



mAD_Politics!

Daniel Shiferaw, Ravi Bhandia, Sean Chuang, Yuanyuan Xiao

Project Overview

Let's start with why we chose this topic

Motivation



Personas & Use Cases



Voter

- Monitor presidential race
- Get informed about groups that are paying for the ads



Campaign Strategist

- Analyze ad performance
- Monitor candidate polling
- Evaluate ad spending



Policy Maker

- Investigate ad spending and polling numbers
- Use ad platform information as backing for regulation



Database Design



Entities

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Candidate_id	Candidate_id; Autogenerated	INTEGER	Y	N
First_name	Candidate's first name	VARCHAR(30)	N	N
Last_name	Candidate's family name	VARCHAR(30)	N	N
Birthday	Candidate's Birthday	DATE	N	N
State_id	Candidate's home state	INTEGER	N	N
Election_year	Which year the candidate is running for president	YEAR	N	N
Party	Which part the candidate belongs to	VARCHAR(30)	N	N


Candidate

- Holds basic information about candidates

Entities

Advertisement Platform

- Holds necessary information about platforms used for advertisement

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Platform_id	Platform_id; Autogenerated	INTEGER	Y	N
Platform_name	Platform name	VARCHAR(30)	N	N
Platform_type	Type of platform (e.g. digital, TV)	VARCHAR (100)	N 	N

Entities

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Ad_ID	Unique id for a new ad	INTEGER	Y	N
Platform_ID	Unique id for a new platform	INTEGER	N	N
State_ID	Unique id for a state	INTEGER	N	N
Group_ID	Unique id for groups	INTEGER	N	N
Ad_title	Title of advertisement	VARCHAR (100)	N	Y
Created_time	When was the advertisement first used on the platform	DATE	N	Y
End_time	When was the advertisement ended	DATE	N	Y
Cost	What was paid to run the advertisement	DECIMAL	N	Y
Impression	How many people viewed the advertisement	INTEGER	N	Y

Advertisement

- Holds basic information about an ad such as where it was advertised, its duration, cost, number of people interacted with the ad and more.

Entities

Attribute	Attribute Description	Data Type	Primary Key	Nullable
State_ID	Autogenerated	INTEGER	Y	N
State_name	State name	VARCHAR(20)	N	N
State_abbreviation	State abbreviations	VARCHAR (20)	N	N
Population	Population of the state	INTEGER	N	N
Delegates	Number of delegates assigned to the state	INTEGER	N	N
Median_income	Medium income of the state	INTEGER	N	N
Median_age	Median age of the state	DECIMAL	N	N

State

- Holds income and demographic information about states

Entities

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Poll_id	Poll_id; Autogenerated	INTEGER	Y	N
State_id	Unique state id	INTEGER	N	N
Candidate_id	Unique candidate id	INTEGER	N	N
Check_date	When the poll took place	DATE	N	N
Polling_percent	Percentile that the candidate won for this specific poll	DECIMAL	N	N

Polling

- Holds polling results for each state

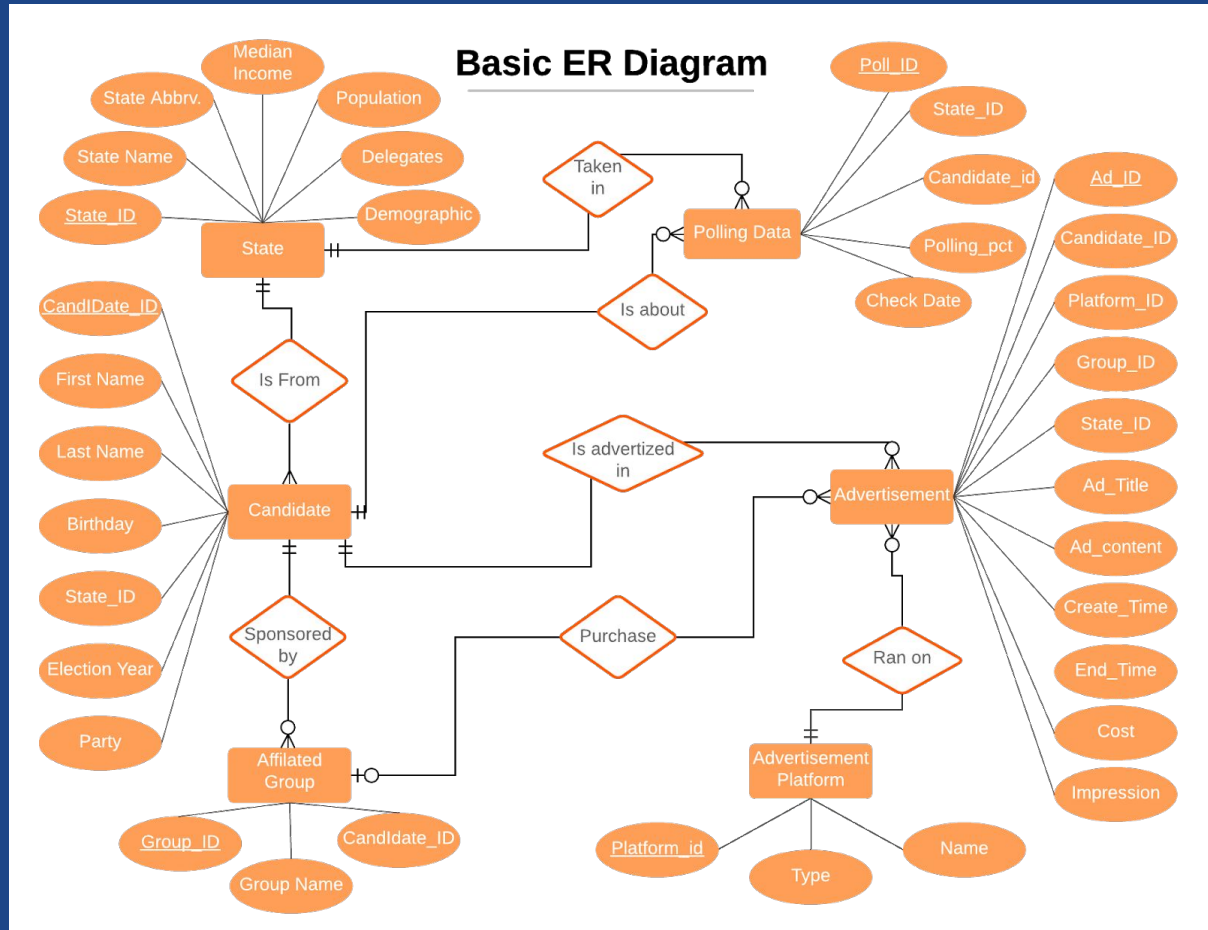
Entities

Affiliated Groups

- Basic information about groups and organizations that publish ads in support of candidates

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Group_id	Autogenerated	INTEGER	Y	N
Group_name	Name of the group	VARCHAR (100)	N	N
Candidate_id	The candidate ID that the group is supporting	INTEGER	N	N

ER Diagram



Note on Data:

The data we used for this project is manufactured or manipulated.
We scraped data from

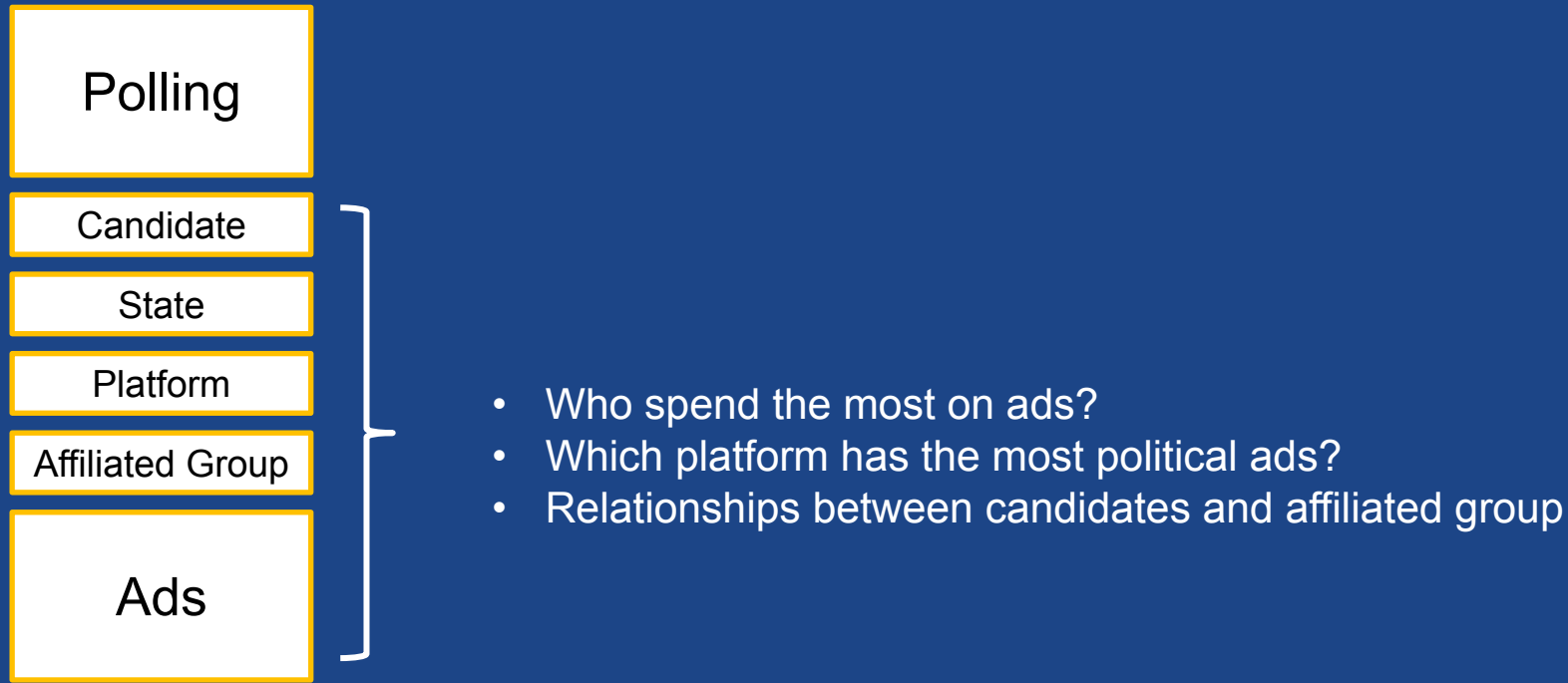
- Google Transparency Report
- Facebook Ads Report
- FiveThirtyEight Polling Data
- Wikipedia

and manipulated for the purpose of this presentation.



Specific **Challenges** in development

■ Obtaining Valuable Information



Obtaining Valuable Information

Polling

Candidate

State

Platform

Affiliated Group

Ads

- Who leads on each state? on what % lead?
- Summary of total state/delegates candidates lead

State	Poll Rank	Candidate	Polling %	Runner Up
1	1	3	33.06	15.07
1	2	1	15.07	9.02
1	3	2	9.02	(null)
2	1	2	44.02	14.02
2	2	1	14.02	8.24
2	3	3	8.24	(null)

1. Common Table Expression

WINDOW function:

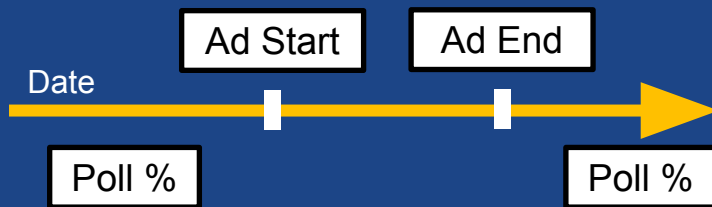
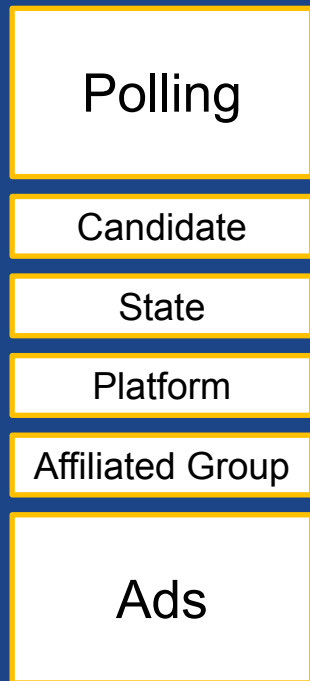
- Partition by State order by Poll
- Rank() & LEAD()

2. Query based on CTE

- CONCAT(First_name, '', Last_name) AS Candidate_Name

Obtaining Valuable Information

- How ad spending affects polling result



1. Common Table Expression

- Ads table
- Poll % before Ad start
- Poll % after Ad end

2. Query based on CTE

Candidate	Ad Title	Platform	State	Ad Start	Ad End	Poll Diff.	Ad Cost
Mike Bloomberg	'Go Mike Bloomberg'	Hulu	Washington	3/10/2020	4/11/2020	-0.23	7419
Bernie Sanders	'Vote for Bernie'	Google	New York	3/11/2020	4/6/2020	-3.48	4377
Elizabeth Warren	'Warren for president'	Google	Washington	4/4/2020	4/19/2020	0.31	3879
Pete Buttigieg	'Pete for America'	Google	New York	3/21/2020	4/15/2020	-2.44	4262

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**Web Development
&
Demo**

Webapp Development

Database Access

- Create Mariadb database with sql.
- Build container to set up the configuration environment
- Gain access through python

User Input Collection

- Design UI
- Design questions/index
- Get user input and pass information from .html to back-end

Back-end Server

- Design query
- Add user input as additional query conditions
- Pass output from back-end python to .html

Output Display

- Design UI
- Present results

Live Demo

THANKS!

Any questions?