### Introduction
Debaterly offers feature-rich online competitions at fair prices, incorporating cutting-edge technologies like performance analytics and live streaming. Our team's mission is to boost speech & debate competitions, to be as accolade worthy as varsity sports or video games.

**Objectives:**
- Conduct a competitive and geographical analysis to develop effective pricing strategies and well-structured application models
- Creating a sentiment analysis to differentiate positive and negative speech patterns

### Market Competition & Strategy
Three Trends Observed in the TechEd Sector:
- Education Framework
- Pricing & Payment Methodology
- Profit Model

Visualized Subscription Cost of Competitors (Yearly in $)

- Minimum: $20
- Mean: $90
- Maximum: $499

Four Payment Styles Discovered
- Freemium models most prevalent, followed by tiered subscription models

Common Delivery Methods of Education
- Courses most frequent, followed by games, discussion boards, and lessons

Revenue Streams
- Personal plans far more evident than class plans
- Several free options

### Geographical Analysis
- Exhibits concentration of events in highly populated states, such as California and New York, with outliers in states like Kansas and Utah
- Observed a general overall correlation of event occurrence and population density

### Debate Competition & Events
Throughout our research on speech & debate competitions around the US, we were able to:
- Facilitate the understanding of the targeted population and informed decision-making
- Create a comprehensive database of past events of importance
- Categorize all teachings into the several types of speech or debate
- Gather demographic insights

### Sentiment Analysis
For the sentiment analysis model, we created our custom dataset by collecting debate transcripts and giving them hostility scores. To expand the dataset, we concatenated our custom dataset with a bigger labeled text dataset from Hugging Face to train the model.

- Visualization of current dataset: positive sentiment (larger value) and negative sentiment (lower value) for each transcript
- Pad sequence to ensure all input sequences are of the same length
- Build a sequential neural network with Embedding, LSTM, and Dense layers
- Tweaking hyper-parameters to increase model prediction accuracy

### Geographical Analysis

**US States Shaded by Debate Tournament Frequency**

### Debate Competition & Events

- **Tournament Frequency**
  - Nevada: 1.068
  - Delaware: 0.926
  - Missouri: 0.775
  - New York: 0.711
  - Oregon: 0.609

- **Tournament Frequency by Region**
  - West: 0.698
  - Midwest: 0.715
  - South: 0.707
  - Northeast: 0.702

### Conclusion
Through our team's efforts alongside the Debaterly co-creators, we were able to accomplish each of our objectives and more. Below are some of our major strategic successes this year.

- Identified 48 key competitors and took note of their subscription types, delivery methods of education, and income models
- Deduced the concentration of speech, debate and congressional tournaments across the nation
- Analyzed demographic data in populations of interest to advance toward a smoother eventual launch of the Debaterly application
- Created a sentiment analysis model which achieved over 94.8% accuracy over 20 epochs

### References
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