Schedule Generator

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Context

The office cast all sign up to volunteer at the week long arts show. Each member fill out a form to indicate their availability. After the forms are complete a generator will select 3 volunteers pers show so not all members are required to work every night.
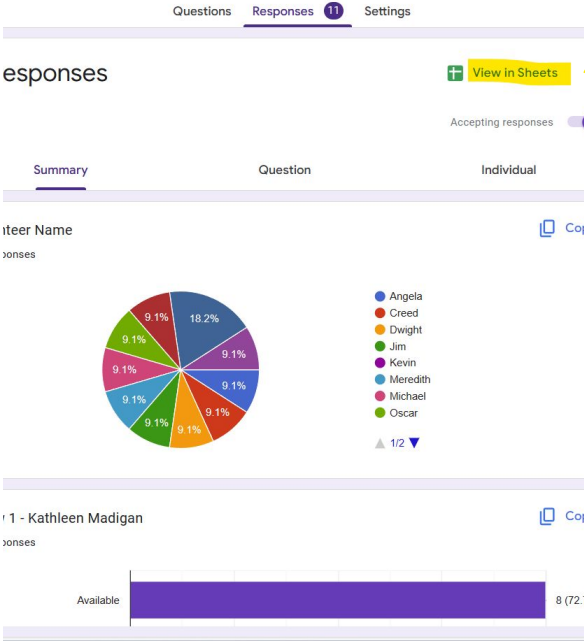
Process

- Google forms - intake volunteers' availabilities
    - Status
    - Name
    - Show
- Data cleaning script
    - Saves google sheets
    - Cleans google sheets
        - Standardizes column header
        - Takes the latest submission per volunteer
- Usher generator script
    - Selects 3 volunteers per show
    - Priority by status (Special > available)
    - Ensures Jim and Dwight do not work the same show

Google Forms

- Dropdown for volunteer name
- Shows are preceded with "Show x- "
- Location and time details
- Only 1 status can be chosen
- Demo the form: https://forms.gle/g8ARDvHrFRtw7m4d7

Google Forms

Google Forms

	A	B	C	D	E	F	G
1	**Timestamp**	**Volunteer Name**	**Show 1 - Kathleen M**	**Show 2 - CSO Maste**	**Show 3 - Marc Brous**	**Show 4 - Steve Trevi**	**Show 5 - Ashley McI**
2	3/15/2024 16:35:02	Oscar	Available	Available	Available	Special	Available
3	3/15/2024 16:35:14	Dwight	Special	Unavailable	Unavailable	Unavailable	Available
4	3/15/2024 16:35:31	Michael	Available	Available	Available	Special	Available
5	3/15/2024 16:35:51	Pam	Available	Special	Available	Unavailable	Available
6	3/15/2024 16:36:01	Jim	Unavailable	Unavailable	Special	Unavailable	Special
7	3/15/2024 16:36:16	Stanley	Available	Unavailable	Unavailable	Available	Unavailable
8	3/15/2024 16:36:25	Meredith	Available	Available	Available	Special	Available
9	3/15/2024 16:36:55	Phyllis	Available	Unavailable	Available	Unavailable	Available
10	3/15/2024 16:37:14	Creed	Available	Unavailable	Available	Unavailable	Special
11	3/15/2024 16:39:43	Angela	Available	Available	Available	Available	Special
12	3/15/2024 16:59:55	Phyllis	Unavailable	Unavailable	Unavailable	Unavailable	Available

Data Cleaning

- Data cleaning script
    - Saves google sheets
    - Cleans google sheets
        - Standardizes column header
        - Takes the latest submission per volunteer

```python
# Uppercase column headers
raw_df.columns = raw_df.columns.str.upper()

# Convert the timestamp column to datetime format
raw_df['TIMESTAMP'] = pd.to_datetime(raw_df['TIMESTAMP'])

# Group by volunteer name and get the index of the row with the latest timestamp for each volunteer
latest_indices = raw_df.groupby('VOLUNTEER NAME')['TIMESTAMP'].idxmax()

# Select the rows with the latest timestamp for each volunteer
latest_rows = raw_df.loc[latest_indices]
```
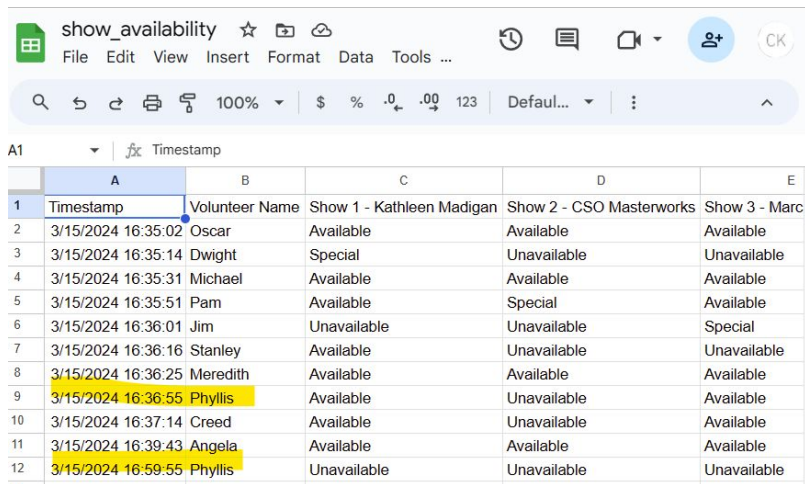
Data Cleaning

- Data cleaning script
  - Saves google sheets
  - Cleans google sheets
    - Standardizes column header
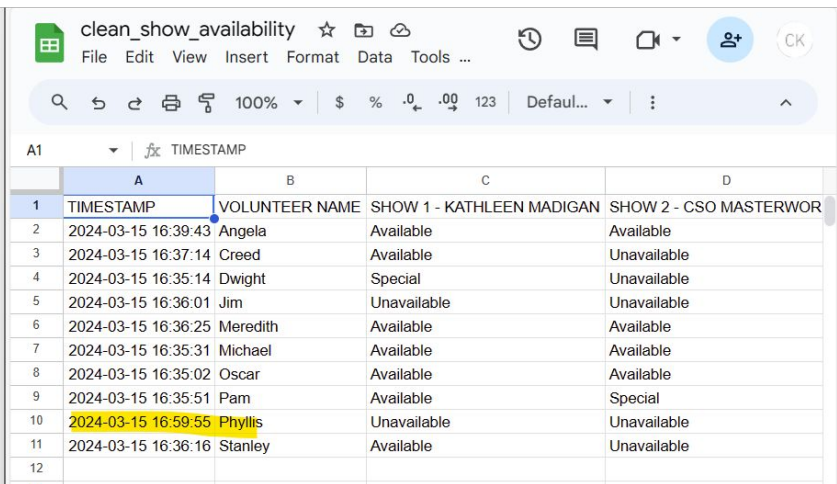   - Takes the latest submission per volunteer

Usher generator

- Usher generator script
    - Selects 3 volunteers per show
    - Priority by status (Special > available)
    - Ensures Jim and Dwight do not work the same show

```python
def generate_pool(df, col_name):
    special = list(df[df[col_name] == "Special"]["VOLUNTEER NAME"])
    available_volunteers = list(df[(df[col_name] == "Available") | (df[col_name] == "Special")]["VOLUNTEER NAME"])

    # Exclude Dwight if Jim is in the pool, and vice versa
    if "Jim" in special:
        available_volunteers = [volunteer for volunteer in available_volunteers if volunteer != "Dwight"]
    elif "Dwight" in special:
        available_volunteers = [volunteer for volunteer in available_volunteers if volunteer != "Jim"]

    # Select volunteers for the show, prioritize special volunteers
    pool = special[:min(3, len(special))] + available_volunteers[:max(0, 3 - len(special))]
    return pool
```

Usher generator

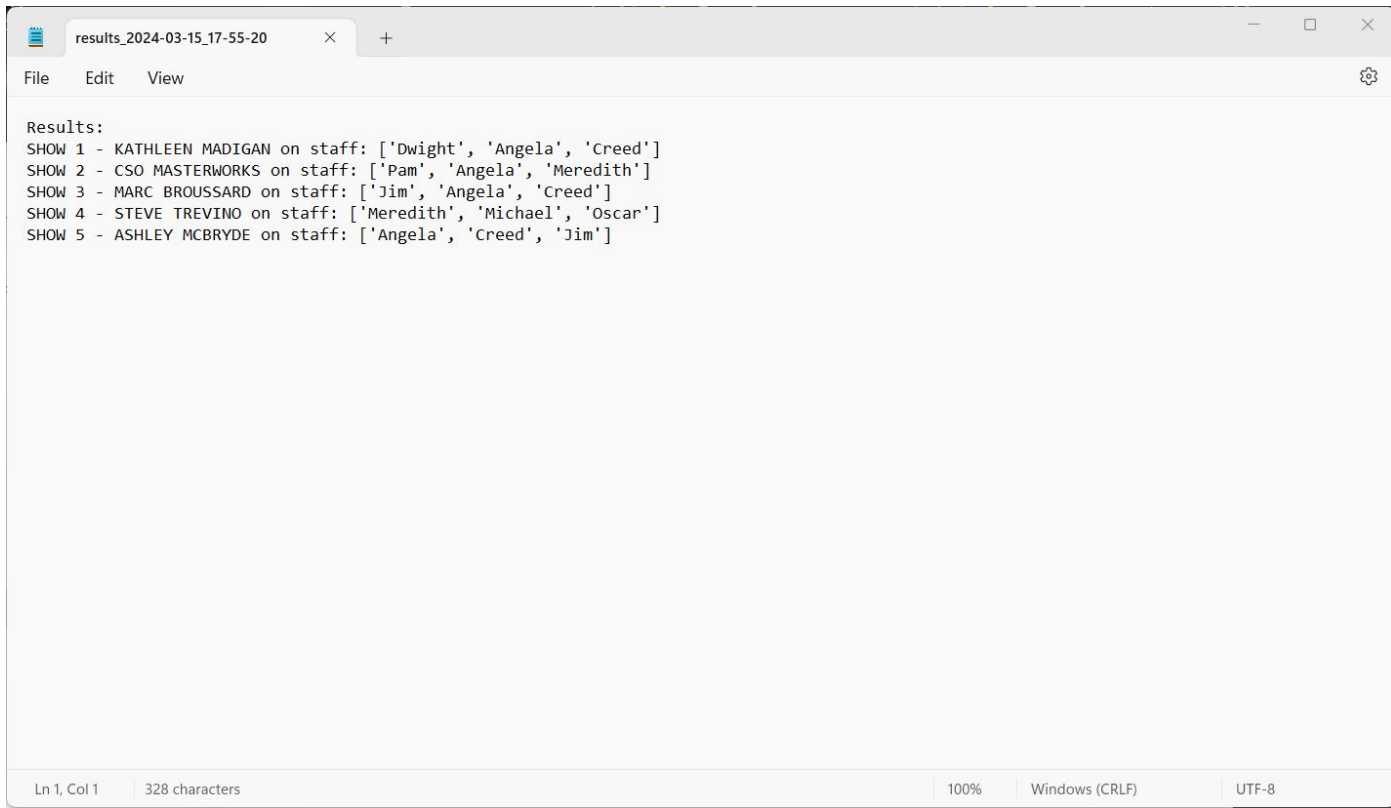| Name	Status	Date modified	Type	Size
CSO	⊘	3/15/20		
clean_show_availability	⊘	3/15/20		
show_availability	⊘	3/15/20		
data_cleaning	⊘	3/15/20		
usher_schedule_generator	⊘	3/15/20		
results_2024-03-15_17-55-20	⊘	3/		

results_2024-03-15_17-55-20   ×   +

File   Edit   View

```
Results:
SHOW 1 - KATHLEEN MADIGAN on staff: ['Dwight', 'Angela', 'Creed']
SHOW 2 - CSO MASTERWORKS on staff: ['Pam', 'Angela', 'Meredith']
SHOW 3 - MARC BROUSSARD on staff: ['Jim', 'Angela', 'Creed']
SHOW 4 - STEVE TREVINO on staff: ['Meredith', 'Michael', 'Oscar']
SHOW 5 - ASHLEY MCBRYDE on staff: ['Angela', 'Creed', 'Jim']
```

Ln 1, Col 1   328 characters   100%   Windows (CRLF)   UTF-8

Usher generator

results_2024-03-15_17-55-20

File   Edit   View

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```

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Code source

My repo: ckraft-bot/schedule_generator: An organization is currently manually creating a master work schedule based on the employees' availabilities. This project will hopefully automate the process to save the scheduler/manager's time. (github.com)