

Note

- Instructions have been included for each segment. You do not have to follow them exactly, but they are included to help you think through the steps.

```
In [1]: # Dependencies and Setup
import pandas as pd

# File to Load (Remember to Change These)
school_data_to_load = "Resources/schools_complete.csv"
student_data_to_load = "Resources/students_complete.csv"

# Read School and Student Data File and store into Pandas DataFrames
school_data = pd.read_csv(school_data_to_load)
student_data = pd.read_csv(student_data_to_load)

# Combine the data into a single dataset.
school_data_complete = pd.merge(student_data, school_data, how="left", on=["school_name", "school_name"])
```

Local Government Area Summary

- Calculate the total number of schools
- Calculate the total number of students
- Calculate the total budget
- Calculate the average maths score
- Calculate the average reading score
- Calculate the percentage of students with a passing maths score (50 or greater)
- Calculate the percentage of students with a passing reading score (50 or greater)
- Calculate the percentage of students who passed maths **and** reading (% Overall Passing)
- Create a dataframe to hold the above results
- Optional: give the displayed data cleaner formatting

```
In [5]:
Out[5]:
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	Total Schools	Total Students	Total Budget	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing	
	0	15	39,170	\$24,649,428.00	70.338192	69.980138	86.078632	84.426857	72.808272

School Summary

- Create an overview table that summarises key metrics about each school, including:
  - School Name
  - School Type
  - Total Students
  - Total School Budget
  - Per Student Budget
  - Average Maths Score
  - Average Reading Score
  - % Passing Maths
  - % Passing Reading
  - % Overall Passing (The percentage of students that passed maths **and** reading.)
- Create a dataframe to hold the above results

```
In [9]:
Out[9]:
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	School Type	Total Students	Total School Budget	Per Student Budget	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing
Bailey High School	Government	4976	\$3,124,928.00	\$628.00	72.352894	71.008842	91.639871	87.379421	80.084405
Cabrera High School	Independent	1858	\$1,081,356.00	\$582.00	71.657158	71.359526	90.850377	89.074273	80.785791
Figueroa High School	Government	2949	\$1,884,411.00	\$639.00	68.698542	69.077993	81.654798	82.807731	67.650051
Ford High School	Government	2739	\$1,763,916.00	\$644.00	69.091274	69.572472	82.438846	82.219788	67.469880
Griffin High School	Independent	1468	\$917,500.00	\$625.00	71.788147	71.245232	91.212534	88.487738	81.335150
Hernandez High School	Government	4635	\$3,022,020.00	\$652.00	68.874865	69.186408	80.949299	81.877023	66.364617
Holden High School	Independent	427	\$248,087.00	\$581.00	72.583138	71.660422	89.929742	88.524590	78.922717
Huang High School	Government	2917	\$1,910,635.00	\$655.00	68.935207	68.910525	81.693521	81.453548	66.712376
Johnson High School	Government	4761	\$3,094,650.00	\$650.00	68.843100	69.039277	82.062592	81.978576	67.191766
Pena High School	Independent	962	\$585,858.00	\$609.00	72.088358	71.613306	91.683992	86.590437	79.209979
Rodriguez High School	Government	3999	\$2,547,363.00	\$637.00	72.047762	70.935984	90.797699	87.396849	79.419855
Shelton High School	Independent	1761	\$1,056,600.00	\$600.00	72.034072	70.257808	91.538898	86.712095	78.875639
Thomas High School	Independent	1635	\$1,043,130.00	\$638.00	69.581651	69.768807	83.853211	82.629969	69.480122
Wilson High School	Independent	2283	\$1,319,574.00	\$578.00	69.170828	68.876916	82.785808	81.296540	67.455103
Wright High School	Independent	1800	\$1,049,400.00	\$583.00	72.047222	70.969444	91.777778	86.666667	79.722222

Top Performing Schools (By % Overall Passing)

- Sort and display the top five performing schools by % overall passing.

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In [10]:
Out[10]:
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	School Type	Total Students	Total School Budget	Per Student Budget	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing
Griffin High School	Independent	1468	\$917,500.00	\$625.00	71.788147	71.245232	91.212534	88.487738	81.335150
Cabrera High School	Independent	1858	\$1,081,356.00	\$582.00	71.657158	71.359526	90.850377	89.074273	80.785791
Bailey High School	Government	4976	\$3,124,928.00	\$628.00	72.352894	71.008842	91.639871	87.379421	80.084405
Wright High School	Independent	1800	\$1,049,400.00	\$583.00	72.047222	70.969444	91.777778	86.666667	79.722222
Rodriguez High School	Government	3999	\$2,547,363.00	\$637.00	72.047762	70.935984	90.797699	87.396849	79.419855

Bottom Performing Schools (By % Overall Passing)

- Sort and display the five worst-performing schools by % overall passing.

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In [11]:
Out[11]:
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	School Type	Total Students	Total School Budget	Per Student Budget	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing
Hernandez High School	Government	4635	\$3,022,020.00	\$652.00	68.874865	69.186408	80.949299	81.877023	66.364617
Huang High School	Government	2917	\$1,910,635.00	\$655.00	68.935207	68.910525	81.693521	81.453548	66.712376
Johnson High School	Government	4761	\$3,094,650.00	\$650.00	68.843100	69.039277	82.062592	81.978576	67.191766
Wilson High School	Independent	2283	\$1,319,574.00	\$578.00	69.170828	68.876916	82.785808	81.296540	67.455103
Ford High School	Government	2739	\$1,763,916.00	\$644.00	69.091274	69.572472	82.438846	82.219788	67.469880

Maths Scores by Year

- Create a table that lists the average maths score for students of each year level (9, 10, 11, 12) at each school.
  - Create a pandas series for each year. Hint: use a conditional statement.
  - Group each series by school
  - Combine the series into a dataframe
  - Optional: give the displayed data cleaner formatting

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In [12]:
Out[12]:
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	Year 9	Year 10	Year 11	Year 12
Bailey High School	72.493827	71.897498	72.374900	72.675097
Cabrera High School	72.321970	72.437768	71.008299	70.604712
Figueroa High School	68.477804	68.331586	68.811001	69.325282
Ford High School	69.021609	69.387006	69.248862	68.617811
Griffin High School	72.789731	71.093596	71.692521	71.469178
Hernandez High School	68.586831	68.867156	69.154412	68.985075
Holden High School	70.543307	75.105263	71.640777	73.409639
Huang High School	69.081754	68.533246	69.431345	68.639316
Johnson High School	69.469286	67.990220	68.637730	69.287393
Pena High School	71.996364	72.396000	72.523438	71.187845
Rodriguez High School	71.940722	71.779808	72.364811	72.154628
Shelton High School	72.932075	72.506696	70.097087	72.331536
Thomas High School	69.234273	70.057007	69.657831	69.369822
Wilson High School	69.212361	69.455446	68.378965	69.787472
Wright High School	71.741176	72.179012	73.275862	70.848238

Reading Score by Year

- Perform the same operations as above for reading scores

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In [13]:
Out[13]:
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	Year 9	Year 10	Year 11	Year 12
Bailey High School	70.901920	70.848265	70.317346	72.195525
Cabrera High School	71.172348	71.328326	71.201245	71.856021
Figueroa High School	70.261682	67.677588	69.152327	69.082126
Ford High School	69.615846	68.988701	70.735964	68.849722
Griffin High School	72.026895	70.746305	72.385042	69.434932
Hernandez High School	68.477569	70.621842	68.418199	69.244136
Holden High School	71.598425	71.096491	73.310680	70.481928
Huang High School	68.670616	69.516297	68.740638	68.671795
Johnson High School	68.719286	69.295029	69.969115	67.992521
Pena High School	70.949091	72.324000	71.703125	71.513812
Rodriguez High School	70.902921	70.137500	71.424453	71.414449
Shelton High School	70.715094	69.879464	71.150485	69.070081
Thomas High School	69.672451	69.741093	70.749398	68.730769
Wilson High School	68.683043	68.412541	68.796327	69.888143
Wright High School	71.823529	71.386831	70.475862	69.821138

Scores by School Spending

- Create a table that breaks down school performances based on average Spending Ranges (Per Student). Use 4 reasonable bins to group school spending. Include in the table each of the following:
  - Average Maths Score
  - Average Reading Score
  - % Passing Maths
  - % Passing Reading
  - Overall Passing Rate (Average of the above two)

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In [18]:
Out[18]:
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	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing
Spending Ranges (Per Student)					
<\$585	71.36	70.72	88.84	86.39	76.72
\$585-630	72.07	71.03	91.52	87.29	79.88
\$630-645	69.85	69.84	84.69	83.76	71.00
\$645-680	68.88	69.05	81.57	81.77	66.76

Scores by School Size

- Perform the same operations as above, based on school size.

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In [22]:
Out[22]:
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	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing
School Size					
Small (<1000)	72.335748	71.636864	90.806867	87.557513	79.066348
Medium (1000-2000)	71.421650	70.720164	89.846560	86.714149	78.039785
Large (2000-5000)	69.751809	69.576052	84.252804	83.301185	70.293507

Scores by School Type

- Perform the same operations as above, based on school type

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In [24]:
Out[24]:
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	Average Maths Score	Average Reading Score	% Passing Maths	% Passing Reading	% Overall Passing
School Type					
Government	69.834806	69.675929	84.462375	83.587562	70.698993
Independent	71.366822	70.718933	89.204043	86.247789	76.973340

In [ ]: