Budget Text Analysis

- Datatopian Visionaries

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Overview of the Project

- **Budget text Analysis for counties and cities:**
  - Guilford County
  - Wake County
  - Mecklenburg County
  - Durham County
  - City of Charlotte
  - City of Durham
  - City of Raleigh

Goals

- **Understand the data**
- **Data Cleaning/Pre-processing**
- **Topic Modelling of the textual data**
- **Emotion and Sentiment Analysis of the budget texts to draw up public's emotional engagement.**
- **Next work recommender for the texts in budget.**

Team Structure

- **All the individuals will work on preparing data i.e. Perform Data cleaning and Data preprocessing.**
- **Team will be divided into 2 groups to perform different tasks:**
  - **Team 1: Topic Modelling**

    Members:

    1. **Naseeb Thapaliya**
    2. **Miguel Gasper Utrera**
    3. **Sultan Al Bogami**

  - **Team 2: Emotion and Sentiment Analysis**

    Members:

    1. **Akash Meghani**
    2. **Unnati Khivasara**

Data Overview

- **Primarily, 7 pdf files ranging from 400-500 pages long for each.**
- **Each pdf is converted to csv files by extracting all the relevant budget texts(words) from the pdf file.**
- **So, there are total of 638131 total words extracted from the budget files.**

Data Source

Guilford County
STATE of NORTH CAROLINA

Search...

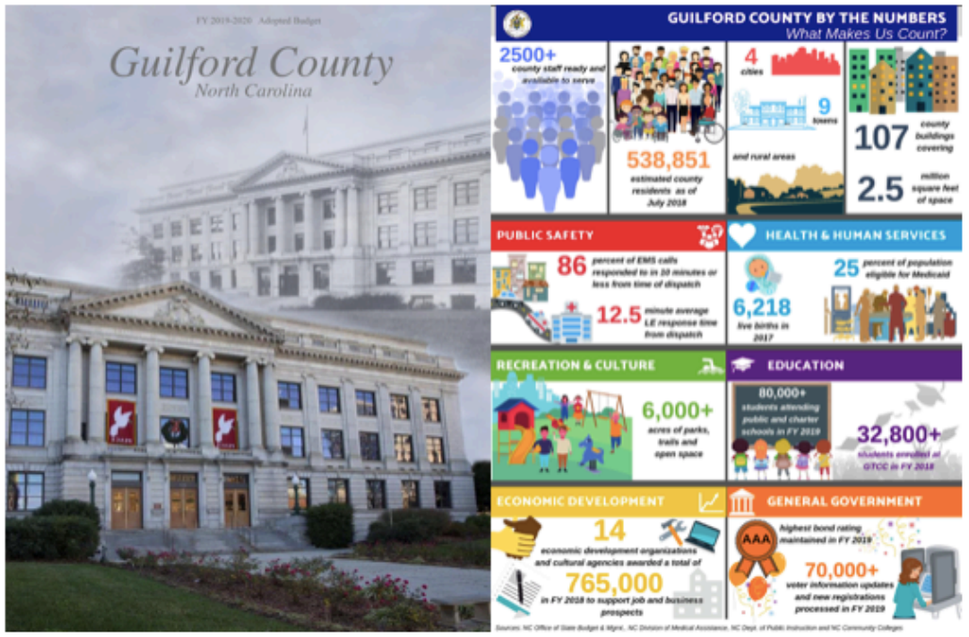
Services | Our County | Business | Get Connected | How Do I...

- Budget, Management & Evaluation
  - FY 2019-20 Adopted Budget
  - How are your Tax Dollars Spent?
  - Budget Amendments Reports
  - Budget Performance Reports
  - + Budget History & Past Adopted Budget Documents
  - + Capital Investment Plan & Capital Project Status
  - Other Financial Information
  - Contact Information

Our County » Budget, Management & Evaluation »

FY 2019-20 Adopted Budget

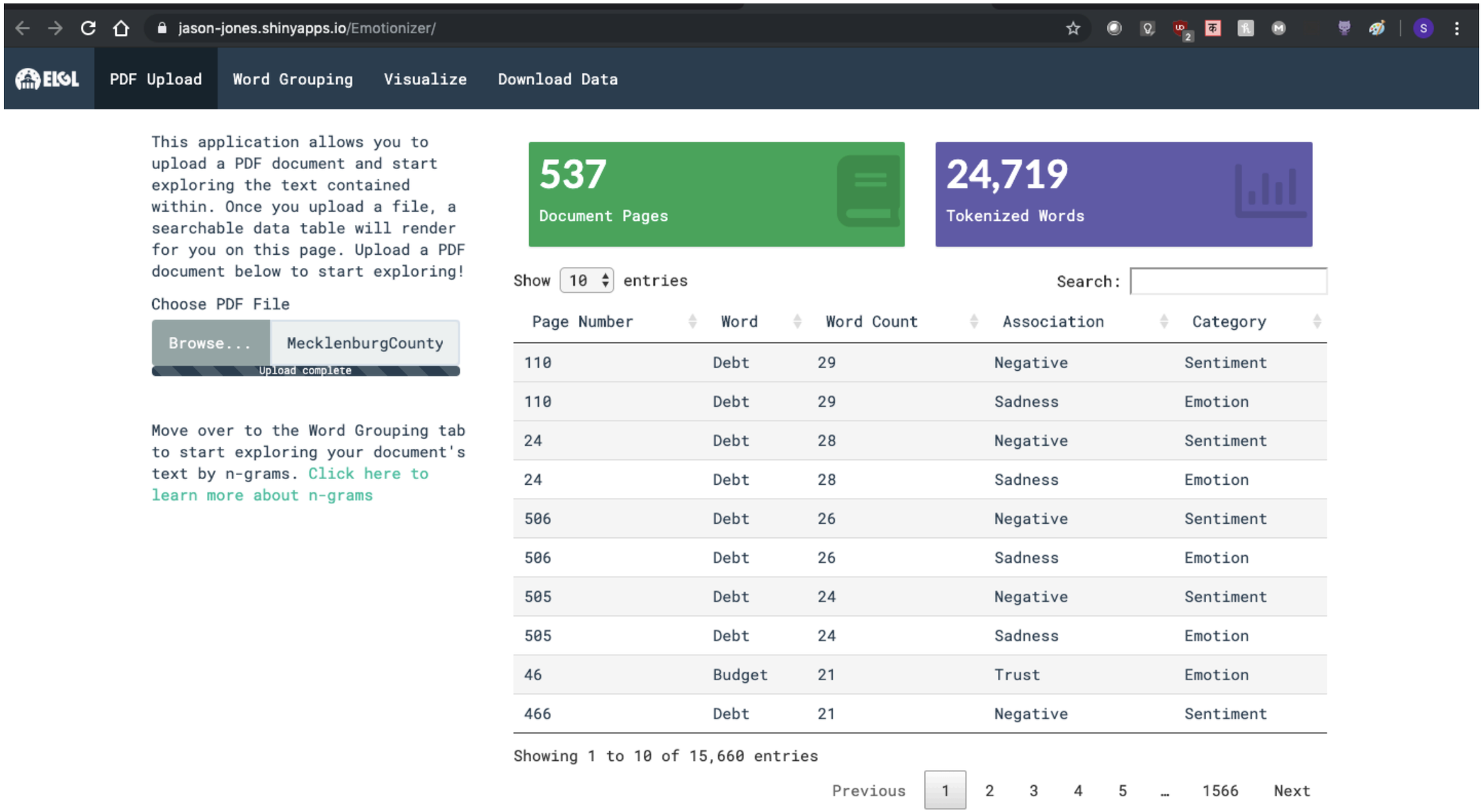
Font Size: Share & Bookmark Feedback Print



FY 2019-20 Adopted Budget Document

FY 2019-20 Adopted Budget-in-Brief

Data Conversion



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Data Transformation

In [54]:
```
GC_df = pd.read_csv(r"../util/data/structured/original/GuilfordCounty_original_data.csv")
GC_df.drop(['Unnamed: 0'], axis=1,inplace=True)
GC_df['label']='0'
GC_df.shape
GC_df.head(5)
```

Out[54]:

	page_number	word	label
0	2	guilford	0
1	2	county	0
2	2	by	0
3	2	the	0
4	2	numbers	0

In [55]:
```
CC_df = pd.read_csv(r"../util/data/structured/original/CharlotteCity_original_data.csv")
CC_df.drop(['Unnamed: 0'], axis=1,inplace=True)
CC_df['label']='1'
CC_df.head(5)
```

Out[55]:

	page_number	word	label
0	1	ensuring	1
1	1	an	1
2	1	equitable	1
3	1	sustainable	1
4	1	and	1

Data Analysis

In [47]:
```
Combined_df.shape
```

Out[47]: (638131, 3)

In [45]:
```
Combined_df.describe()
```

Out[45]:

	page_number
count	638131.000000
mean	213.602262
std	137.058241
min	1.000000
25%	100.000000
50%	203.000000
75%	305.000000
max	537.000000

In [50]:
```
Combined_df.to_csv("Combined_Counties.csv", sep='\t', encoding='utf-8')
```

In [ ]:
```

```

Data Analysis

In [47]:
```
Combined_df.shape
```

Out[47]: (638131, 3)

In [45]:
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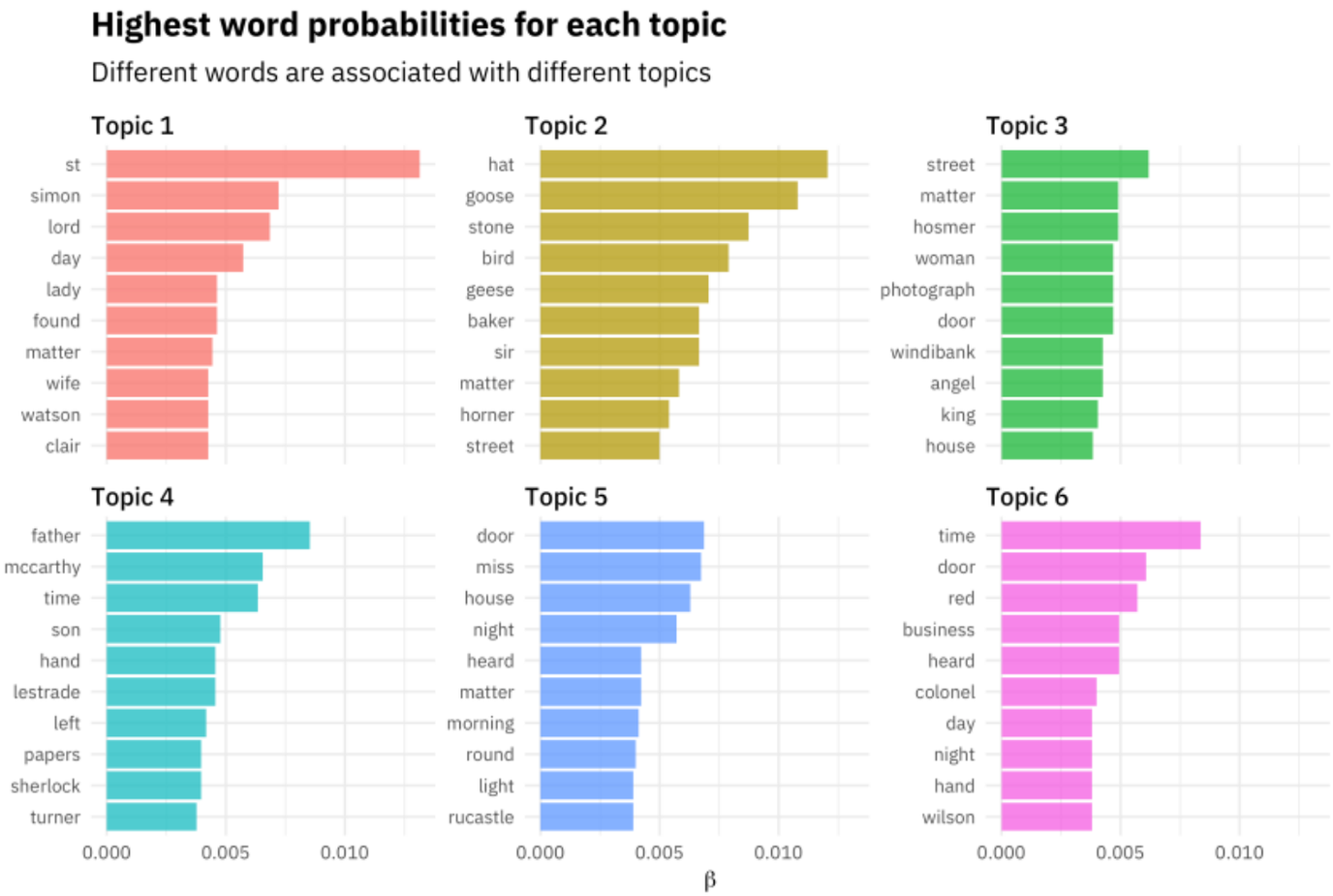
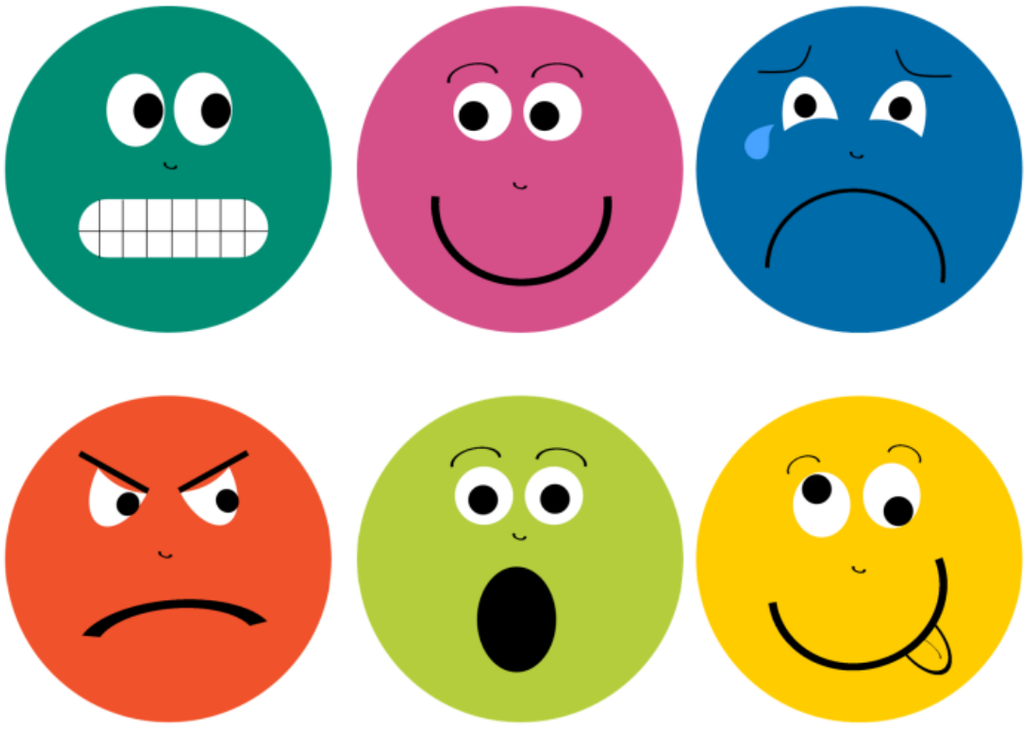
In [ ]:
```

```

Topic Modelling



- Finding a group of words (i.e topic) from a collection of documents that best represents the information in the collection.

Emotion And Sentiment Analysis



- Sentiment analysis and emotional analysis are two key methods experts use to quantify audiences' emotional engagement.

Next Word Recommender(optional)

- Whenever a user tries to enter a word/s suggest the next word based on combination of words used as input in previous searches.

Relevant Work

- **Emotion Sentiment Extraction Website by Jason.(https://jason-jones.shinyapps.io/Emotionizer/)**
- **“Peoples Opinion on Indian Budget Using Sentiment Analysis” -Varat Nayak**