JOHNATHAN WITH
BUSINESS INTELLIGENCE PORTFOLIO

PREPARED FOR

JOHN DEERE

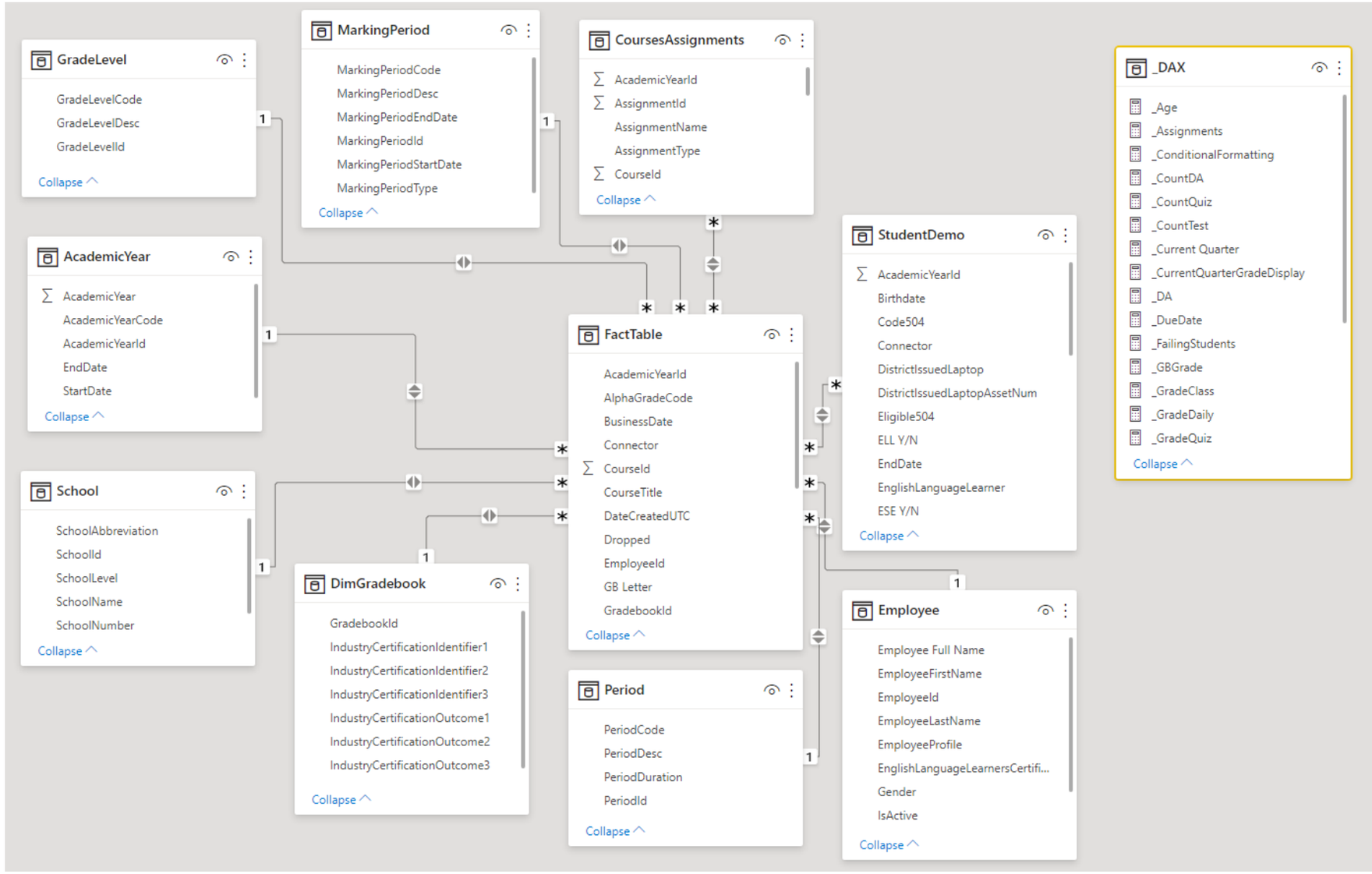
DAX and SQL examples available at: https://github.com/WithNuggets/portfolio_examples

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.

```
_GradeClass =
        VAR DA = [_GradeDaily]
        VAR Q =  [_GradeQuiz]
        VAR T =  [_GradeTest]
        VAR DAw = 0.2
        VAR Qw =  0.3
        VAR Tw =  0.5

        RETURN
            IF(
                // Grades in all assignment types
                DA <> "N/A" && Q <> "N/A" && T <> "N/A"
                , (DA * DAw) + (Q * Qw) + (T * Tw)
                // No Daily Activities
            , IF(
                DA = "N/A" && Q <> "N/A" && T <> "N/A"
                , (Q * (Qw * DIVIDE(10, 8))) + (T * (Tw * DIVIDE(10, 8)))
                // No Quizzes
            , IF(
                DA <> "N/A" && Q = "N/A" && T <> "N/A"
                , (DA * (DAw * DIVIDE(10, 7))) + (T * (Tw * DIVIDE(10, 7)))
                // No Tests
            , IF(
                DA <> "N/A" && Q <> "N/A" && T = "N/A"
                , (DA * (DAw * 2)) + (Q * (Qw * 2))
                // Only Daily Activities
            , IF(
                DA <> "N/A" && Q = "N/A" && T = "N/A"
                , DA
                // Only Quizzes
            , IF(
                DA = "N/A" && Q <> "N'A" && T = "N/A"
                , Q
                // Only Tests
            , IF(
                DA = "N/A" && Q = "N/A" && T <> "N/A"
                , T
                // ERROR
            , "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.

```
_ColorCondition = MAXX(Scores,
        IF(
        SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) > 0 && AVERAGE(Scores[Score]) < 12, 4
        ,IF(
        SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) >= 12 && AVERAGE(Scores[Score]) < 25, 3
        ,IF(
        SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) >= 25 && AVERAGE(Scores[Score]) < 50, 2
        ,IF(
        SELECTEDVALUE(Scores[Year]) >= 2019 && AVERAGE(Scores[Score]) >= 50, 1,
        IF(
        SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) > 0 && AVERAGE(Scores[Score]) < 9, 4
        ,IF(
        SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) >= 9 && AVERAGE(Scores[Score]) < 25, 3
        ,IF(
        SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) >= 25 && AVERAGE(Scores[Score]) < 50, 2
        ,IF(
        SELECTEDVALUE(Scores[Year]) < 2019 && AVERAGE(Scores[Score]) >= 50, 1,
        0)))))))))
```

Honor Roll DAX:

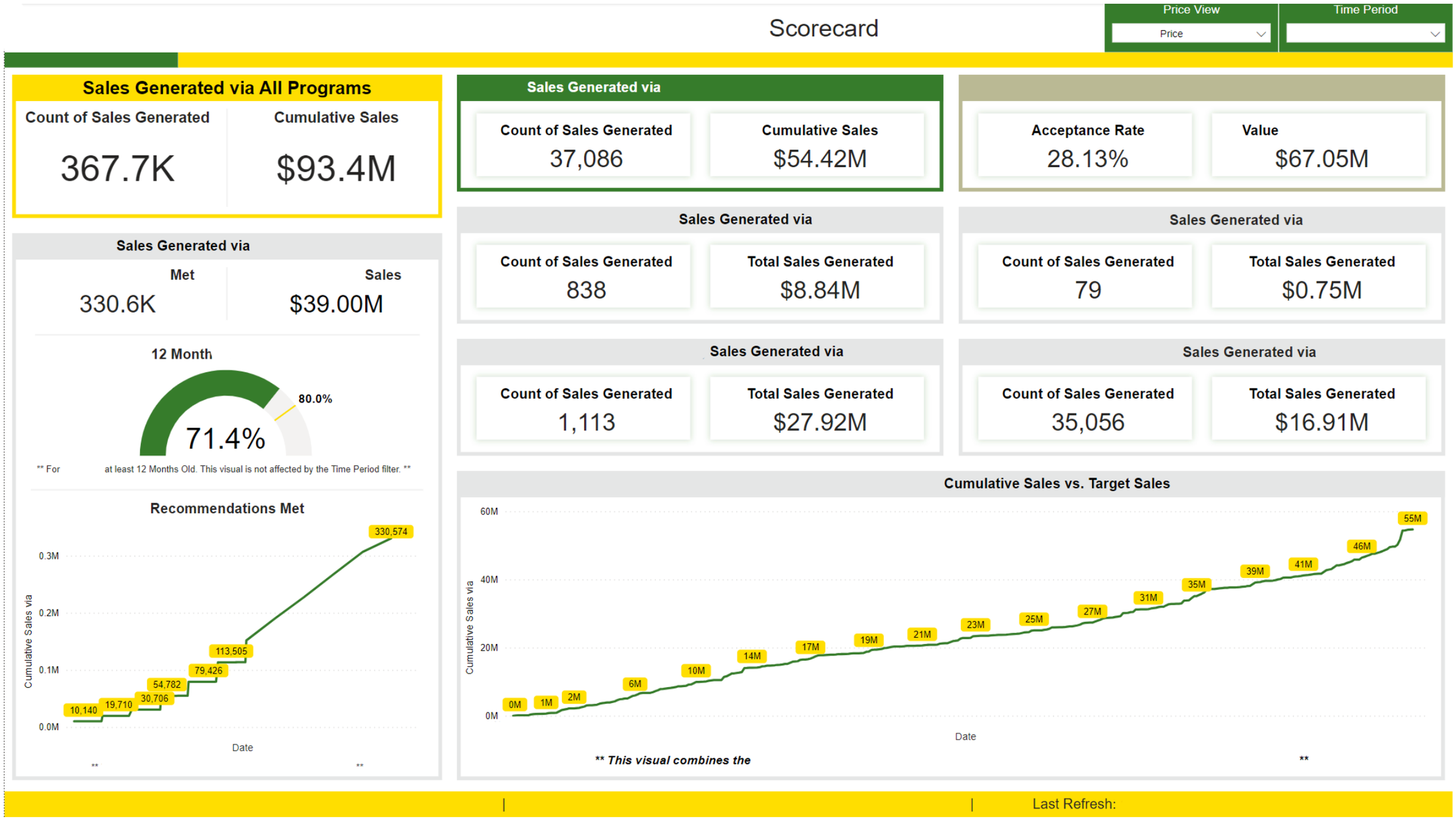
The DAX shown right calculates the percent of students who were on the honor roll for Quarter 1 based on having a GPA of 3.0 or higher.

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.

```
_04AHonorRollQ1 =
    DIVIDE(
        CALCULATE(
            DISTINCTCOUNT(FactMain[StudentId])
            , FactMain[AcademicYear] = "2020-2021"
            , FILTER(FactMain, [_GPAQ1] >= 3)
            , FactMain[EndDate] = BLANK()
            , VALUE(GPA[CumulativeGPA]) <> BLANK())
        , CALCULATE(
            DISTINCTCOUNT(FactMain[StudentId])
            , FactMain[AcademicYear] = "2020-2021"
            , FactMain[EndDate] = BLANK()
            , VALUE(GPA[CumulativeGPA]) <> BLANK()))
```

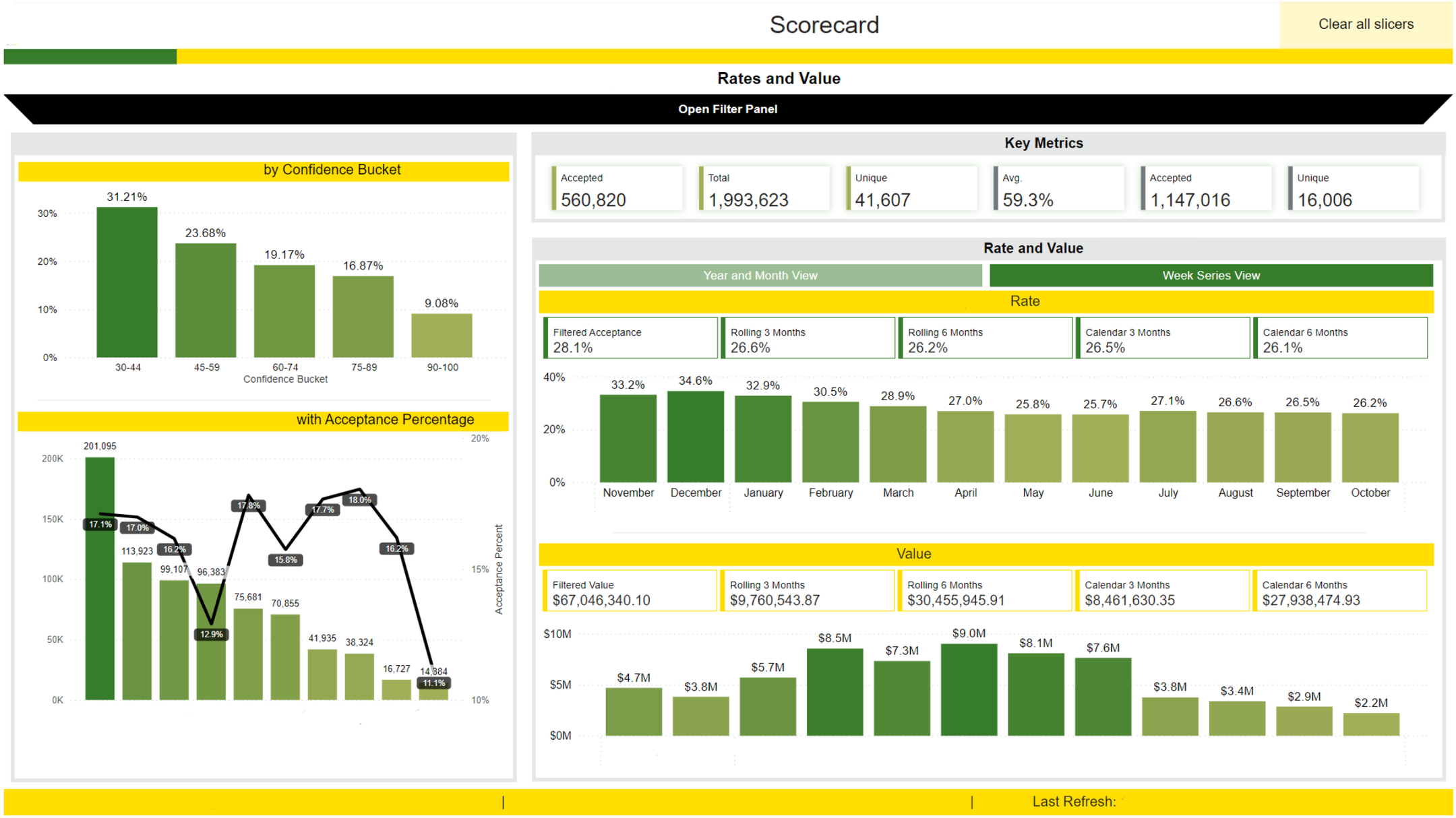
Scorecard (1):

The dashboard below compiles sales counts and totals from various programs together to showcase the impact of a team's effort across multiple spaces. All items in grey roll up to the values displayed in the yellow box. This dashboard is used to track multiple goals such as sales generated and year-over-year growth of the programs being captured.



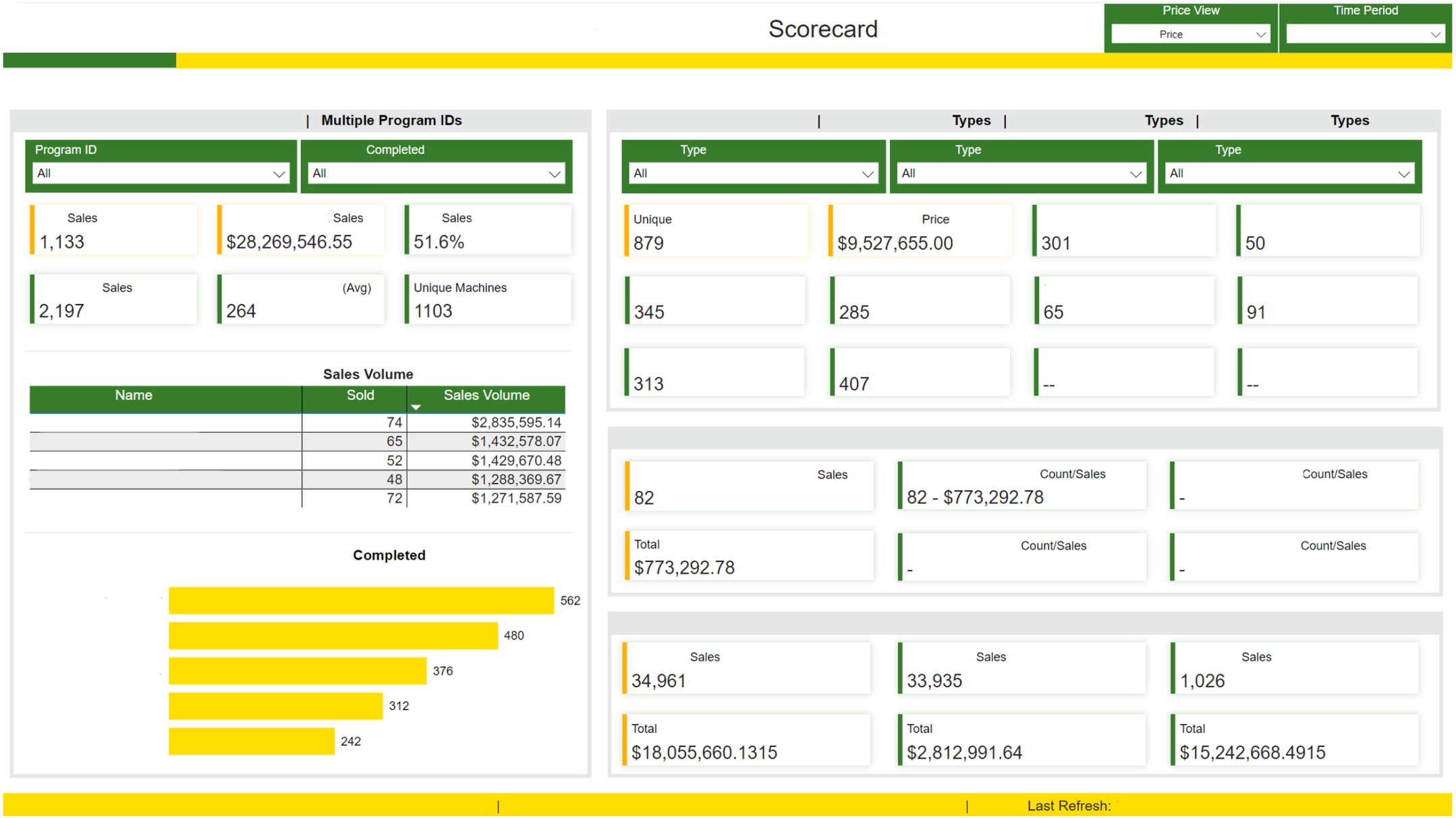
Scorecard (2):

The dashboard tab below focuses in-depth on a specific program from the prior page, breaking down how the program is doing in capturing acceptance rates and monetary value added as a result of successful entries. The left side of the tab magnifies acceptance of specific items within the program along with how those items were categorized based on a predetermined confidence value.



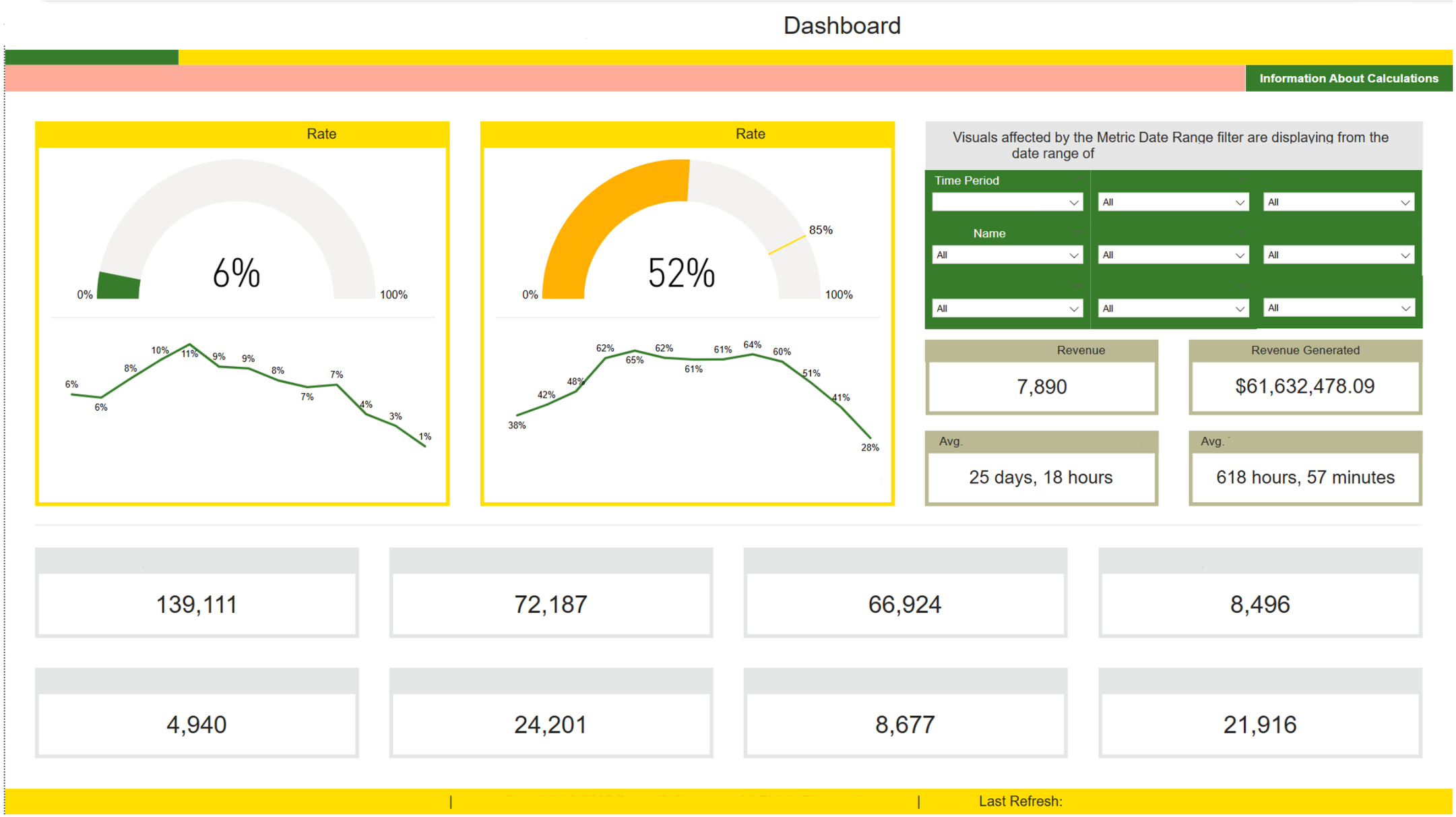
Scorecard (3):

The dashboard tab below takes a group of programs from the first Scorecard page and presents a summary-level one-pager on those individual programs. Setup to be able to be screenshot and presented to stakeholders and leadership with ease, this tab allows end-users to get a glance of how each program is performing with easily digestible visuals.



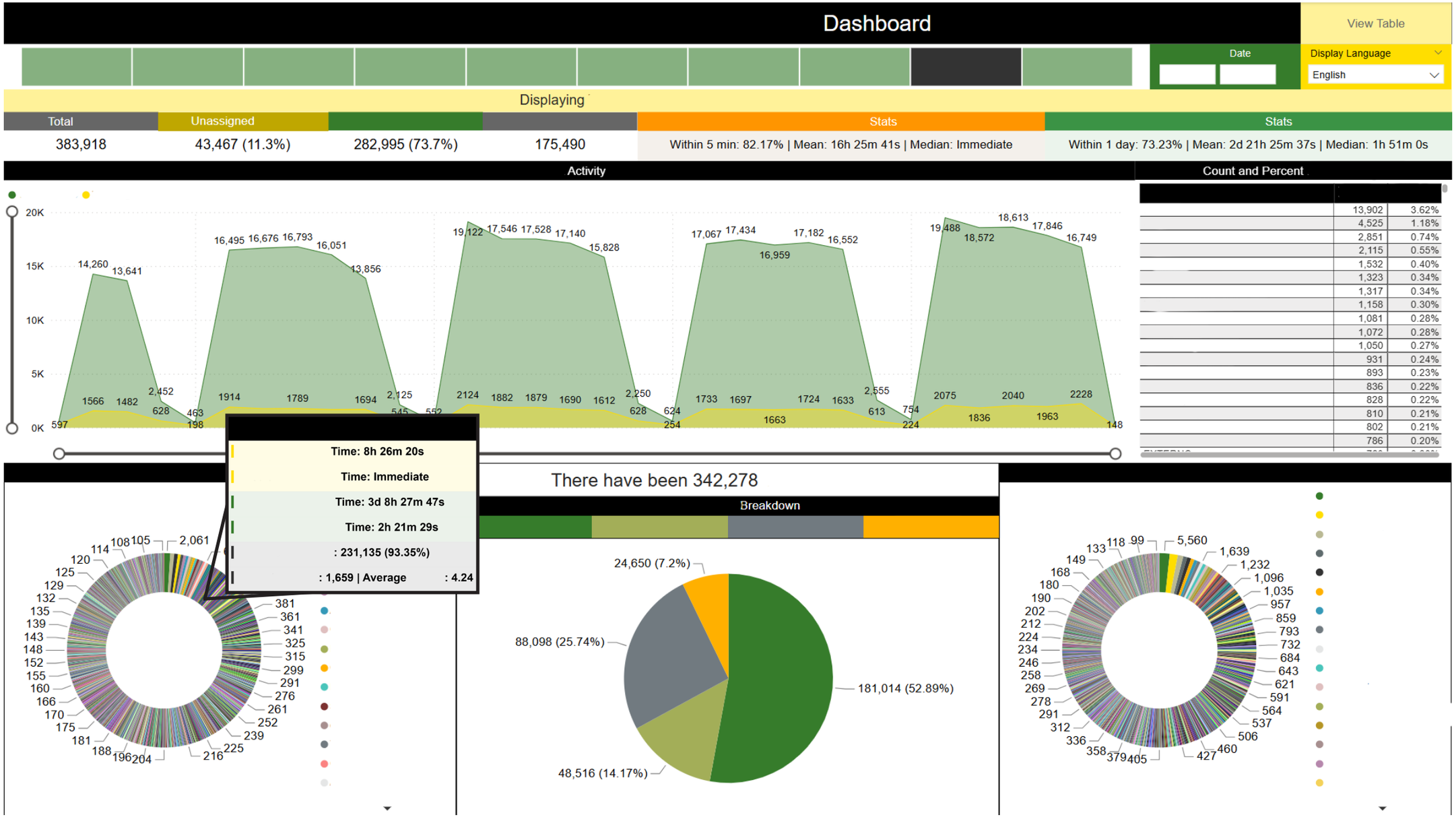
Alert Dashboard:

The dashboard tab below focuses on alerts that are presented for the appropriate personnel to respond to in various ways. These personnel are evaluated based on multiple metrics related to these alerts, the two primary ones showcased with the gauge and line chart comboed within the yellow boxes. Other metrics about these alerts, including revenue generated from them, are showcased as well.



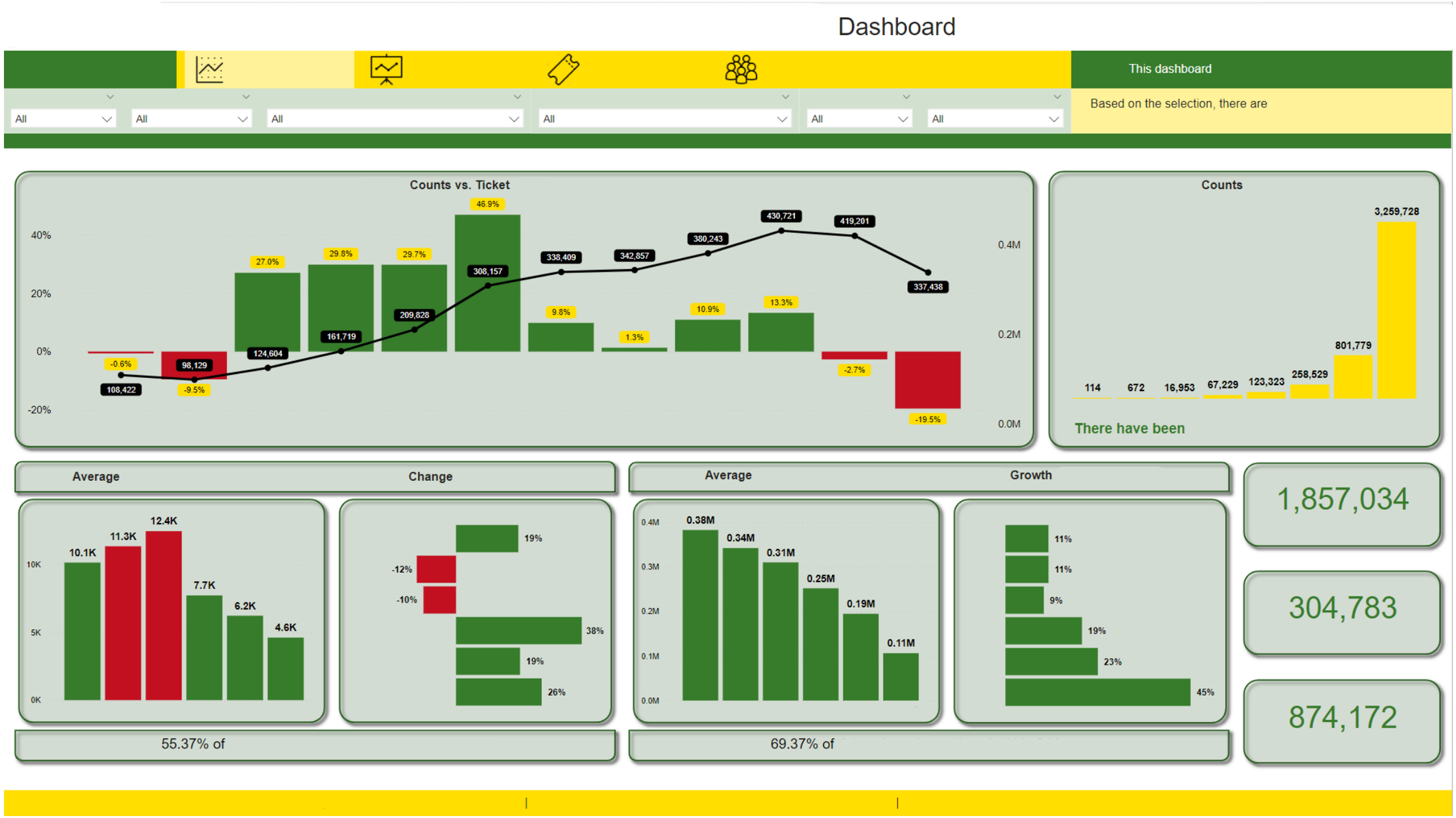
Insights:

The dashboard tab below showcases visualized ticket data that, based on the selected date range, provides insights on tickets resolved, time to first reponse, and resolution. Ticket activity over time along with what personnel are most active can be seen. The majority of visuals on this tab have tooltip hovers that provide a deeper look into each metric, such as one shown with the donut chart.



Metrics Report (1):

The dashboard tab below takes ticket data and looks at efficiency over a certain timeframe. Some efficiency metrics such as time to response and time to resolution are included along with overall ticket generation. This tab provides a deeper look compared to the Insights dashboard tab in regards to specific tracking of some of the key metrics being looked at for the personnel who handle the tickets.

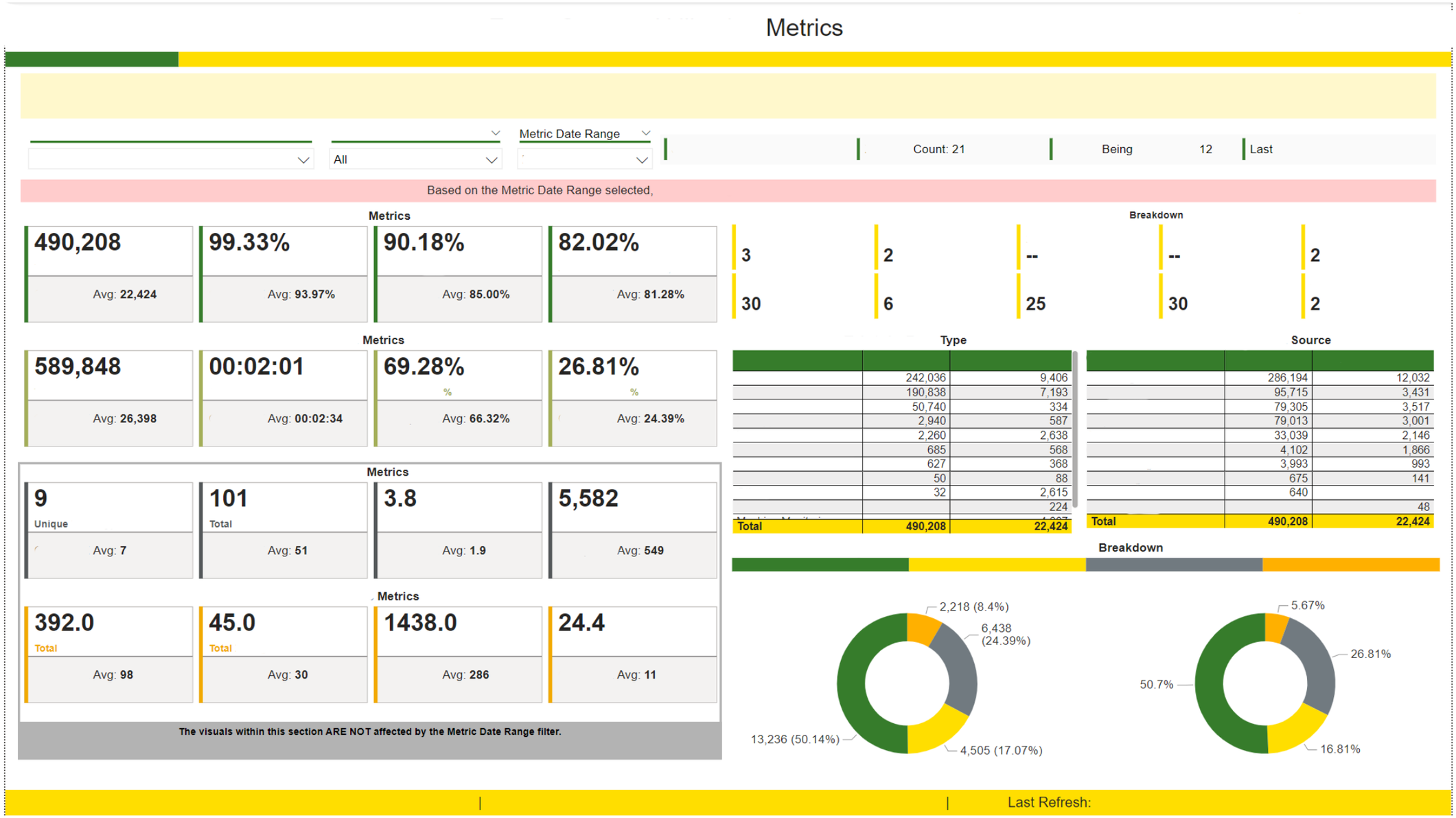


Metrics Report (2):

The dashboard tab below highlights annual metric goals related to the platform used for ticketing. The gauges across the top display progress towards metrics looking to eclipse a certain count or percentage whereas the remaining five compare to prior timeframes, each with their own growth/reduction goal along with displaying where the year-to-date growth/reduction percentage is at based on filters.

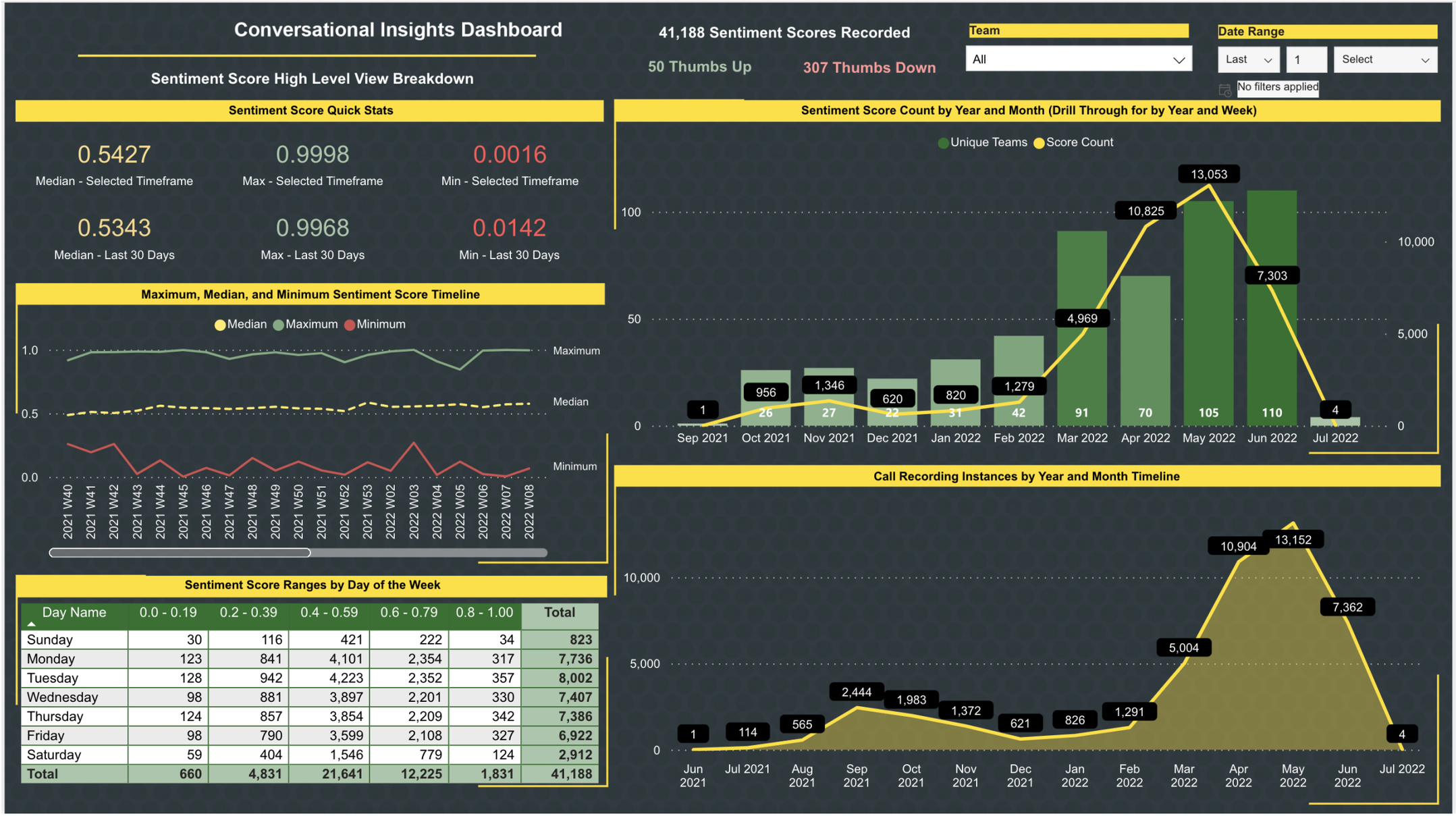
Utilization Report:

The dashboard tab below takes an entity within a platform and compares their metrics to other entities within the platform of similar structure. This allows the entity to see where they may need potential improvement or where they are succeeding related to other similar entities while keeping anonymity.



Sentiment Scores (1):

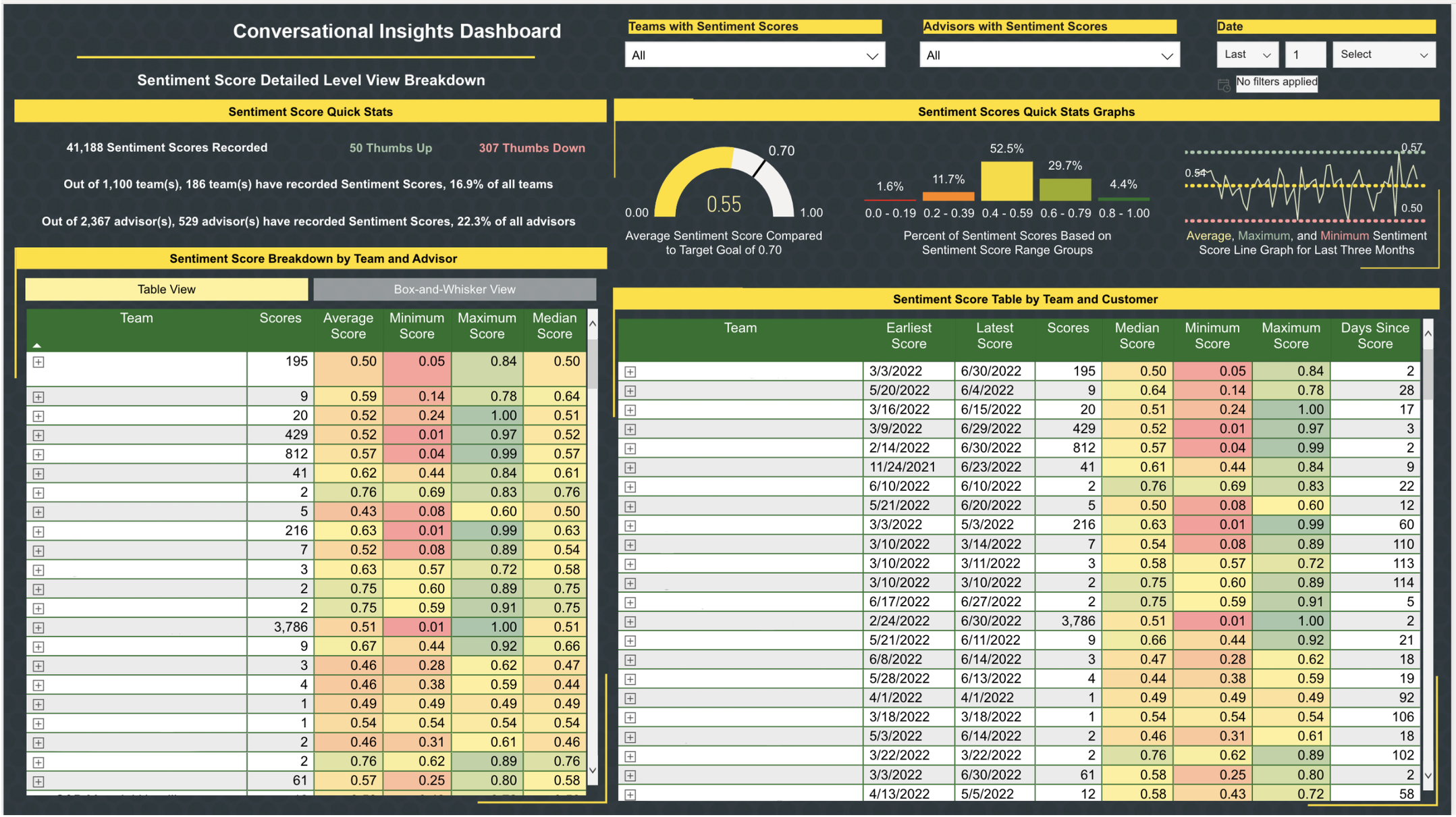
The dashboard tab below showcases visualized data for Sentiment Scores data gathered from conversations with customers. This displays at a high-level view to see where scores are ranging based on selected date ranges. This provides a look at how scores changes by day of the week along with the count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



Day Name	0.0 - 0.19	0.2 - 0.39	0.4 - 0.59	0.6 - 0.79	0.8 - 1.00	Total
Sunday	30	116	421	222	34	823
Monday	123	841	4,101	2,354	317	7,736
Tuesday	128	942	4,223	2,352	357	8,002
Wednesday	98	881	3,897	2,201	330	7,407
Thursday	124	857	3,854	2,209	342	7,386
Friday	98	790	3,599	2,108	327	6,922
Saturday	59	404	1,546	779	124	2,912
Total	**660**	**4,831**	**21,641**	**12,225**	**1,831**	**41,188**

Sentiment Scores (2):

The dashboard tab below showcases visualized data for Sentiment Scores data gathered from conversations with customers. This goes into more detailed views based on the team that had conversations 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.

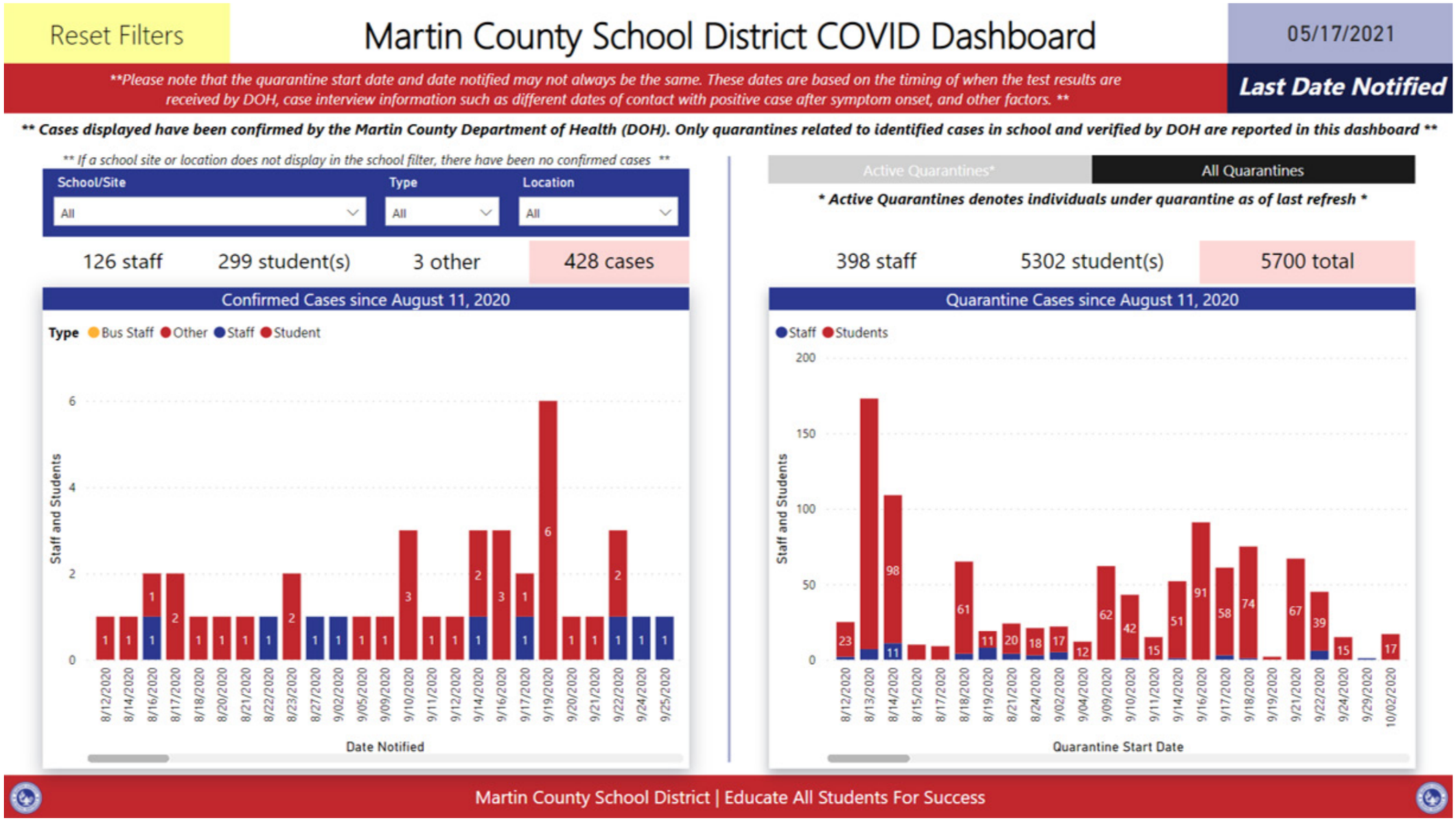


Team	Scores	Average Score	Minimum Score	Maximum Score	Median Score
	195	0.50	0.05	0.84	0.50
	9	0.59	0.14	0.78	0.64
	20	0.52	0.24	1.00	0.51
	429	0.52	0.01	0.97	0.52
	812	0.57	0.04	0.99	0.57
	41	0.62	0.44	0.84	0.61
	2	0.76	0.69	0.83	0.76
	5	0.43	0.08	0.60	0.50
	216	0.63	0.01	0.99	0.63
	7	0.52	0.08	0.89	0.54
	3	0.63	0.57	0.72	0.58
	2	0.75	0.60	0.89	0.75
	2	0.75	0.59	0.91	0.75
	3,786	0.51	0.01	1.00	0.51
	9	0.67	0.44	0.92	0.66
	3	0.46	0.28	0.62	0.47
	4	0.46	0.38	0.59	0.44
	1	0.49	0.49	0.49	0.49
	1	0.54	0.54	0.54	0.54
	2	0.46	0.31	0.61	0.46
	2	0.76	0.62	0.89	0.76
	61	0.57	0.25	0.80	0.58

Team	Earliest Score	Latest Score	Scores	Median Score	Minimum Score	Maximum Score	Days Since Score
	3/3/2022	6/30/2022	195	0.50	0.05	0.84	2
	5/20/2022	6/4/2022	9	0.64	0.14	0.78	28
	3/16/2022	6/15/2022	20	0.51	0.24	1.00	17
	3/9/2022	6/29/2022	429	0.52	0.01	0.97	3
	2/14/2022	6/30/2022	812	0.57	0.04	0.99	2
	11/24/2021	6/23/2022	41	0.61	0.44	0.84	9
	6/10/2022	6/10/2022	2	0.76	0.69	0.83	22
	5/21/2022	6/20/2022	5	0.50	0.08	0.60	12
	3/3/2022	5/3/2022	216	0.63	0.01	0.99	60
	3/10/2022	3/14/2022	7	0.54	0.08	0.89	110
	3/10/2022	3/11/2022	3	0.58	0.57	0.72	113
	3/10/2022	3/10/2022	2	0.75	0.60	0.89	114
	6/17/2022	6/27/2022	2	0.75	0.59	0.91	5
	2/24/2022	6/30/2022	3,786	0.51	0.01	1.00	2
	5/21/2022	6/11/2022	9	0.66	0.44	0.92	21
	6/8/2022	6/14/2022	3	0.47	0.28	0.62	18
	5/28/2022	6/13/2022	4	0.44	0.38	0.59	19
	4/1/2022	4/1/2022	1	0.49	0.49	0.49	92
	3/18/2022	3/18/2022	1	0.54	0.54	0.54	106
	5/3/2022	6/14/2022	2	0.46	0.31	0.61	18
	3/22/2022	3/22/2022	2	0.76	0.62	0.89	102
	3/3/2022	6/30/2022	61	0.58	0.25	0.80	2
	4/13/2022	5/5/2022	12	0.58	0.43	0.72	58

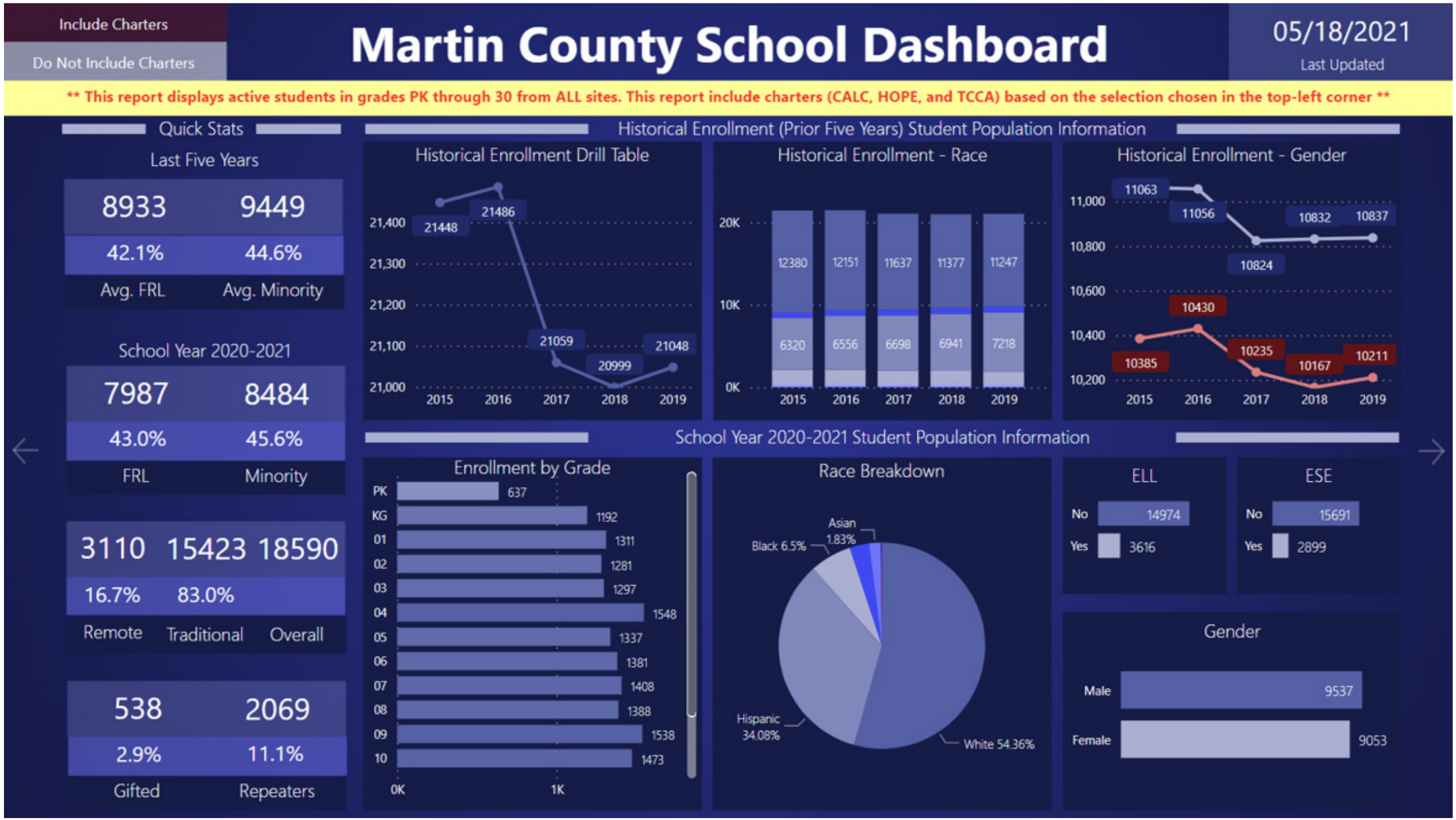
COVID Public Dashboard:

The dashboard below showcases data collected by the district pertaining to COVID quarantines and cases within the school for staff, students, vendors, and other personnel at the district.



Overview Dashboard:

The dashboard tab below is part of the Overview Dashboard that gives a introduction to the school district along with various trend data over a five-year span.

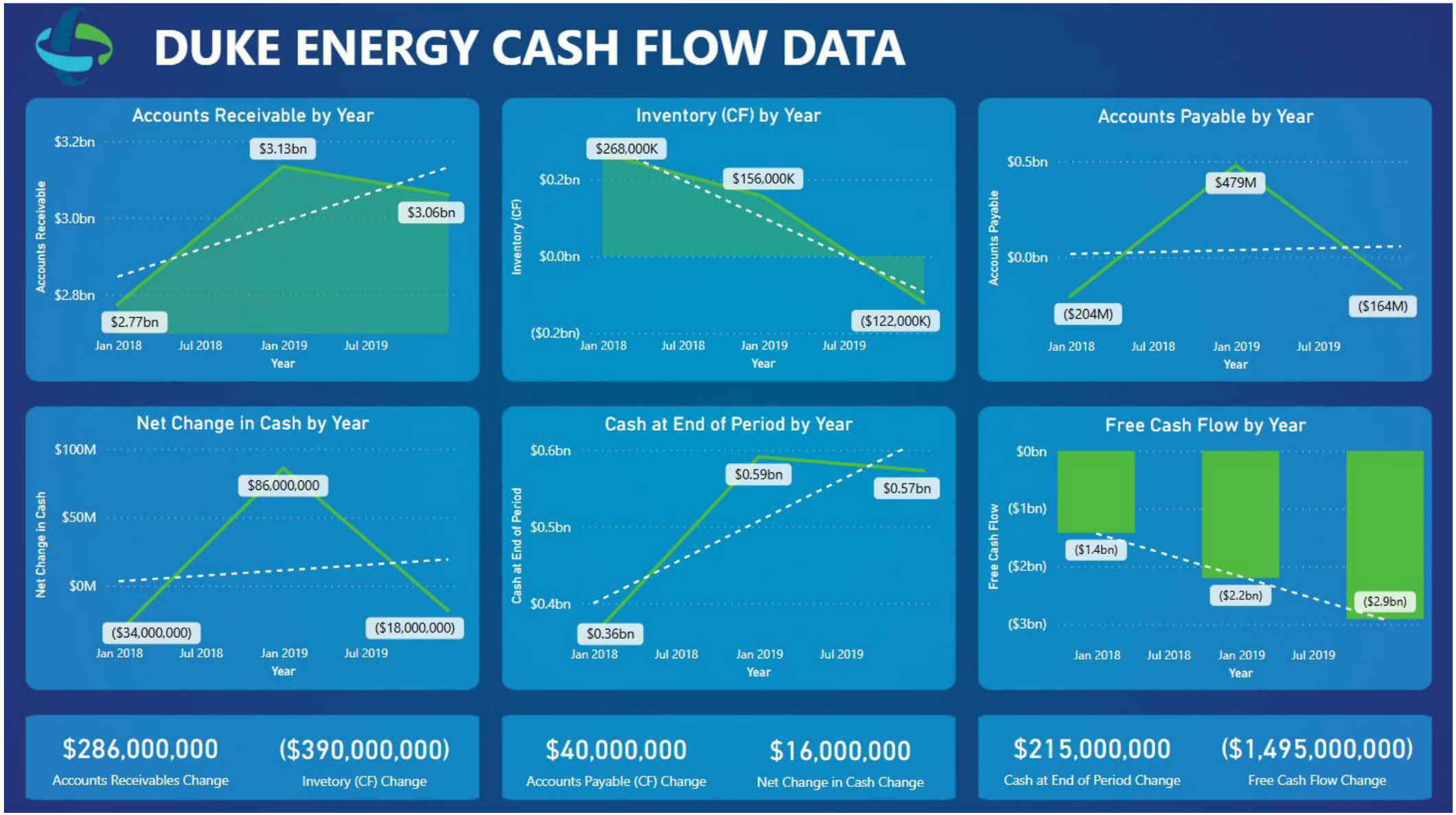


MICROSOFT POWER BI

ACADEMIC WORK DEMONSTRATION

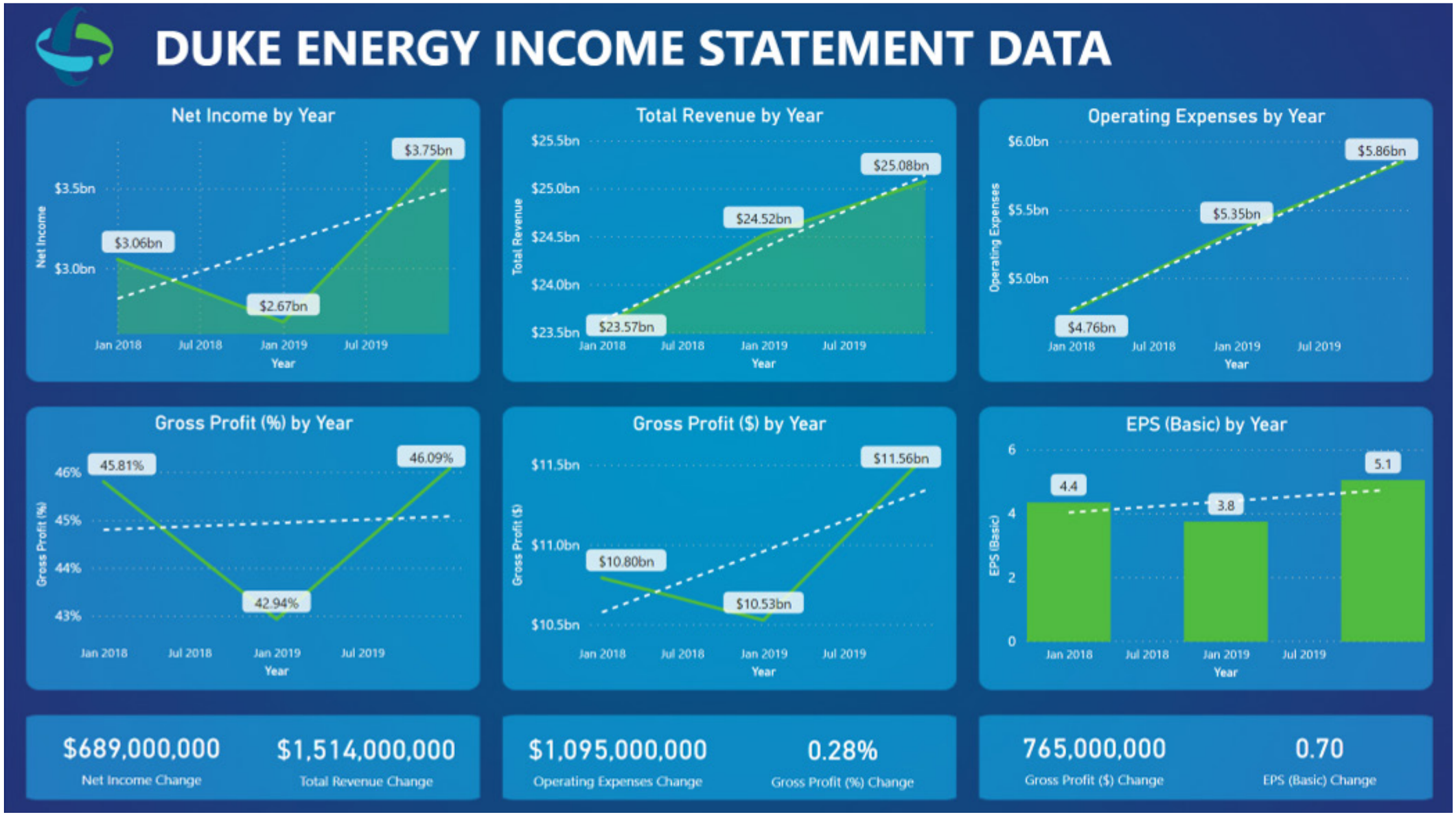
Duke Energy Report (1):

The tab below shows cash flow visuals related to Duke Energy from January 2018 until the end of 2019. There are visuals that show changes over time along with calculcated 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.



Duke Energy Report (2):

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 calculcated 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.