

Admission Evaluation Criteria Analysis

DSAN 5900: Digital Storytelling

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Introduction

This report provides an analysis of the admissions data to identify key factors influencing admissions decisions. The goal is to generate actionable insights for institutional leadership to support strategic decision-making.

Objectives

- Understand the distribution of admissions decisions across states.
- Analyze the impact of GPA, test scores, work experience, and volunteer levels on admissions.
- Provide actionable recommendations based on data-driven insights.

Decision	State	GPA	WorkExp	TestScore	WritingScore	Gender	VolunteerLevel
Admit	California	3.90	6.7	962	100	1	0
Admit	Florida	3.80	1.4	969	97	1	4
Banana	California	3.80	2.3	970	98	0	5
Admit	Colorado	3.60	0.9	969	97	0	2
Admit	Colorado	3.92	1.2	969	95	-1	3
NA	California	3.80	1.2	NA	95	0	4

Source: [Article Notebook](#)

Decision	State	GPA	WorkExp
Length:88	Length:88	Min. :2.340	Min. : 0.00
Class :character	Class :character	1st Qu.:3.415	1st Qu.: 1.20
Mode :character	Mode :character	Median :3.550	Median : 1.55
		Mean :3.540	Mean : 3.21

		3rd Qu.:3.745	3rd Qu.: 2.70
		Max. :6.000	Max. :100.00
		NA's :1	
TestScore	WritingScore	Gender	VolunteerLevel
Min. :751.0	Min. : 1.0	Min. :-1.0000	Min. :0.0
1st Qu.:779.0	1st Qu.: 77.0	1st Qu.: 0.0000	1st Qu.:1.0
Median :869.0	Median : 85.0	Median : 1.0000	Median :2.0
Mean :875.7	Mean : 82.6	Mean : 0.5349	Mean :2.5
3rd Qu.:966.0	3rd Qu.: 93.0	3rd Qu.: 1.0000	3rd Qu.:4.0
Max. :970.0	Max. :100.0	Max. : 1.0000	Max. :5.0
NA's :1		NA's :2	

Source: [Article Notebook](#)

Data Cleaning

1. Remove invalid 'Decision' values.

Source: [Article Notebook](#)

2. Replace invalid gender values (-1.0) with NA.

Source: [Article Notebook](#)

3. Handle missing values.

Source: [Article Notebook](#)

4. Unify State names.

Source: [Article Notebook](#)

5. Remote outliers.

Source: [Article Notebook](#)

6. Check cleaned data.

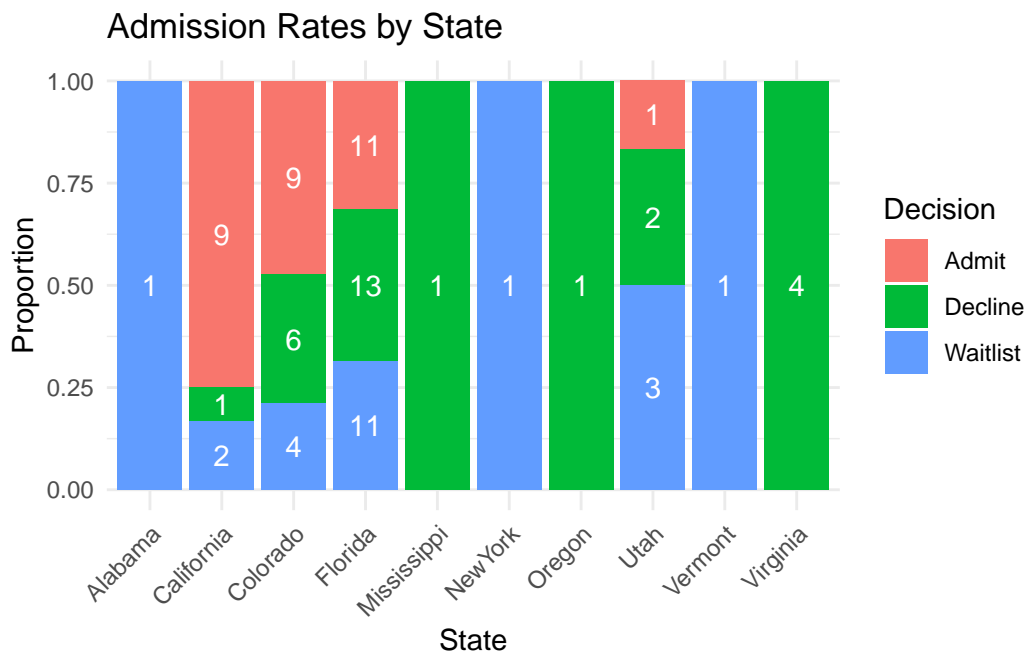
Decision	State	GPA	WorkExp
Length:81	Length:81	Min. :2.340	Min. :0.000
Class :character	Class :character	1st Qu.:3.400	1st Qu.:1.200
Mode :character	Mode :character	Median :3.540	Median :1.500
		Mean :3.527	Mean :2.131
		3rd Qu.:3.700	3rd Qu.:2.700

		Max. :6.000	Max. :9.200
TestScore	WritingScore	Gender	VolunteerLevel
Min. :751.0	Min. : 1.00	Min. :0.0000	Min. :0.000
1st Qu.:769.0	1st Qu.: 77.00	1st Qu.:0.0000	1st Qu.:1.000
Median :868.0	Median : 84.00	Median :1.0000	Median :2.000
Mean :871.3	Mean : 81.75	Mean :0.5679	Mean :2.444
3rd Qu.:966.0	3rd Qu.: 93.00	3rd Qu.:1.0000	3rd Qu.:4.000
Max. :969.0	Max. :100.00	Max. :1.0000	Max. :5.000

Source: [Article Notebook](#)

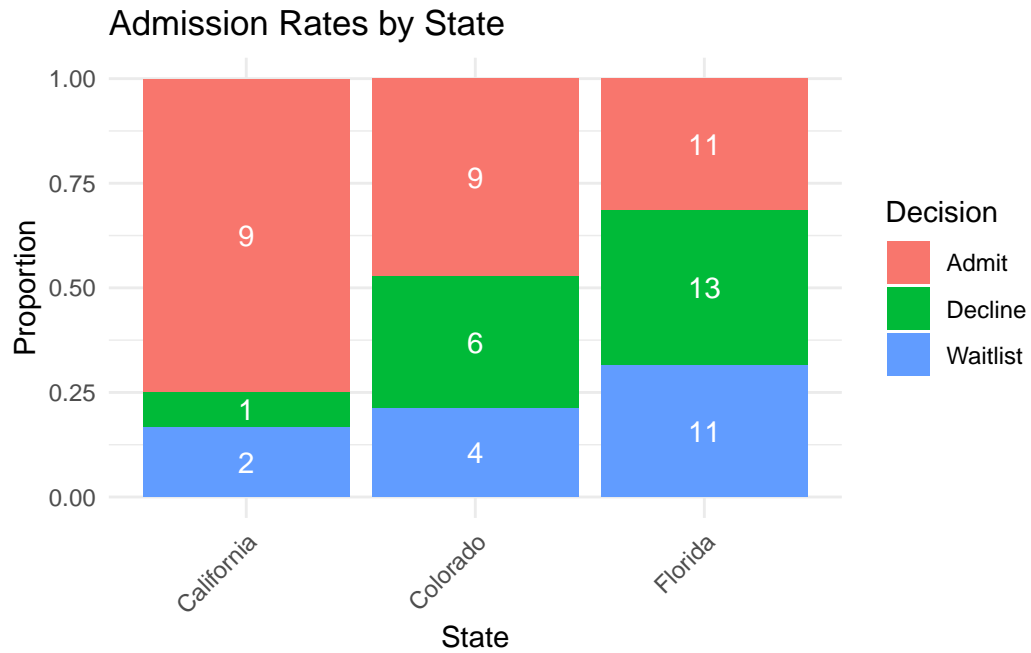
Visualizations and Analysis

1. Admission Rates by State



Source: [Article Notebook](#)

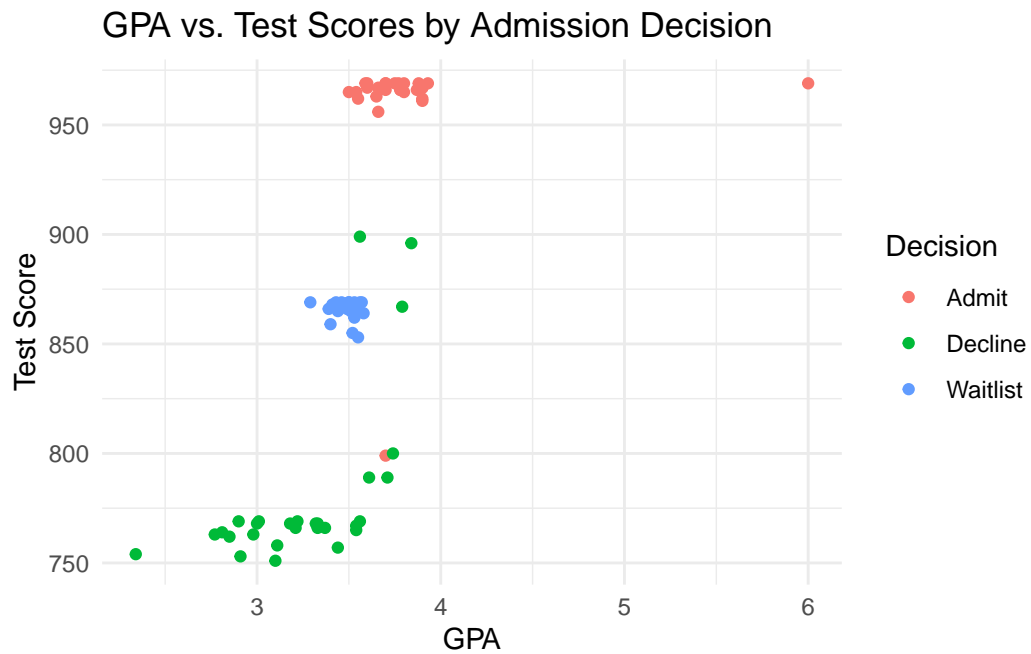
To comparing the admission rates across states with enough data points, we filtered out states with less than 10 applicants.



Source: [Article Notebook](#)

Analysis: The visualization highlights which states have higher or lower admission rates. States with consistently low acceptance rates may need targeted recruitment strategies or support programs.

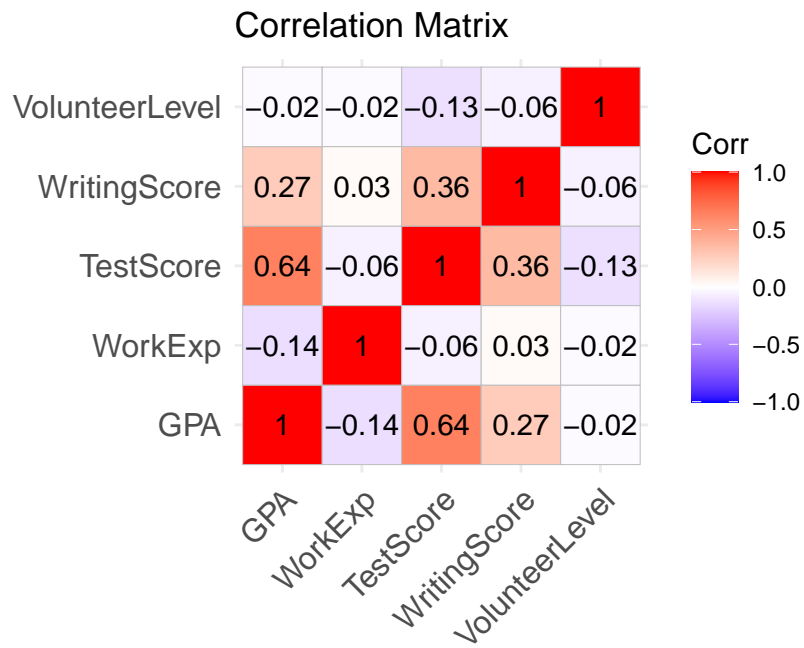
2. GPA and Test Scores for Admitted vs. Rejected Students



Source: [Article Notebook](#)

Analysis: This scatter plot reveals how GPA and test scores correlate with admissions decisions. Students with higher GPAs and test scores generally have a higher chance of being admitted.

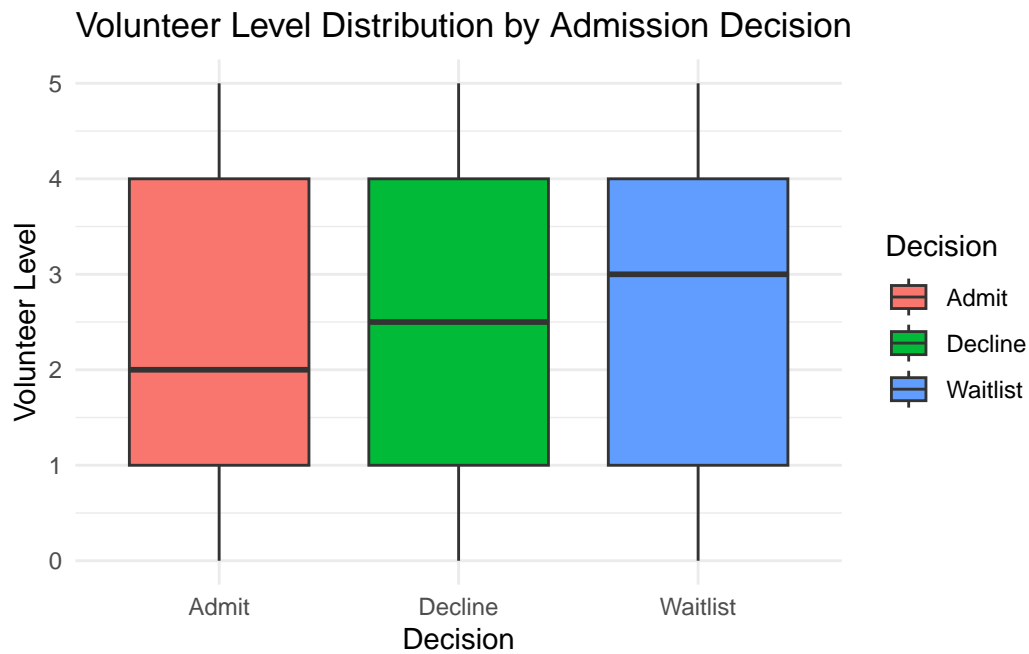
3. Correlation Heatmap



Source: [Article Notebook](#)

Analysis: The heatmap shows the correlations between quantitative variables. Strong correlations can help identify which metrics are most predictive of admissions success.

4. Boxplot of Volunteer Level Distribution Grouped by Decision



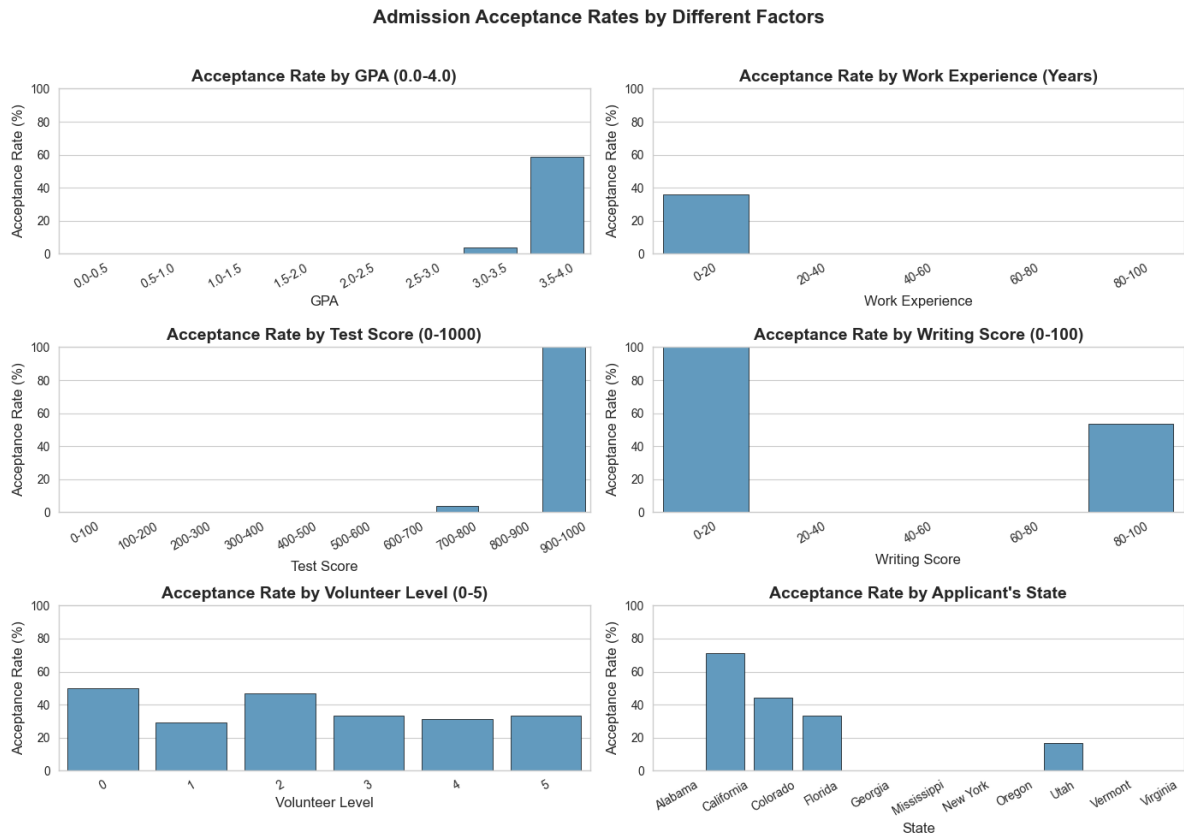
Source: [Article Notebook](#)

Analysis: This grouped boxplot provides insights into the distribution of admissions criteria.

Key observations include:

- GPA/ and Admission Relationship: The visualization confirms that applicants with a GPA above a certain threshold (e.g., 3.5) have a significantly higher chance of admission.
- Test score and Admission Relationship: A sharp increase in acceptance rates is observed in the 900-1000 test score range
- High writing scores (90-100) improve chances for getting admission
- Volunteer Experience Impact: it appears to have minimal impact on the final admission decision

5. Bar Plot: Acceptance Rates



Analysis: The bar chart subplots show the spread of admitted individuals by GPA, work experience, test score, writing score, volunteer level, and state.

Conclusion and Future Recommendations

GPA and Test Score

1. High GPAs (3.0-3.5 and 3.5-4.0) have significantly higher acceptance rates, with the 3.5-4.0 range being the strongest predictor of acceptance.
2. A sharp increase in acceptance rates is observed in the 900-1000 test score range.
3. Comparing to GPA, test score has a stronger correlation with acceptance rates.

Volunteer Level

1. Volunteer levels do not show a strong correlation with acceptance rates, suggesting this might not be a significant criterion in the current evaluation process.

Applicant's States

1. There is a notable geographical impact on acceptance rates, with California having the highest acceptance rate.

Future Recommendations

1. Enhance GPA Weighting
 - Maintain or increase the emphasis on academic performance, particularly for applicants with GPAs above 3.0.
 - Consider adding additional weight to applicants from rigorous academic institutions or challenging coursework.
2. Reevaluate Work Experience Criteria:
 - Consider whether the preference for less work experience aligns with program goals.
 - If diversity in professional backgrounds is desired, adjust admission strategies accordingly.
3. Writing Skills Assessment
 - If writing is a critical skill for success in the program, enhance the evaluation of writing samples or essays. Alternatively, if writing scores are not as crucial, streamline this criterion to focus on higher-impact factors.
4. Volunteer Experience Consideration
 - Since volunteer experience does not show a strong influence on acceptance rates, consider de-emphasizing this criterion unless community service is a core value of the institution.
 - Alternatively, explore ways to integrate volunteer experience into the admissions process, such as through interviews or case studies.

Marketing Campaign Suggestions:

1. Target High-Performing Students
 - Focus outreach efforts on students with high GPAs and strong standardized test scores.

- Collaborate with high schools, undergraduate institutions, and tutoring centers to attract these candidates.
2. Regional Campaigns
 - Implement targeted marketing in high-acceptance regions such as California, Virginia, and Vermont.
 - For states with lower acceptance rates, explore potential barriers (e.g., awareness, application support) and address them through localized campaigns.

Overall Strategy

1. By focusing on academic excellence and regional strengths, while adjusting evaluation criteria to align with institutional priorities, the admissions team can enhance both the quality and diversity of incoming students.
2. Simultaneously, targeted and data-driven marketing efforts will ensure that the institution attracts well-qualified applicants and improves overall admission outcomes.