

Project Codes, Links, and Data Analysis Outcome Screenshots

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MIS581: Capstone – Business Intelligence and Data Analytics

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Project Codes, Links, and Data Analysis Outcome Screenshots

GitHub Link: <https://github.com/campos-28/MIS581>

SQL Table Join Code:

```
--//[K2 GROUP]-READING---
select
d.StudentNumber
,d.BuildingGrade as CurrentGrade
,EnglishLearner = case when d.EnglishLearner = 'N' then 'No' else 'Yes' end
,DisabilityCondition = case when d.DisabilityCondition = '**' then 'No' else 'Yes' end
,d.DistrictAdmissionDate
,'YearsinDistrict' = (SELECT (DATEDIFF(DAY, DistrictAdmissionDate,
CURRENT_TIMESTAMP) / 365.25))
,'KRA_LL' = (select coalesce(max(LangLitScore),0) from KRA_TABLE k where
d.StudentNumber=k.LocalID)
,'KRA_OVERALL' = (select coalesce(max(OverallScore),0) from KRA_TABLE k where
d.StudentNumber=k.LocalID)
,i.Test_Date
,'Term' = case when (Test_Date between '2022-08-01' and '2023-01-03') then 'Fall'
                when (Test_Date between '2022-05-09' and '2022-05-31') then 'Spring'
                when (Test_Date between '2022-01-03' and '2022-05-08') then 'Winter'
                when (Test_Date between '2021-08-01' and '2022-01-03') then 'Fall'
                else " end
,i.Scale_Score
,i.Percentile
,i.Grade
,i.Typical_Growth
,i.Stretch_Growth
```

```
, 'TotalMin' = (select coalesce(sum(Min_per_Lesson),0) from iReady_Reading_Pers p where
d.StudentNumber=p.StudentID)
```

```
, i.Subject
```

```
from Default_StudentRoster d
```

```
inner join iready_diag_agg_el a i on d.StudentNumber=i.Student_ID
```

```
where BuildingGrade in ('KG','1','2')
```

```
order by BuildingGrade, [Term];
```

```
--//[K2 GROUP]-MATH---
```

```
select
```

```
d.StudentNumber
```

```
, d.BuildingGrade as CurrentGrade
```

```
, EnglishLearner = case when d.EnglishLearner = 'N' then 'No' else 'Yes' end
```

```
, DisabilityCondition = case when d.DisabilityCondition = '**' then 'No' else 'Yes' end
```

```
, d.DistrictAdmissionDate
```

```
, 'YearsinDistrict' = (SELECT (DATEDIFF(DAY, DistrictAdmissionDate,
CURRENT_TIMESTAMP) / 365.25))
```

```
, 'KRA_MA' = (select coalesce(max(MathScore),0) from KRA_TABLE k where
d.StudentNumber=k.LocalID)
```

```
, 'KRA_OVERALL' = (select coalesce(max(OverallScore),0) from KRA_TABLE k where
d.StudentNumber=k.LocalID)
```

```
, i.Test_Date
```

```
, 'Term' = case when (Test_Date between '2022-08-01' and '2023-01-03') then 'Fall'
```

```
when (Test_Date between '2022-05-09' and '2022-05-31') then 'Spring'
```

```
when (Test_Date between '2022-01-03' and '2022-05-08') then 'Winter'
```

```
when (Test_Date between '2021-08-01' and '2022-01-03') then 'Fall'
```

```
else " end
```

```
, i.Scale_Score
```

```
, i.Percentile
```

```

,i.Grade
,i.Typical_Growth
,i.Stretch_Growth
,'TotalMin' = (select coalesce(sum(Min_per_Lesson),0) from iReady_Math_Pers p where
d.StudentNumber=p.StudentID)
,i.Subject
from Default_StudentRoster d
inner join iready_diag_agg_math i on d.StudentNumber=i.Student_ID
where BuildingGrade in ('KG','1','2')
order by BuildingGrade, [Term];

---/[38 GROUP]-READING---
select distinct
d.StudentNumber
,d.BuildingGrade as CurrentGrade
,EnglishLearner = case when d.EnglishLearner = 'N' then 'No' else 'Yes' end
,DisabilityCondition = case when d.DisabilityCondition = '**' then 'No' else 'Yes' end
,d.DistrictAdmissionDate
,'YearsinDistrict' = (SELECT (DATEDIFF(DAY, DistrictAdmissionDate,
CURRENT_TIMESTAMP) / 365.25))
,i.Test_Date
,'Term' = case when (Test_Date between '2022-08-01' and '2023-01-03') then 'Fall'
                when (Test_Date between '2022-05-09' and '2022-05-31') then 'Spring'
                when (Test_Date between '2022-01-03' and '2022-05-08') then 'Winter'
                when (Test_Date between '2021-08-01' and '2022-01-03') then 'Fall'
                else " end
,i.Scale_Score
,i.Percentile

```

```
,i.Grade
,i.Typical_Growth
,i.Stretch_Growth
,'TotalMin' = (select coalesce(sum(Min_per_Lesson),0) from iReady_Reading_Pers p where
d.StudentNumber=p.StudentID)
,i.Subject
,o.TestName
,o.ProficiencyLevel
,o.ScaledScore
from Default_StudentRoster d
inner join iready_diag_agg_elc i on d.StudentNumber=i.Student_ID
inner join OST_EOC_Results o on d.StateStudentID=o.StateID
where BuildingGrade in ('3','4','5','6','7','8') and (o.TestName like '%english%' and o.TestTerm
like '%Spring%')
order by BuildingGrade, [Term];
```

```
--//[38 GROUP]-MATH---
```

```
select distinct
d.StudentNumber
,d.BuildingGrade as CurrentGrade
,EnglishLearner = case when d.EnglishLearner = 'N' then 'No' else 'Yes' end
,DisabilityCondition = case when d.DisabilityCondition = '**' then 'No' else 'Yes' end
,d.DistrictAdmissionDate
,'YearsinDistrict' = (SELECT (DATEDIFF(DAY, DistrictAdmissionDate,
CURRENT_TIMESTAMP) / 365.25))
,i.Test_Date
,'Term' = case when (Test_Date between '2022-08-01' and '2023-01-03') then 'Fall'
```

```

        when (Test_Date between '2022-05-09' and '2022-05-31') then 'Spring'
        when (Test_Date between '2022-01-03' and '2022-05-08') then 'Winter'
        when (Test_Date between '2021-08-01' and '2022-01-03') then 'Fall'
    else " end

,i.Scale_Score
,i.Percentile
,i.Grade
,i.Typical_Growth
,i.Stretch_Growth
,'TotalMin' = (select coalesce(sum(Min_per_Lesson),0) from iReady_Math_Pers p where
d.StudentNumber=p.StudentID)
,i.Subject
,o.TestName
,o.ProficiencyLevel
,o.ScaledScore
from Default_StudentRoster d
inner join iready_diag_agg_ela i on d.StudentNumber=i.Student_ID
inner join OST_EOC_Results o on d.StateStudentID=o.StateID
where BuildingGrade in ('3','4','5','6','7','8') and ((o.TestName like '%mathematics%' or
o.TestName like '%algebra%') and o.TestTerm like '%Spring%')
order by BuildingGrade, [Term];

---/[910 GROUP]-READING---
select distinct
e.State_Student_ID
,'TestName' = 'English'
,e.Projected_State_Percentile
,'Percentile_Conv' = case when e.Projected_State_Percentile <=20 then 1

```

```

        when e.Projected_State_Percentile between 21 and 40 then 2
        when e.Projected_State_Percentile between 41 and 60 then 3
        when e.Projected_State_Percentile between 61 and 80 then 4
        when e.Projected_State_Percentile >=81 then 5
    else 0 end
,o.TestName
,o.ProficiencyLevel as EOC_Level
,o.ScaledScore as EOC_Score
,'Diagnostic1' = (select max(Diagnostic_Overall_Scale_Score_1) from
district.dbo.iReady_diagnostic_ela_ytd i where d.StudentNumber=i.Student_ID)
,'Diagnostic2' = (select max(Diagnostic_Overall_Scale_Score_2) from
district.dbo.iReady_diagnostic_ela_ytd i where d.StudentNumber=i.Student_ID)
,'Diagnostic3' = (select max(Diagnostic_Overall_Scale_Score_Most_Recent) from
district.dbo.iReady_diagnostic_ela_ytd i where d.StudentNumber=i.Student_ID)
,'YearsinDistrict' = (SELECT (DATEDIFF(DAY, DistrictAdmissionDate,
CURRENT_TIMESTAMP) / 365.25) from district.dbo.Default_StudentRoster r where
r.StateStudentID=e.State_Student_ID)
from [EVAAS_2022_Student_Projections] e
left join OST_EOC_Results o on e.State_Student_ID=o.StateID
left join HighSchool.dbo.Demographics d on e.State_Student_ID=d.StateStudentID
where e.Grade_Attributed in ('9','10') and e.Projection like '%arts ii%'
and o.TestName like '%arts 2%'

---/[910 GROUP]-MATH---
select distinct
e.State_Student_ID
,'TestName' = 'Algebra I'
,e.Projected_State_Percentile as EVAAS_Proj

```

```

,Percentile_Conv' = case when e.Projected_State_Percentile <=20 then 1
                        when e.Projected_State_Percentile between 21 and 40 then 2
                        when e.Projected_State_Percentile between 41 and 60 then 3
                        when e.Projected_State_Percentile between 61 and 80 then 4
                        when e.Projected_State_Percentile >=81 then 5
                        else 0 end

,o.TestName

,o.ProficiencyLevel as EOC_Level

,o.ScaledScore as EOC_Score

,'Diagnostic1' = (select max(Diagnostic_Overall_Scale_Score_1) from
district.dbo.iReady_diagnostic_math_ytd i where d.StudentNumber=i.Student_ID)

,'Diagnostic2' = (select max(Diagnostic_Overall_Scale_Score_2) from
district.dbo.iReady_diagnostic_math_ytd i where d.StudentNumber=i.Student_ID)

,'Diagnostic3' = (select max(Diagnostic_Overall_Scale_Score_Most_Recent) from
district.dbo.iReady_diagnostic_math_ytd i where d.StudentNumber=i.Student_ID)

,'YearsinDistrict' = (SELECT (DATEDIFF(DAY, DistrictAdmissionDate,
CURRENT_TIMESTAMP) / 365.25) from district.dbo.Default_StudentRoster r where
r.StateStudentID=e.State_Student_ID)

from [EVAAS_2023_Student_Projections] e

left join OST_EOC_Results o on e.State_Student_ID=o.StateID

left join HighSchool.dbo.Demographics d on e.State_Student_ID=d.StateStudentID

where e.Grade_Attributed in ('9','10') and e.Projection like '%algebra%'

and o.TestName like '%algebra%'

```

SAS Analysis Code:

```

*IMPORT FILES;

FILENAME REFFILE '/home/u49995198/sasuser.v94/MIS581/Usage_Min.csv';

PROC IMPORT DATAFILE=REFFILE

        DBMS=CSV

```



```
        OUT=WORK.USAGE_MIN;
        GETNAMES=YES;

RUN;

PROC CONTENTS DATA=WORK.USAGE_MIN; RUN;

%web_open_table(WORK.USAGE_MIN);

FILENAME REFFILE '/home/u49995198/sasuser.v94/MIS581/MIS581-IREADY.csv';

PROC IMPORT DATAFILE=REFFILE

        DBMS=CSV

        OUT=WORK.IREADY;

        GETNAMES=YES;

RUN;

PROC CONTENTS DATA=WORK.IREADY; RUN;

%web_open_table(WORK.IREADY);

FILENAME REFFILE '/home/u49995198/sasuser.v94/MIS581/MIS581-STATE.csv';

PROC IMPORT DATAFILE=REFFILE

        DBMS=CSV

        OUT=WORK.STATE;

        GETNAMES=YES;

RUN;

PROC CONTENTS DATA=WORK.STATE; RUN;

%web_open_table(WORK.STATE);

FILENAME REFFILE '/home/u49995198/sasuser.v94/MIS581/State_Growth.csv';

PROC IMPORT DATAFILE=REFFILE

        DBMS=CSV

        OUT=WORK.STATE_GROWTH;

        GETNAMES=YES;

RUN;
```

```
PROC CONTENTS DATA=WORK.STATE_GROWTH; RUN;  
%web_open_table(WORK.STATE_GROWTH);
```

```
*KRUSKAL-WALLIS TEST;
```

```
proc npar1way data=WORK.USAGE_MIN;
```

```
    class TYPICAL;
```

```
    var TOTALMIN;
```

```
run;
```

```
proc npar1way data=WORK.STATE;
```

```
    class GROUP;
```

```
    var YEARS;
```

```
run;
```

```
PROC NPAR1WAY data=WORK.STATE WILCOXON;
```

```
    CLASS GROUP;
```

```
    VAR YEARS;
```

```
        EXACT;
```

```
    TITLE 'COMPARE TWO GROUPS USING NPAR1WAY';
```

```
RUN;
```

```
*ANOVA TEST;
```

```
proc anova data=WORK.STATE_GROWTH;
```

```
    class GROUP;
```

```
    model ACTUAL_GROWTH=GROUP;
```

```
    means GROUP/TUKEY;
```

```
        EXACT;
```

```
title 'ANOVA Test'
```

```
run;
```

Table 1*One-sample t-test results for Math and Reading by grade level*

Math Diagnostic	Typical Growth	Frequency/ Peaks	95% CL Mean	t Value	Pr > t
Grade K	31.8	87.2%	30.7 - 30.9	156.39	<.0001
Grade 1	28.8	71.4%	30.3 - 30.6	139.07	<.0001
Grade 2	25.8 28.8	41.9% 53.1%	27.2 - 27.4	151.32	<.0001
Grade 3	26 27	36.4% 36.1%	27.1 - 27.3	189.53	<.0001
Grade 4	23.1 24	66.7% 31.8%	23.2 - 23.3	200.83	<.0001
Grade 5	18.2 19.9	65.1% 32.7%	18.5 - 18.6	-52.63	<.0001
Grade 6	14 15	47.9% 42.5%	14.3 - 14.4	-381.77	<.0001
Grade 7	12 12.9	31.2% 66.4%	12.6 - 12.7	-633.46	<.0001
Grade 8	9 12	33.6% 54.8%	10.7 - 10.8	-292.09	<.0001

Reading Diagnostic	Typical Growth	Frequency/ Peaks	95% CL Mean	t Value	Pr > t
Grade K	49.2	80.7%	47.9 - 48.1	611.64	<.0001
Grade 1	49	76.2%	48.8 - 49.1	401.08	<.0001
Grade 2	39.8 44.3	40.4% 43.7%	38.8 - 39.4	132.12	<.0001
Grade 3	26 33	19.7% 35%	28.6 - 29.2	64.61	<.0001
Grade 4	20 28	38.2% 29.8%	21.8 - 22.2	18.70	<.0001
Grade 5	16 20	29.3% 28.2%	18.3 - 18.8	-11.88	<.0001

Grade 6	12.4 18.8	23.9% 40.8%	14.1 - 14.5	-53.26	<.0001
Grade 7	16.8	54.2%	13.0 - 13.5	-64.80	<.0001
Grade 8	18	57.3%	13.2 - 13.7	-51.41	<.0001

Figure 1

Summary statistics of Math diagnostic growth by grade level

Subject=Math									
Student_Grade	N Obs	Variable	Mean	Std Dev	Median	Std Error	Mode	Skewness	Kurtosis
0	2043	Typical_Growth	30.8203622	3.1273237	32.0000000	0.0691893	32.0000000	-2.3655228	3.8600829
		Stretch_Growth	38.7121880	0.9174461	39.0000000	0.0202977	39.0000000	-3.5213196	11.2611877
1	1914	Typical_Growth	30.4555904	3.2892231	29.0000000	0.0751835	29.0000000	0.6533830	0.0714197
		Stretch_Growth	41.7429467	8.6124531	37.0000000	0.1968593	37.0000000	1.1840978	-0.5489143
2	1890	Typical_Growth	27.3402116	2.1087737	29.0000000	0.0485064	29.0000000	-1.6299657	4.0688476
		Stretch_Growth	42.2677249	6.1359458	48.0000000	0.1411402	48.0000000	-0.1552003	-1.9033097
3	1927	Typical_Growth	27.2060197	1.6690342	27.0000000	0.0380211	26.0000000	0.5021709	0.3162500
		Stretch_Growth	42.4042553	7.7640465	43.0000000	0.1768672	35.0000000	0.5880628	-1.0102998
4	1807	Typical_Growth	23.2606530	0.6901588	23.0000000	0.0162357	23.0000000	-2.9638248	17.8785722
		Stretch_Growth	39.7548423	5.8965986	41.0000000	0.1387147	34.0000000	-0.0846982	-1.1512541
5	1813	Typical_Growth	18.5626034	1.1628314	18.0000000	0.0273098	18.0000000	-0.8244074	3.1769541
		Stretch_Growth	34.7357970	5.0223807	35.0000000	0.1179535	31.0000000	-0.1971995	-0.2910509
6	1870	Typical_Growth	14.3294118	0.6423115	14.0000000	0.0148534	14.0000000	-0.4302299	-0.7014026
		Stretch_Growth	30.4941176	4.3148824	30.0000000	0.0997811	35.0000000	-0.2732495	-1.2415683
7	1902	Typical_Growth	12.6498423	0.5060367	13.0000000	0.0116032	13.0000000	-0.9548895	-0.3637570
		Stretch_Growth	28.3664564	4.8872387	33.0000000	0.1120620	33.0000000	-0.1651344	-1.8584295
8	1960	Typical_Growth	10.7653061	1.3997084	12.0000000	0.0316162	12.0000000	-0.3108767	-1.7974378
		Stretch_Growth	26.9489796	4.5055067	31.0000000	0.1017690	31.0000000	-0.2407601	-1.8700375

Figure 2

Summary statistics of Reading diagnostic growth by grade level

Subject=Reading									
Student_Grade	N Obs	Variable	Mean	Std Dev	Median	Std Error	Mode	Skewness	Kurtosis
0	2044	Typical_Growth	47.9995108	2.0696392	49.0000000	0.0457777	49.0000000	-1.5794543	0.6268431
		Stretch_Growth	66.1516634	2.7614386	67.0000000	0.0610794	67.0000000	-3.0669750	19.9971918
1	1963	Typical_Growth	48.9704534	3.2002713	49.0000000	0.0722315	49.0000000	-1.9241536	6.8445574
		Stretch_Growth	69.2175242	11.7327555	67.0000000	0.2648133	67.0000000	1.0303042	1.6546593
2	1932	Typical_Growth	39.1123188	6.3583081	39.0000000	0.1446565	44.0000000	-1.5590977	1.5276444
		Stretch_Growth	62.5569358	17.6053276	53.0000000	0.4005351	81.0000000	-0.2766089	-1.0950806
3	1970	Typical_Growth	28.8918782	6.1085479	33.0000000	0.1376274	33.0000000	-0.4785147	-1.1015322
		Stretch_Growth	53.7263959	17.7615480	63.0000000	0.4001729	63.0000000	-0.1087053	-1.0956816
4	1866	Typical_Growth	22.0219721	4.6714063	20.0000000	0.1081414	20.0000000	-0.2199932	-0.5511773
		Stretch_Growth	44.0235798	13.9297156	36.0000000	0.3224679	36.0000000	0.0511398	-1.2916928
5	1866	Typical_Growth	18.5739550	5.1864070	20.0000000	0.1200634	16.0000000	-0.1091688	-0.4788768
		Stretch_Growth	40.7202572	14.2431579	47.0000000	0.3297239	30.0000000	0.1729636	-1.3803384
6	1887	Typical_Growth	14.3184950	4.6335253	14.0000000	0.1066659	19.0000000	-0.6433204	-0.3941928
		Stretch_Growth	37.4610493	12.7184806	38.0000000	0.2927853	51.0000000	-0.2115388	-1.4388138
7	1880	Typical_Growth	13.2537234	4.5143007	17.0000000	0.1041146	17.0000000	-0.7211151	-0.9139055
		Stretch_Growth	39.1861702	12.7851789	50.0000000	0.2948882	50.0000000	-0.5759878	-1.2900007
8	1985	Typical_Growth	13.4891688	5.6423128	18.0000000	0.1266418	18.0000000	-0.6791289	-1.2001187
		Stretch_Growth	39.1168766	13.4676076	50.0000000	0.3022805	50.0000000	-0.6257194	-1.2729079

Figure 3

Total minutes spent in a year by subject

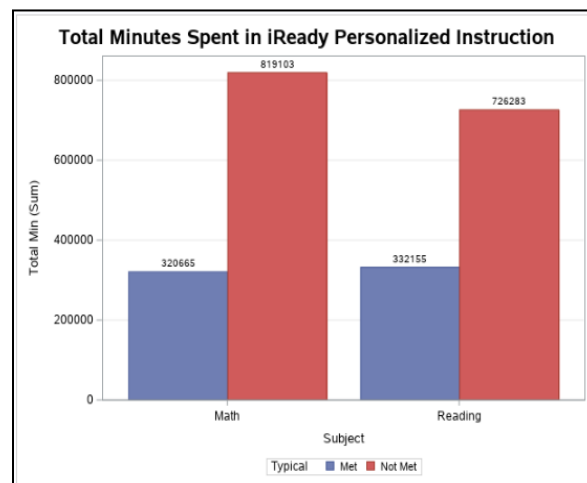


Figure 4

Kruskal-Wallis test of total minutes based on group - met or not met the annual growth goal

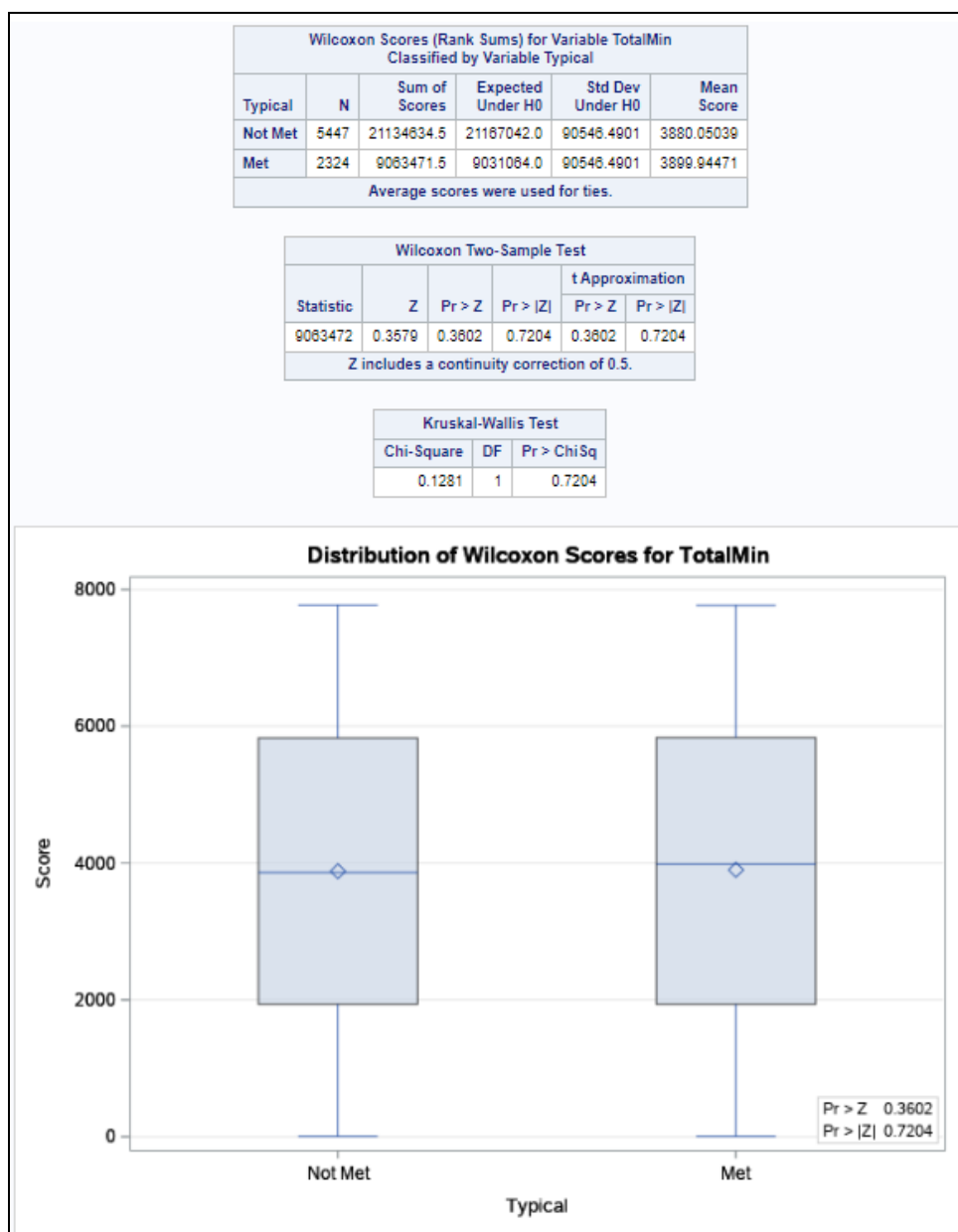


Figure 5

Five-year state test results and respective years students have been in the district

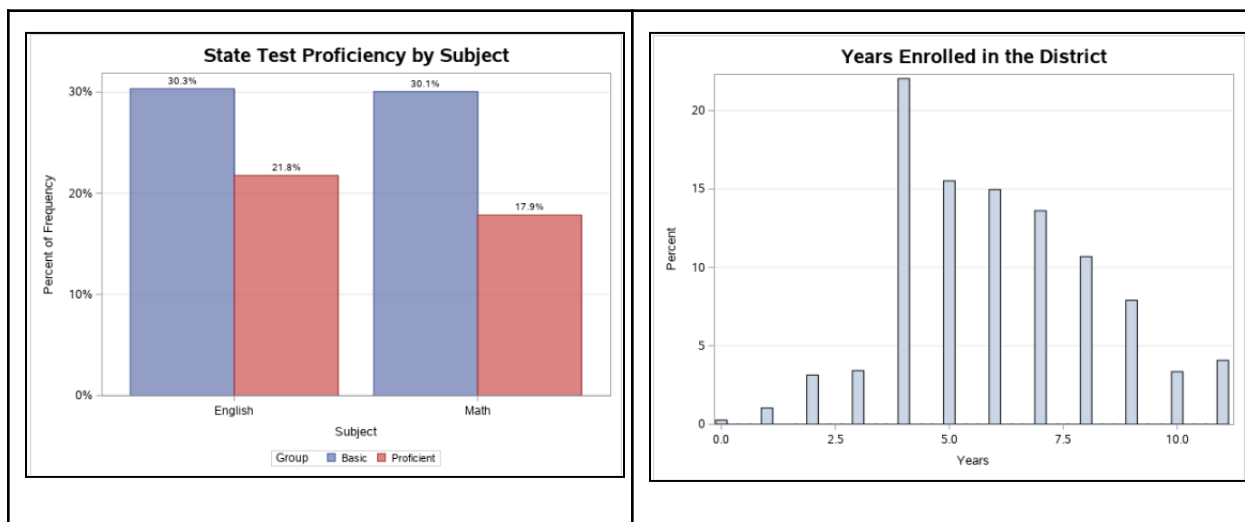


Figure 6.a

Kruskal-Wallis test to determine if years affect state performance



Figure 6.b

Continued - Kruskal-Wallis test to determine if years affect state performance

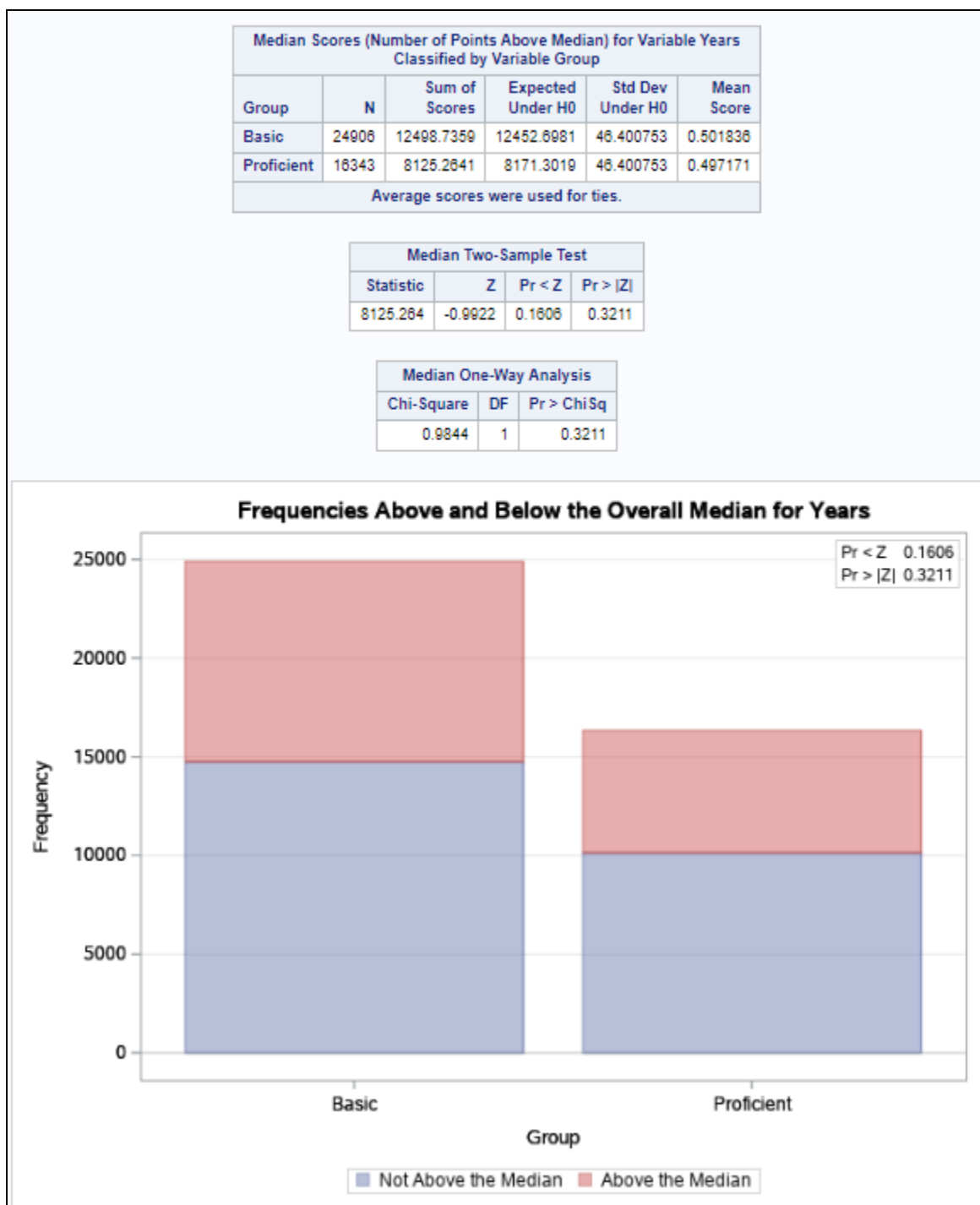


Figure 7

Comparing actual_growth across performance level using the ANOVA test

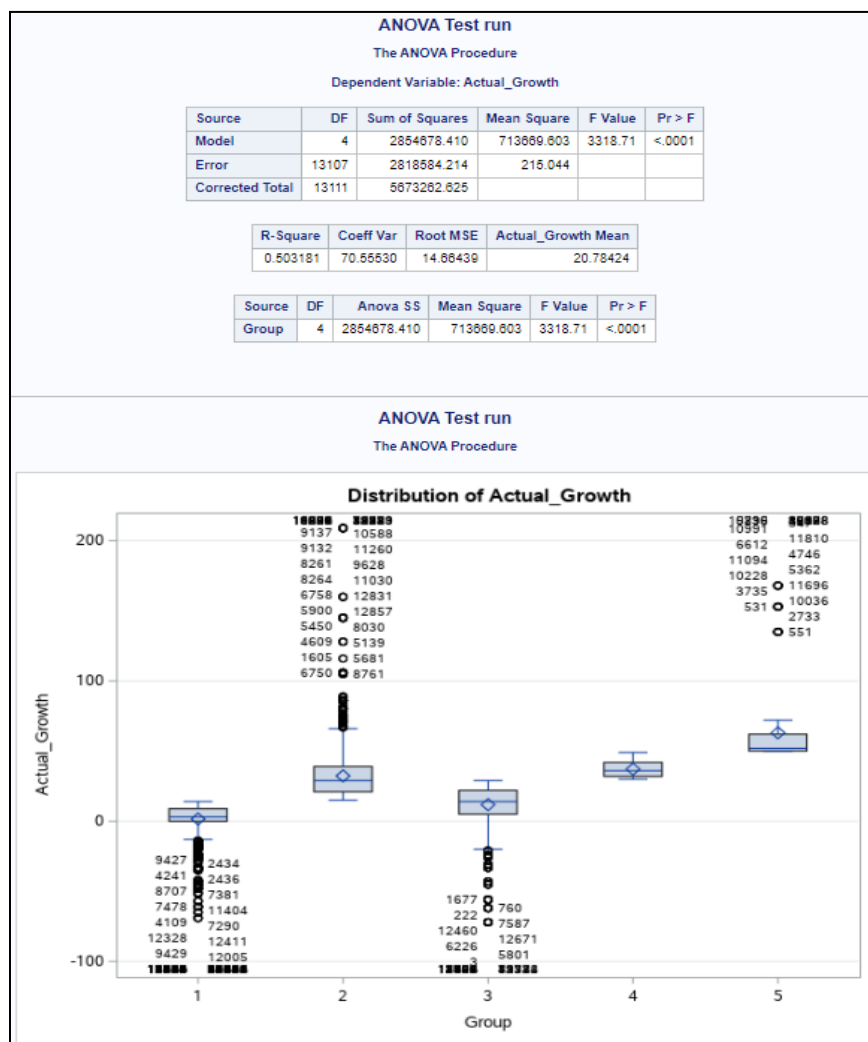


Table 2

Increase achievement with effective grade-level cut scores based on diagnostic results

On-Track in Reading	Fall	Winter	Spring
Kindergarten	≥ 346	≥ 370	≥ 394
1st Grade	≥ 394	≥ 419	≥ 443
2nd Grade	≥ 443	≥ 462	≥ 481
3rd Grade	≥ 481	≥ 495	≥ 510
4th Grade	≥ 510	≥ 520	≥ 530
5th Grade	≥ 530	≥ 538	≥ 546
6th Grade	≥ 546	≥ 556	≥ 565
7th Grade	≥ 565	≥ 574	≥ 582
8th Grade	≥ 582	≥ 591	≥ 600

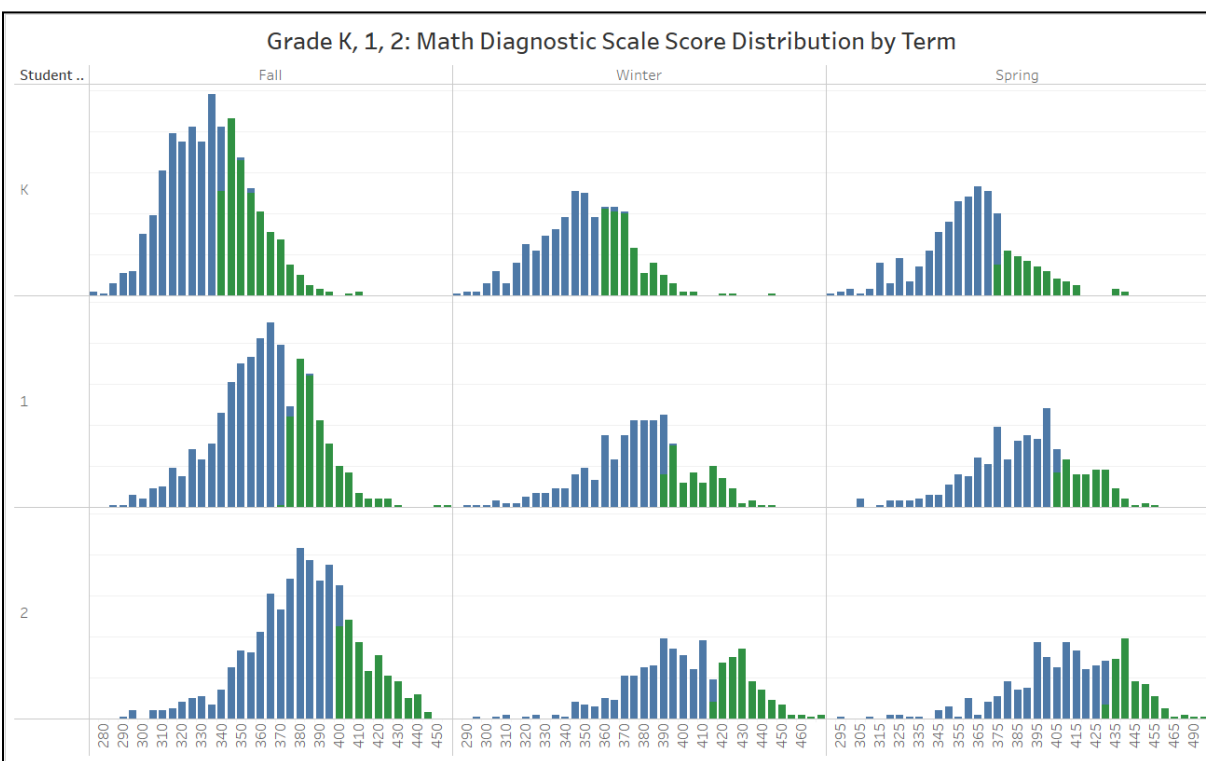
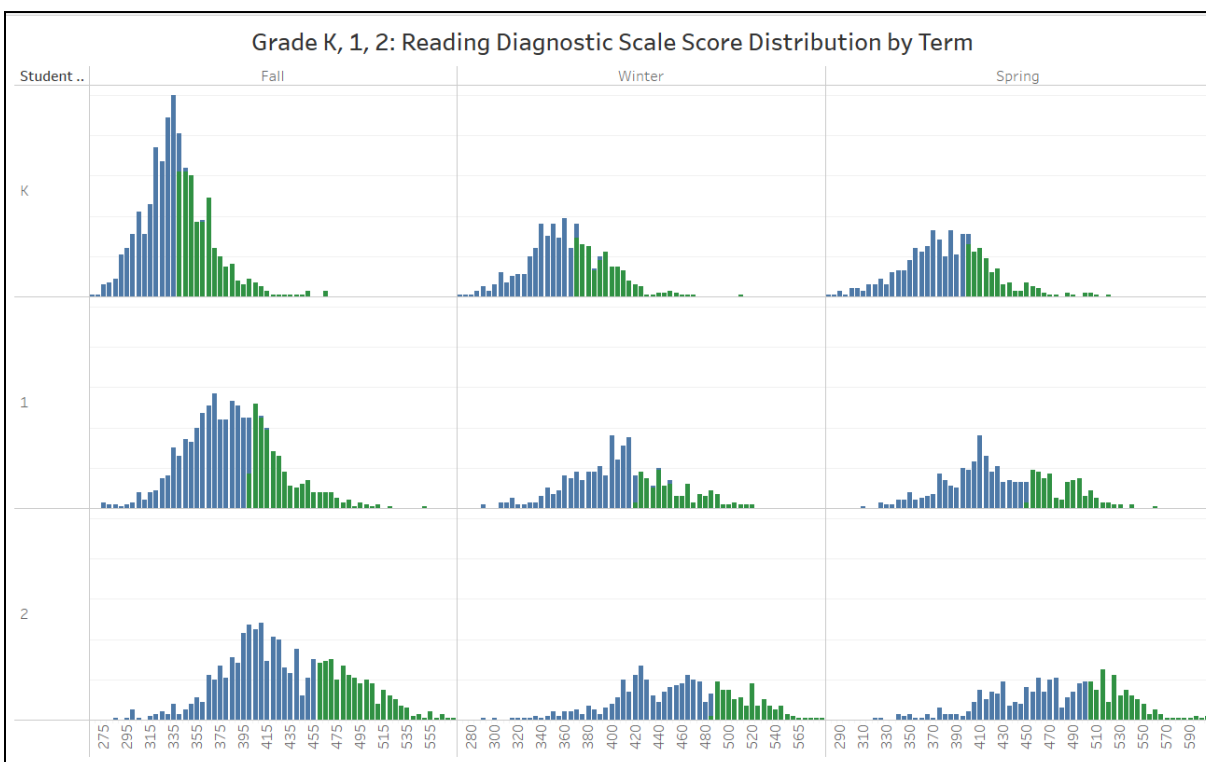
On-Track in Math	Fall	Winter	Spring
Kindergarten	≥ 336	≥ 352	≥ 368
1st Grade	≥ 368	≥ 383	≥ 397
2nd Grade	≥ 397	≥ 412	≥ 426
3rd Grade	≥ 426	≥ 439	≥ 452
4th Grade	≥ 452	≥ 464	≥ 475
5th Grade	≥ 475	≥ 484	≥ 493
6th Grade	≥ 493	≥ 500	≥ 507
7th Grade	≥ 507	≥ 514	≥ 520
8th Grade	≥ 520	≥ 526	≥ 532

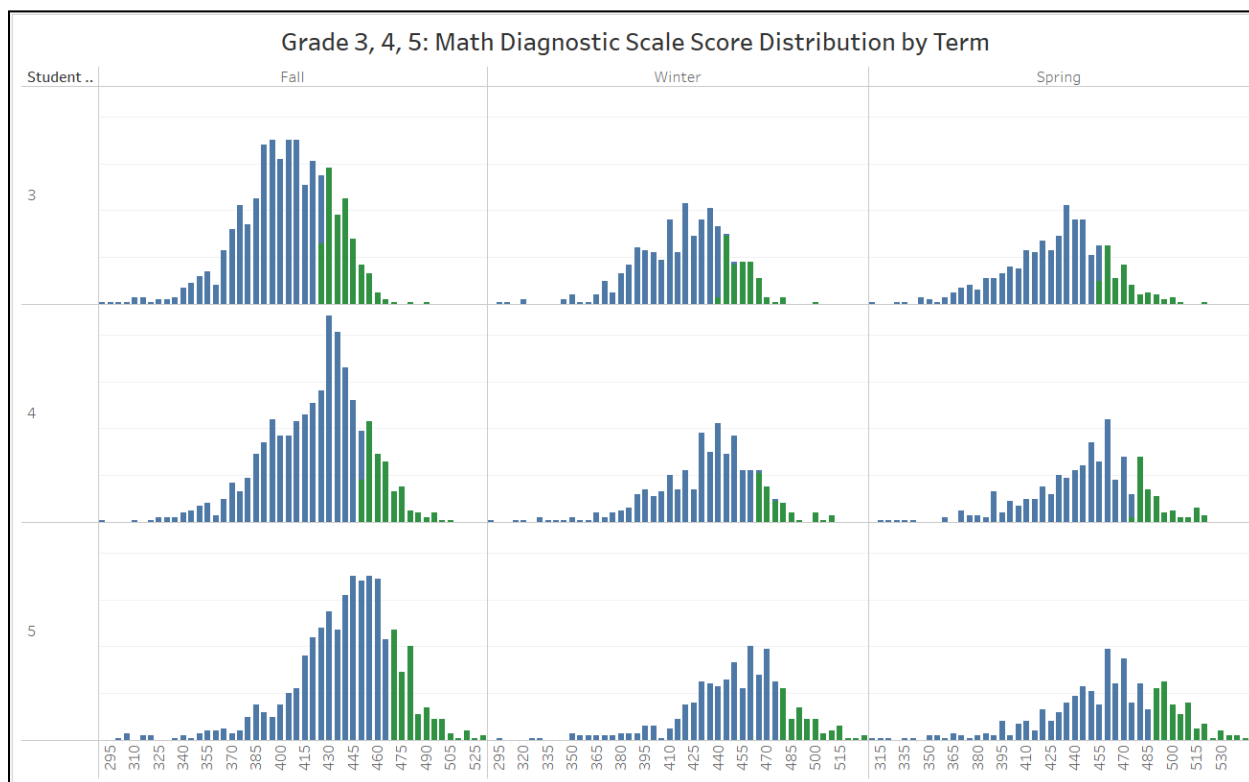
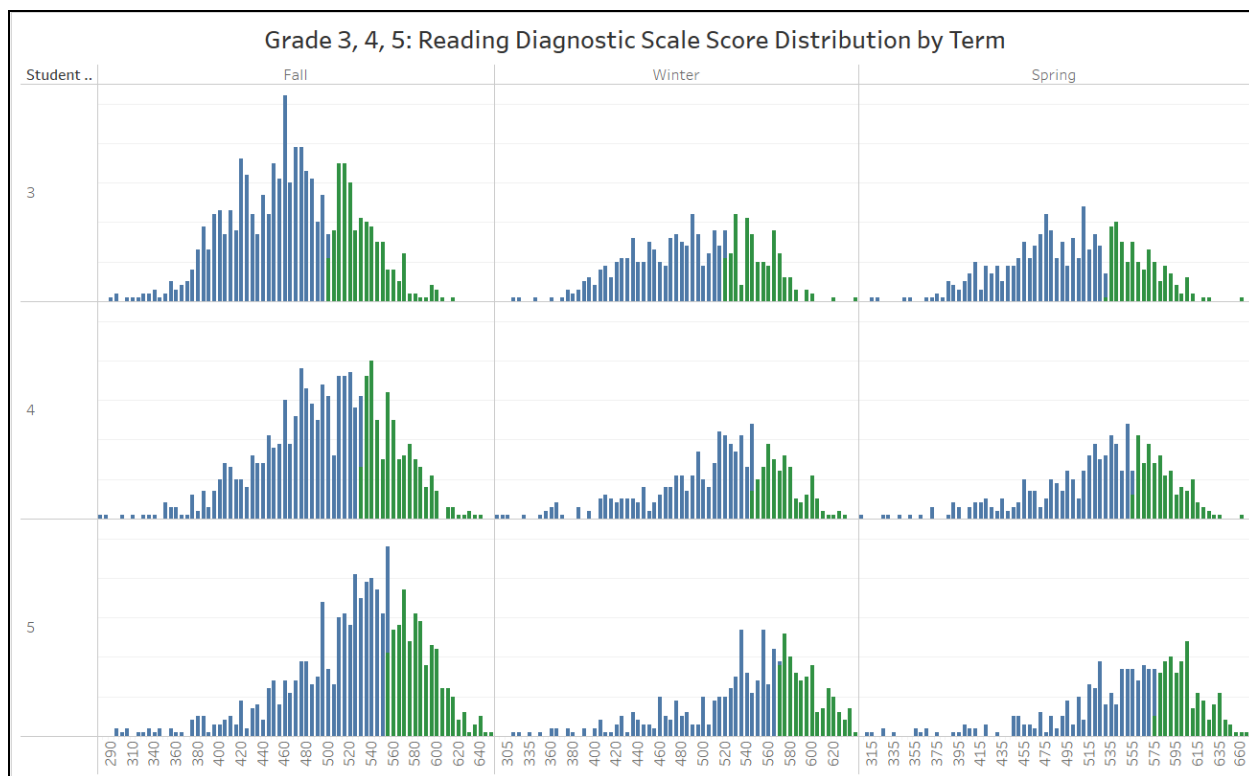
Table 3*Project overall end-of-year performance*

	Subject	18-19 Baseline	20-21 Results	21-22 Actual	22-23 Goal (Current)	22-23 Goal Projection
Grade 3	Reading	52%	23%	45%	67%	42%
	Math	60%	27%	40%	60%	28%
Grade 4	Reading	60%	41%	54%	67%	50%
	Math	63%	35%	45%	63%	20%
Grade 5	Reading	63%	48%	56%	64%	52%
	Math	49%	20%	35%	50%	12%
Grade 6	Reading	39%	33%	45%	57%	58%
	Math	46%	20%	25%	46%	13%
Grade 7	Reading	56%	38%	48%	58%	52%
	Math	46%	14%	17%	46%	9%
Grade 8	Reading	34%	29%	36%	42%	43%
	Math	39%	23%	23%	39%	7%
Grade 9/10	Algebra I	27%	20%	20%	27%	10%
	English II	35%	44%	39%	44%	44%

Figure 8

Grades kindergarten through 8th Math and Reading diagnostic scale score distribution





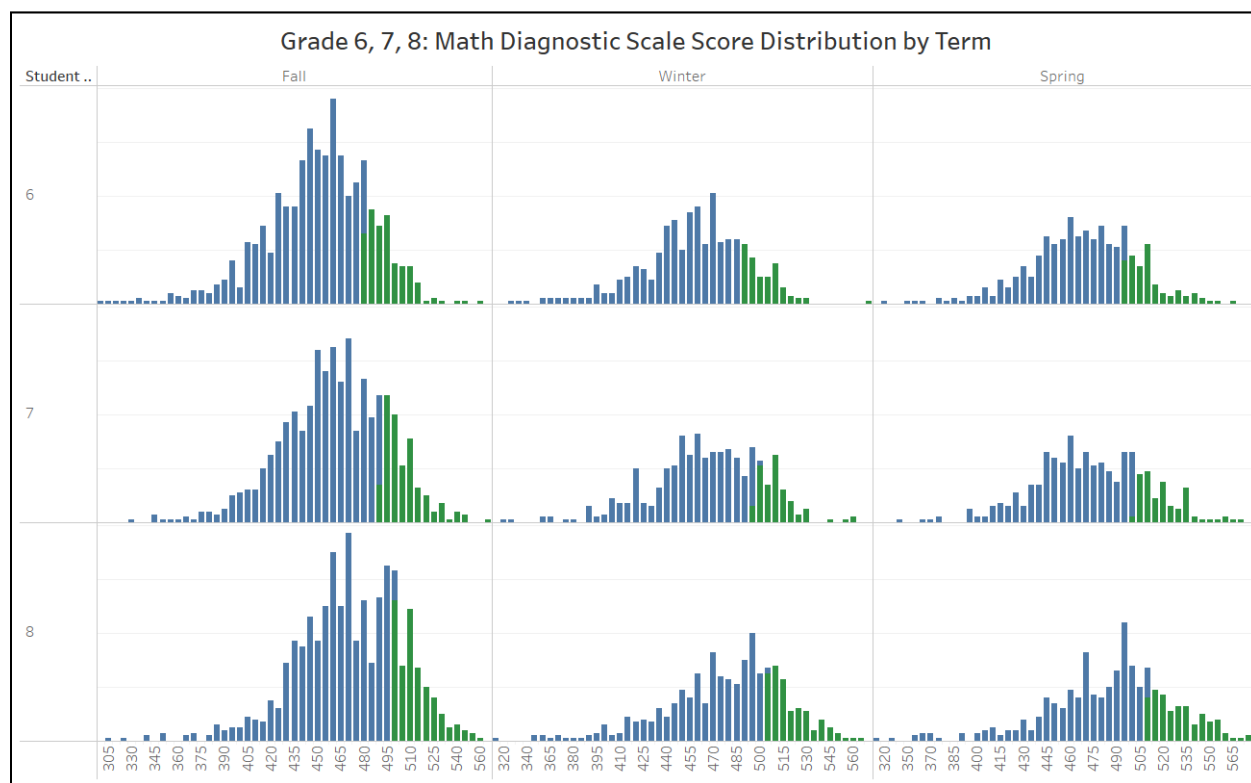
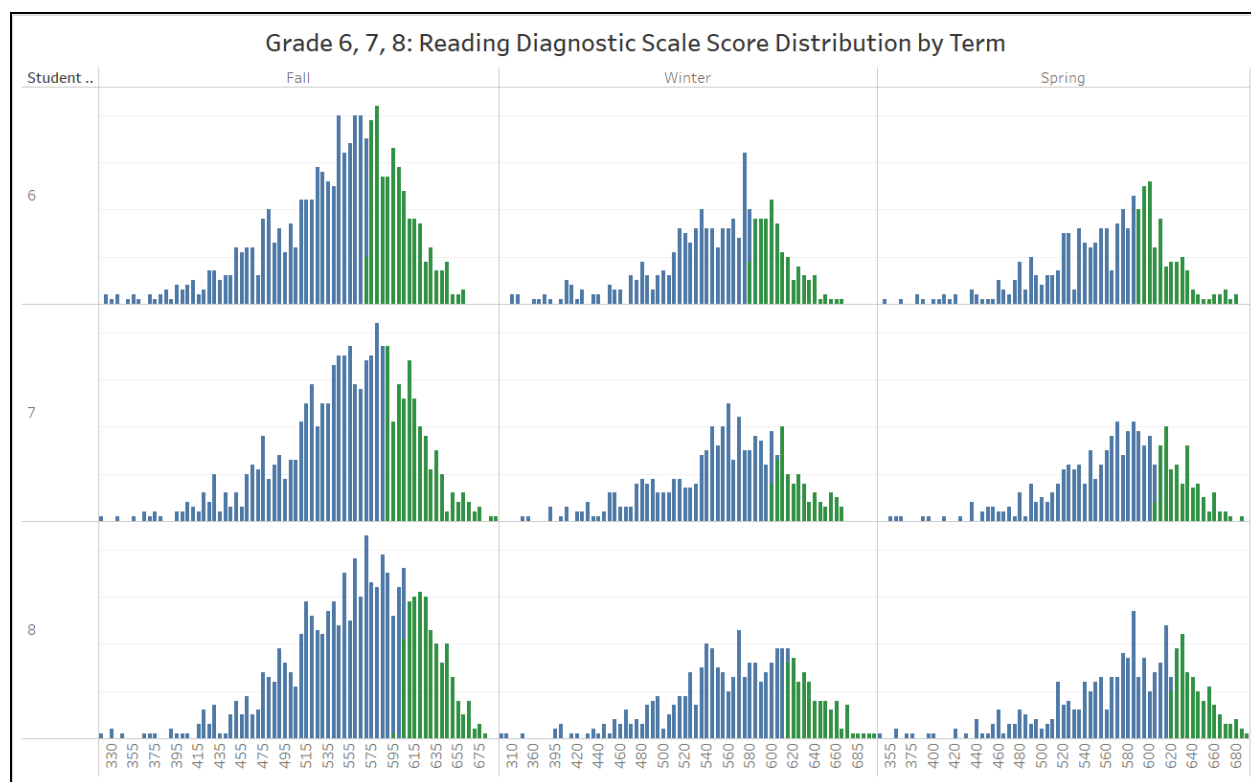


Figure 9

Grades 3rd to 10th Math and Reading state test scale score distribution

