

# Schedule Generator

Claire Kraft

A dark blue diagonal gradient bar that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

# 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

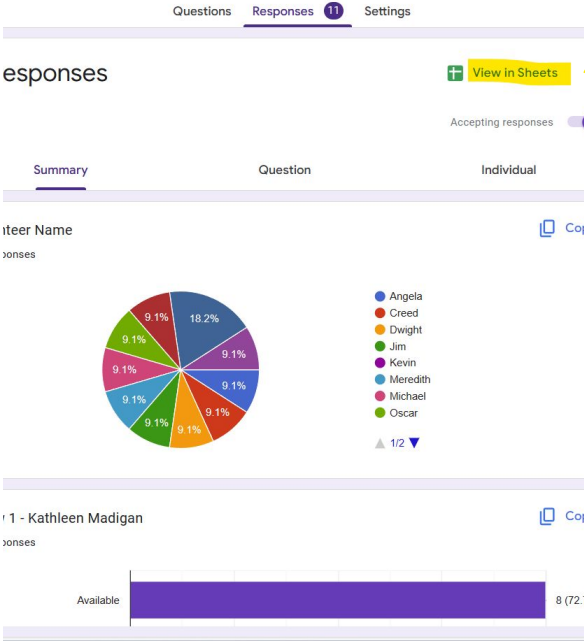
- Google forms - intake volunteers' availabilities
  - Status
  - Name
  - Show
- Data cleaning script
  - Saves google sheets
  - Cleans google sheets
    - Standardizes column header
    - Takes the latest submission per volunteer
- Usher generator script
  - Selects 3 volunteers per show
  - Priority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

# Google Forms

The screenshot shows a Google Form titled "CSO Availability Form". Below the title is a subtitle: "Please select your status per show. Only 1 status can be selected per show (available, unavailable, or special)". The form is associated with a Google account (redacted email) and is marked as "Not shared". A red asterisk indicates required questions. The first question is "Volunteer Name \*", which is a dropdown menu currently showing "Choose". The second question is "Show 1 - Kathleen Madigan \*", with a subtitle "location, time details here". It has three radio button options: "Available", "Unavailable", and "Special". The third question is "Show 2 - CSO Masterworks \*", with a subtitle "location, time details here". It has one visible radio button option: "Available".

- 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



	A	B	C	D	E	F	G
1	Timestamp	Volunteer Name	Show 1 - Kathleen M	Show 2 - CSO Mast	Show 3 - Marc Brou	Show 4 - Steve Trevi	Show 5 - Ashley Mcl
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

# Google Forms

	A	B	C	D	E	F	G
1	Timestamp	Volunteer Name	Show 1 - Kathleen M	Show 2 - CSO Maste	Show 3 - Marc Brou	Show 4 - Steve Trevi	Show 5 - Ashley Mcl
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

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

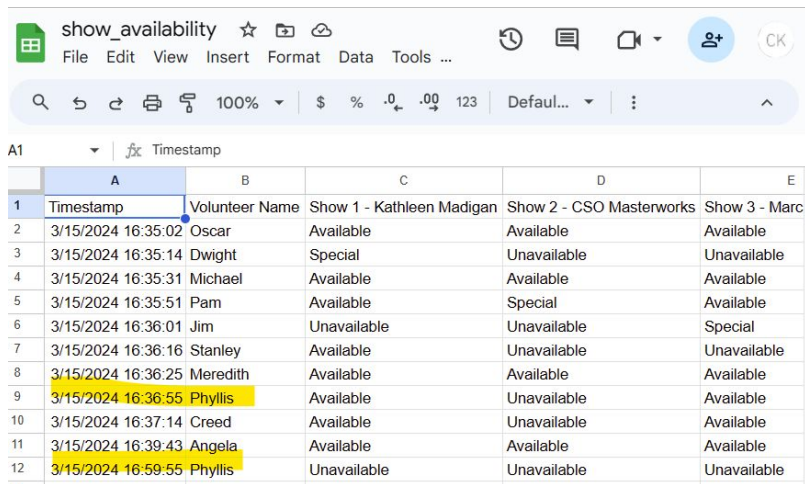
# Convert the timestamp column to datetime format
raw_df['TIMESTAMP'] = pd.to_datetime(raw_df['TIMESTAMP'])

# 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
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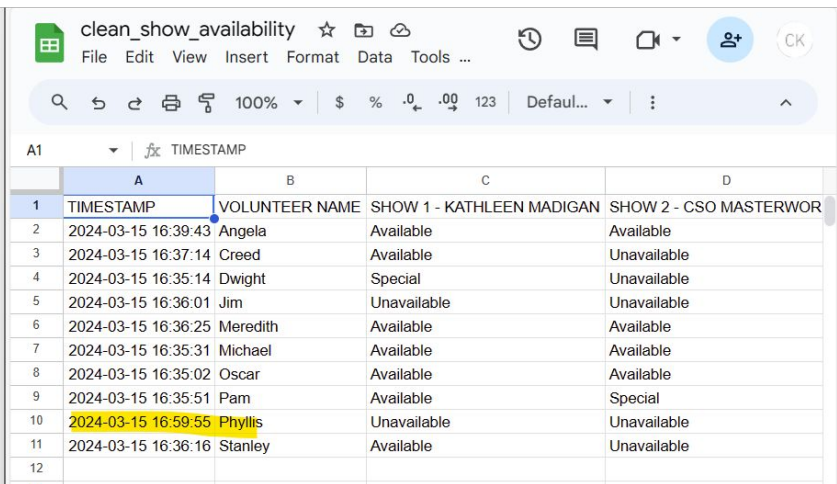
show\_availability

File Edit View Insert Format Data Tools ...

100% | \$ % .0\_ .00 123 | Default... |

A1 | fx Timestamp

	A	B	C	D	E
1	Timestamp	Volunteer Name	Show 1 - Kathleen Madigan	Show 2 - CSO Masterworks	Show 3 - Marc
2	3/15/2024 16:35:02	Oscar	Available	Available	Available
3	3/15/2024 16:35:14	Dwight	Special	Unavailable	Unavailable
4	3/15/2024 16:35:31	Michael	Available	Available	Available
5	3/15/2024 16:35:51	Pam	Available	Special	Available
6	3/15/2024 16:36:01	Jim	Unavailable	Unavailable	Special
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11	3/15/2024 16:39:43	Angela	Available	Available	Available
12	3/15/2024 16:59:55	Phyllis	Unavailable	Unavailable	Unavailable



clean\_show\_availability

File Edit View Insert Format Data Tools ...

100% | \$ % .0\_ .00 123 | Default... |

A1 | fx TIMESTAMP

	A	B	C	D
1	TIMESTAMP	VOLUNTEER NAME	SHOW 1 - KATHLEEN MADIGAN	SHOW 2 - CSO MASTERWOR
2	2024-03-15 16:39:43	Angela	Available	Available
3	2024-03-15 16:37:14	Creed	Available	Unavailable
4	2024-03-15 16:35:14	Dwight	Special	Unavailable
5	2024-03-15 16:36:01	Jim	Unavailable	Unavailable
6	2024-03-15 16:36:25	Meredith	Available	Available
7	2024-03-15 16:35:31	Michael	Available	Available
8	2024-03-15 16:35:02	Oscar	Available	Available
9	2024-03-15 16:35:51	Pam	Available	Special
10	2024-03-15 16:59:55	Phyllis	Unavailable	Unavailable
11	2024-03-15 16:36:16	Stanley	Available	Unavailable
12				



# 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


```
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	✓	3/15/20		



results\_2024-03-15\_17-55-20

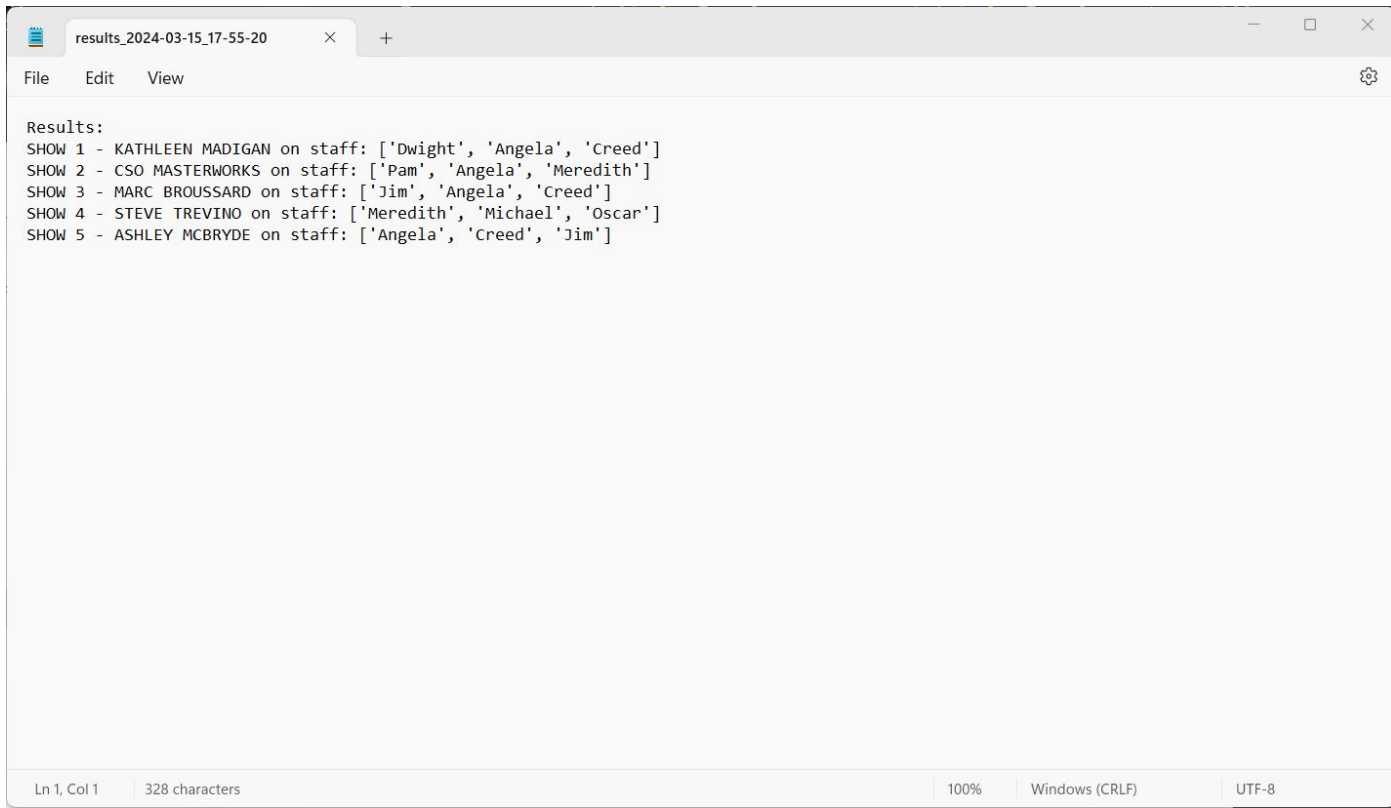
File Edit View

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



The screenshot shows a web browser window with a single tab titled "results\_2024-03-15\_17-55-20". The browser's address bar is empty. The page content displays a JSON array of 5 objects, each representing a show and its staff. The staff members are listed in an array for each show. The browser's status bar at the bottom indicates the cursor is at line 1, column 1, the file is 328 characters long, the zoom is 100%, the line endings are Windows (CRLF), and the encoding is UTF-8.

```
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']
```

# Code source

My repo: [ckraft-bot/schedule\\_generator](https://github.com/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. \(github.com\)](#)