Standard Change

-383
Below Standard Change

750
N/A Change

APM2 Breakdown

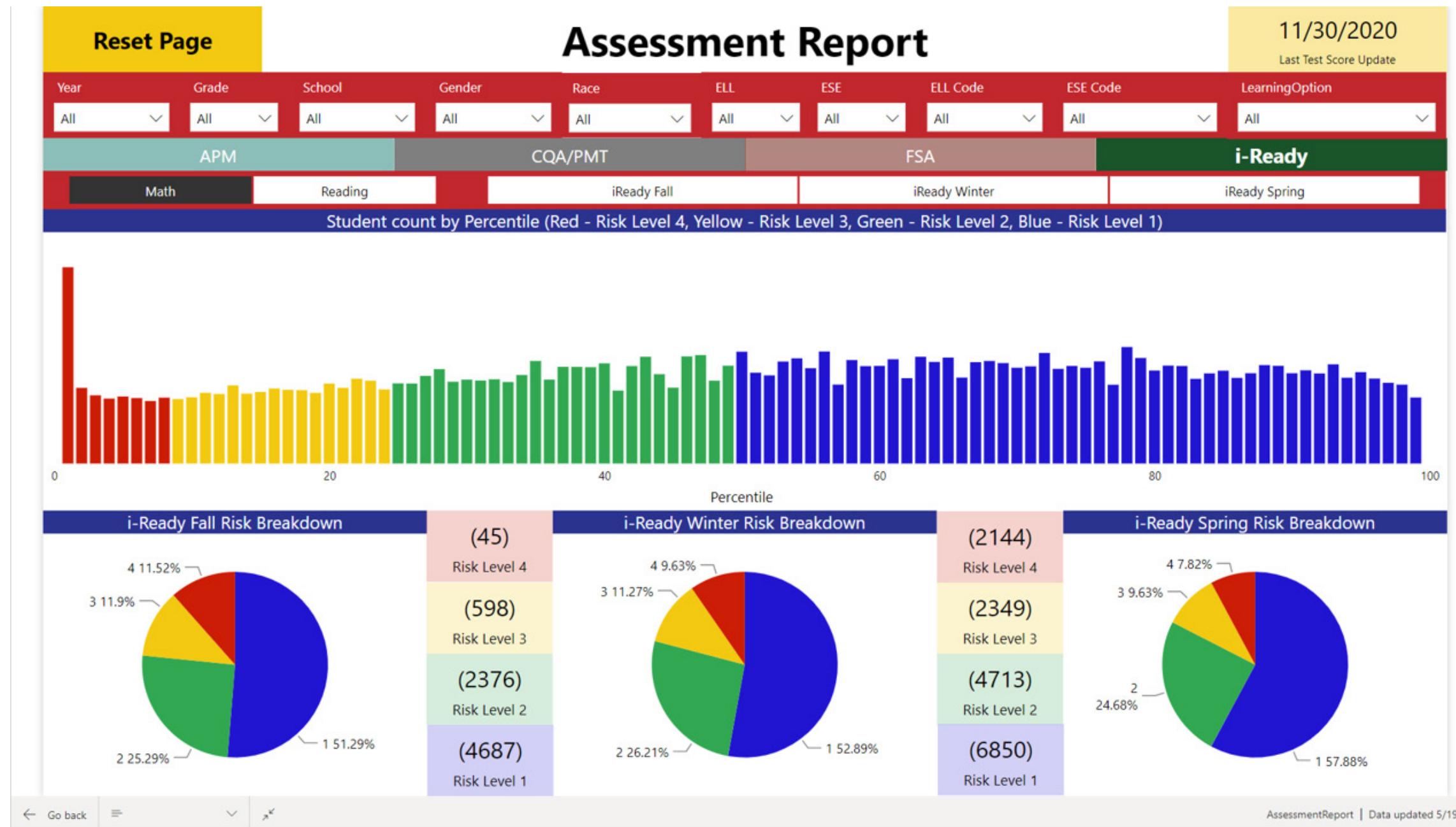
| Performance | Percentage |
|------------------|------------|
| Above Standard | 11.99% |
| At/Near Standard | 17.95% |
| Below Standard | 11.79% |
| n/a | 58.27% |

Go back
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AssessmentReport | Data updated 5/19/21

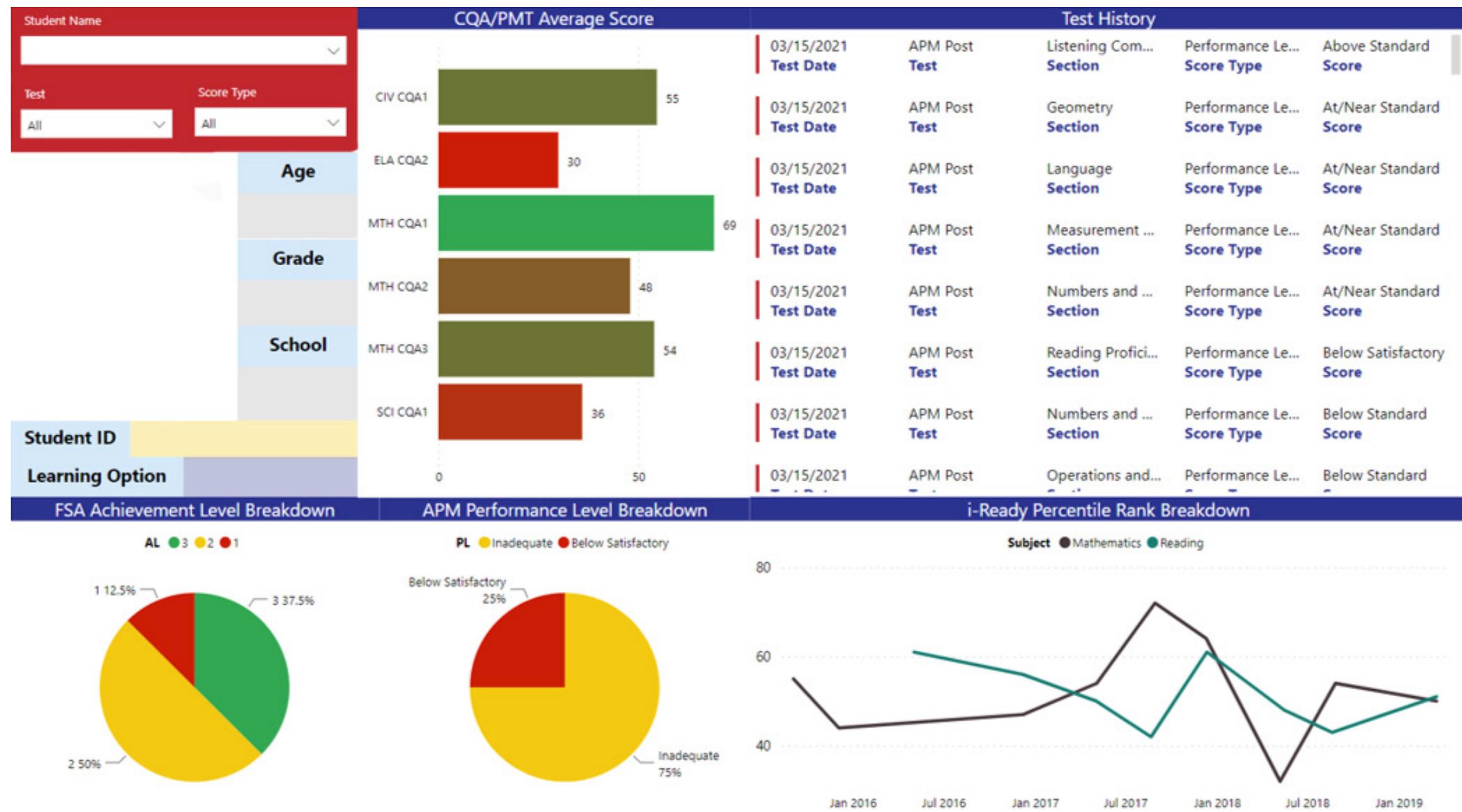
Assessment Report (2):

The dashboard tab below showcases visualized data for the i-Ready test given by the district three times a year to primarily Elementary students. There are filters at the top to sort, a reset page button to reset all filters, along with various visuals to show Reading Risk Level (previously mentioned in the DAX section) along with the changes in Reading Risk Level between the three diagnostic windows.



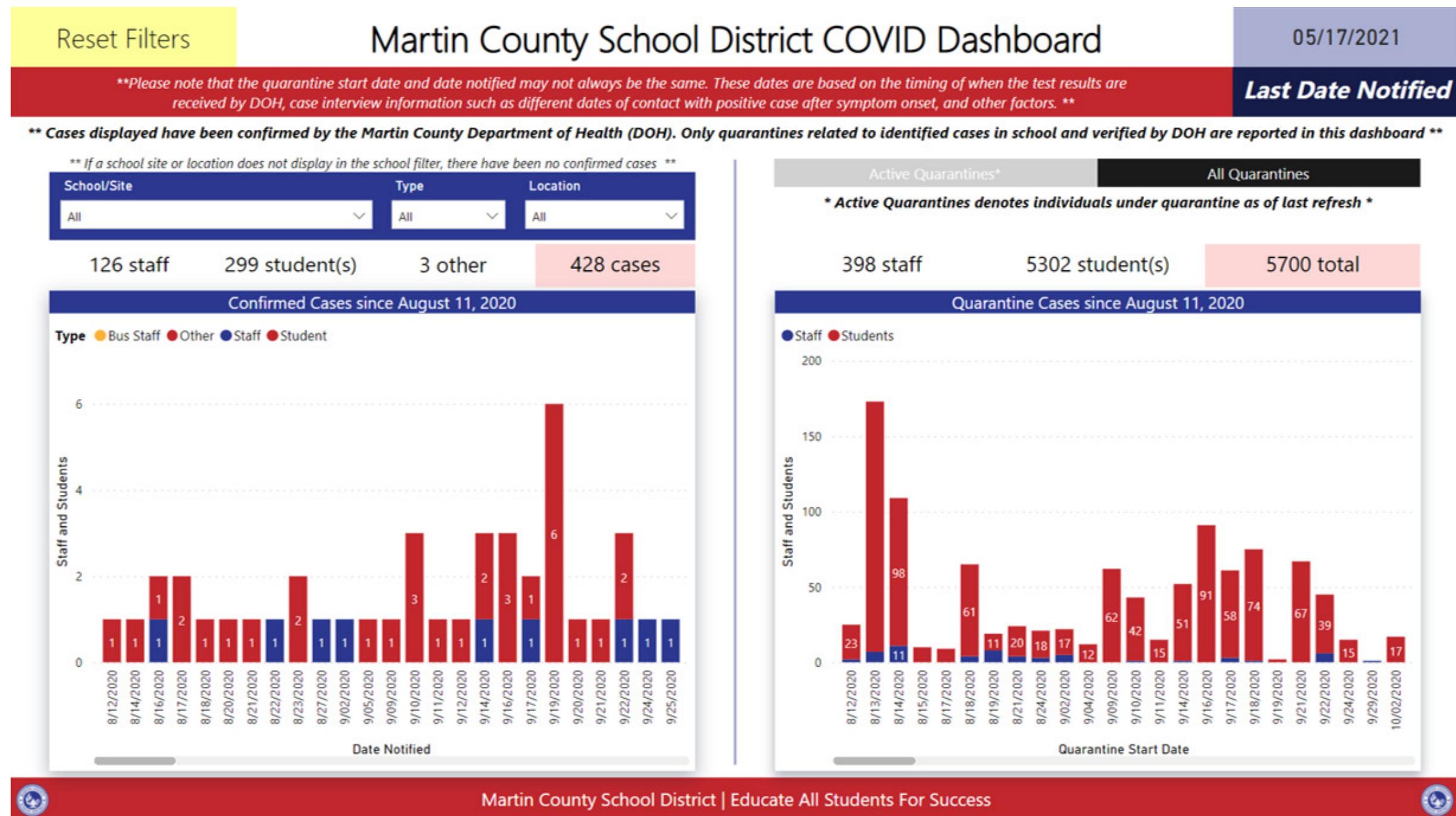
Assessment Report (3):

The dashboard tab below showcases visualized assessment data for an individual student. Some items have been removed due to privacy reasons. However, the main visuals have not been touched and all the assessment data for the four assessments contained within the report can be viewed clearly in one page and can be captured as a screenshot for further usage.



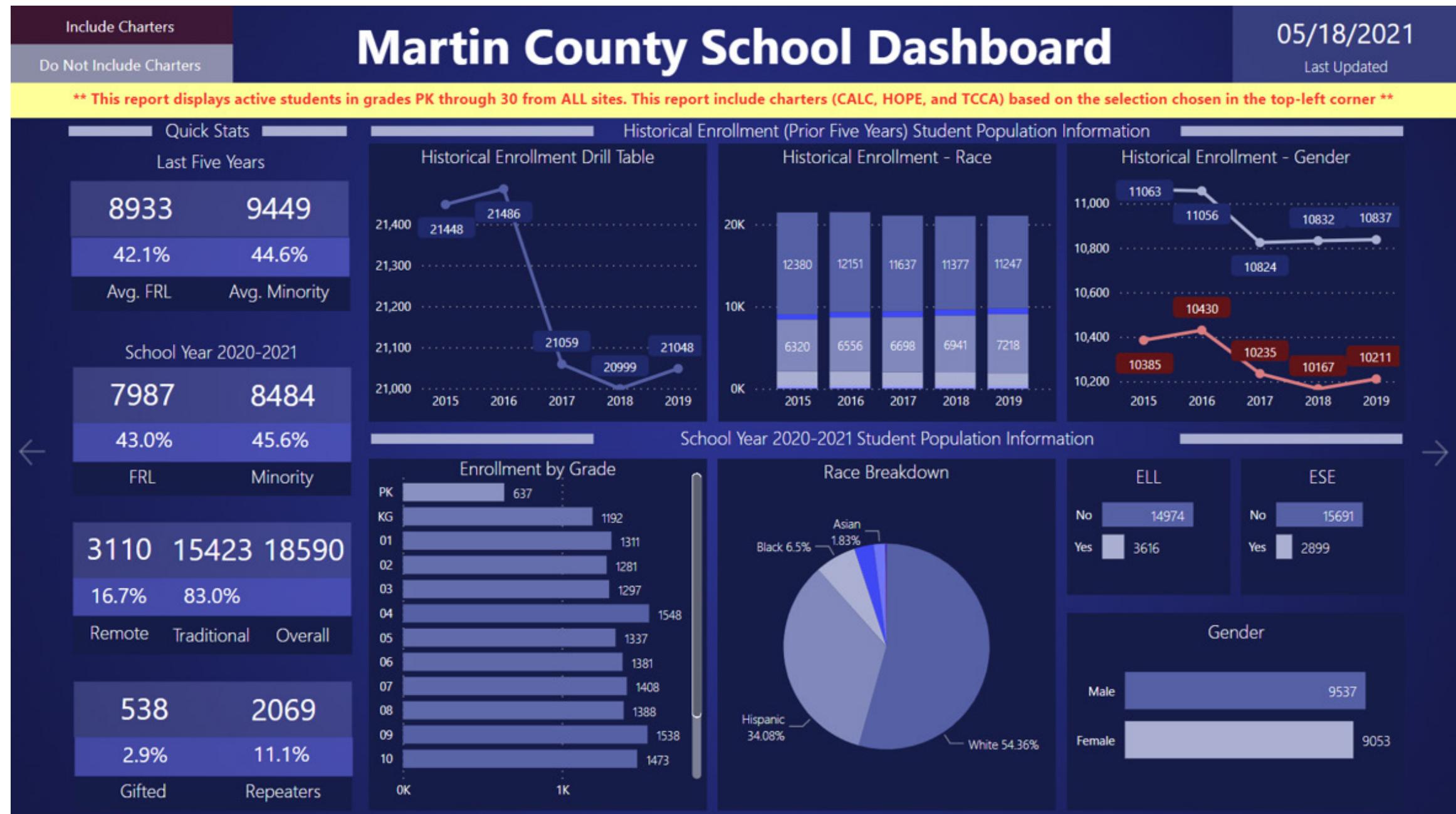
COVID Public Dashboard:

The dashboard below showcases data collected by the district pertaining to COVID quarantines and cases within the school for staff, students, vendors, and others who work with the district. This dashboard, along with others, are available for public viewing at <https://www.martinschools.org/Page/9899>.



Overview Dashboard:

The dashboard tab is part of the Overview Dashboard that gives a introduction to the district along with various trend data over the past five years. This dashboard, along with others, are available for public viewing at <https://www.martinschools.org/Page/9899>.

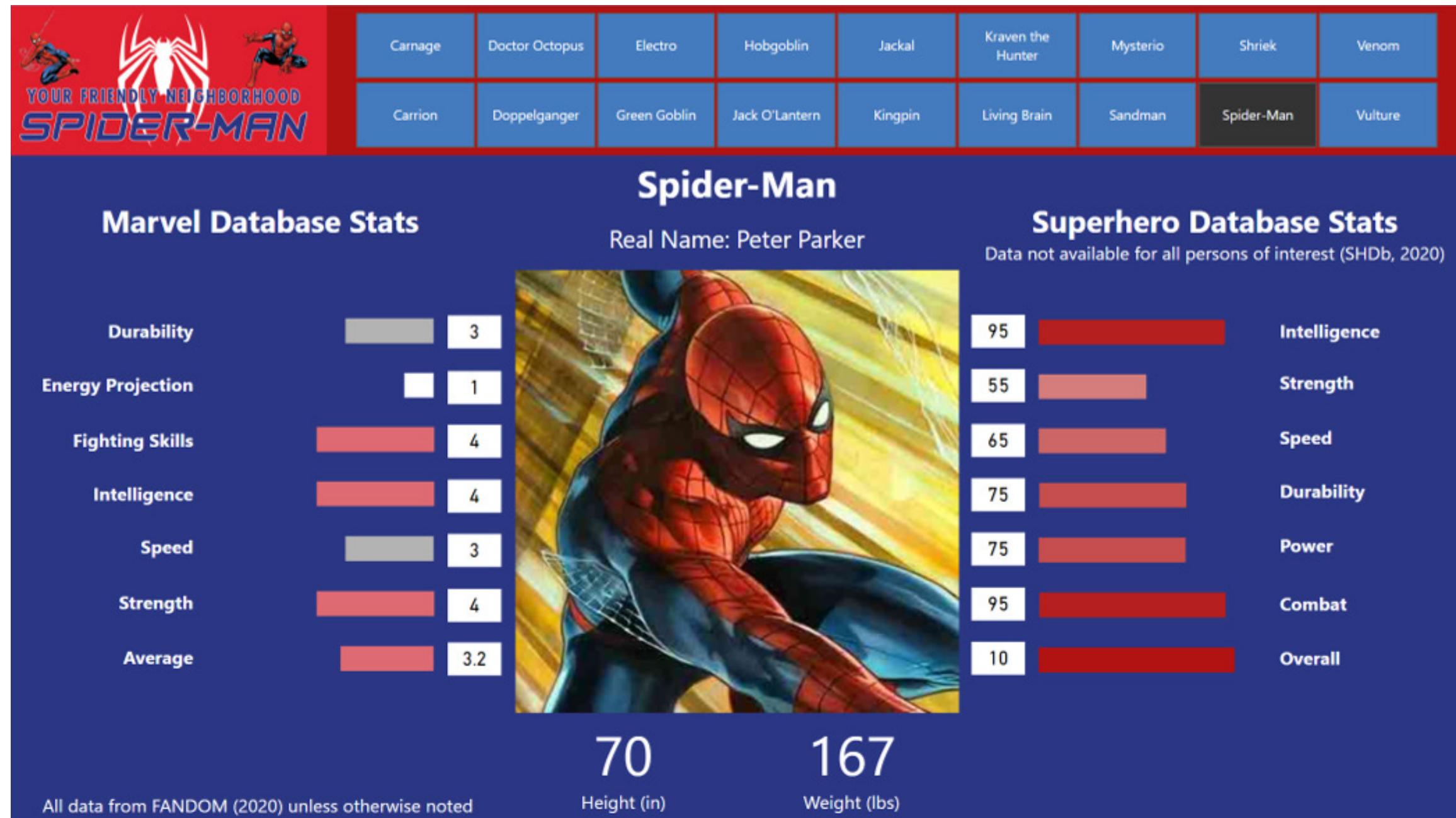


MICROSOFT POWER BI

ACADEMIC WORK DEMONSTRATION

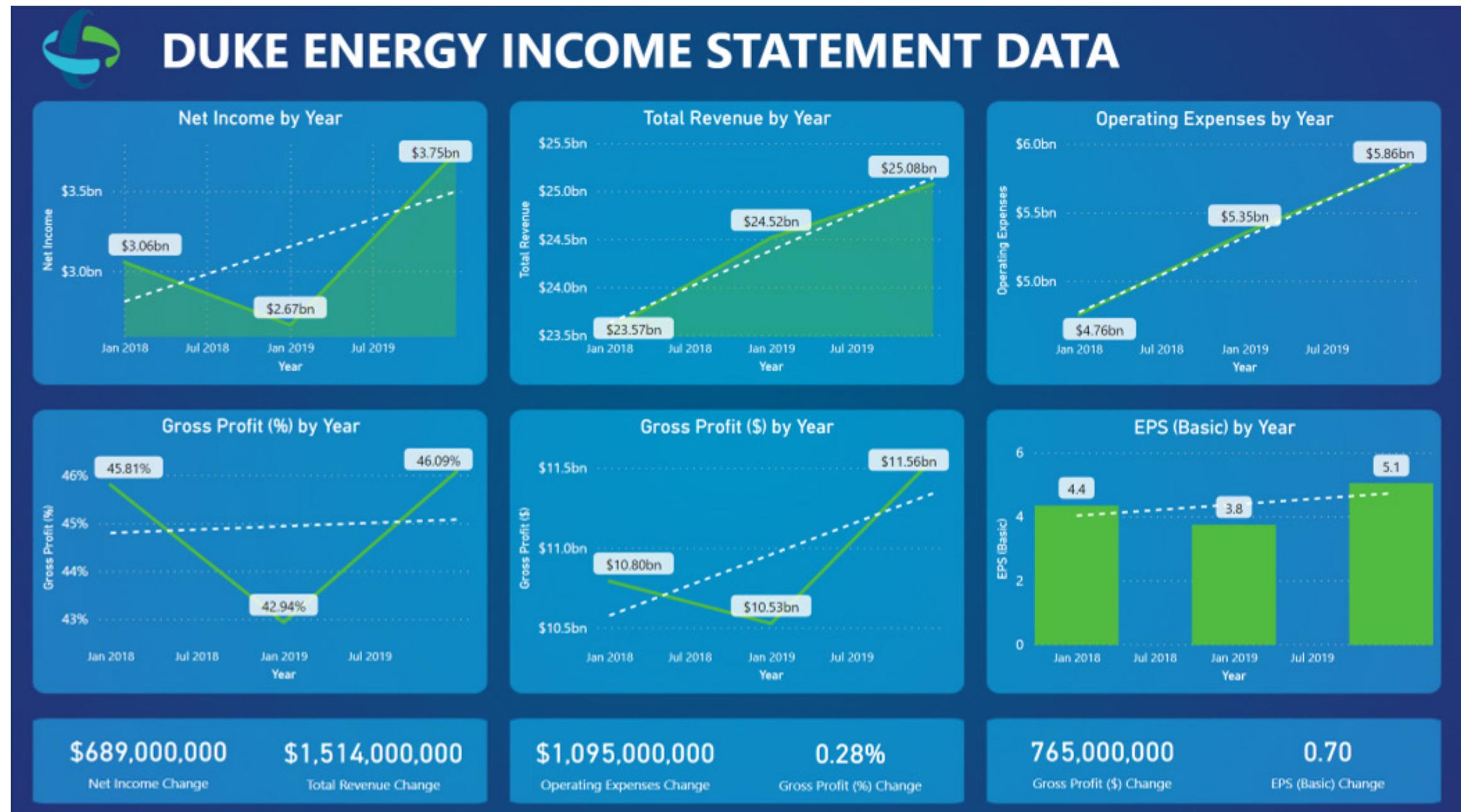
Spider-Man Report:

The tab shown below is from an assignment for data revolving around a superhero of choice. In this case, Spider-Man was used and this displayed Spider-Man's skill level based on two databases along with general information like Spider-Man's real name, his height, and his weight. More of this report and the associated dashboard can be viewed in the [Full Sail Video Portfolio](#).



Duke Energy Report:

The tab below shows income statement visuals related to Duke Energy from January 2018 until the end of 2019. There are visuals that show changes over time along with calculated changes in the six card visuals at the bottom. More of this report, the associated dashboard, and other Duke Energy related data can be viewed in the [Full Sail Video Portfolio](#).



Full Sail University Video Portfolio:

The Video Portfolio for some of the work completed while at Full Sail University for the Business Intelligence program can be found by [clicking this link](#) or clicking the image below.

JOHNATHAN HOCKER

Full Sail University Video Portfolio