

# 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

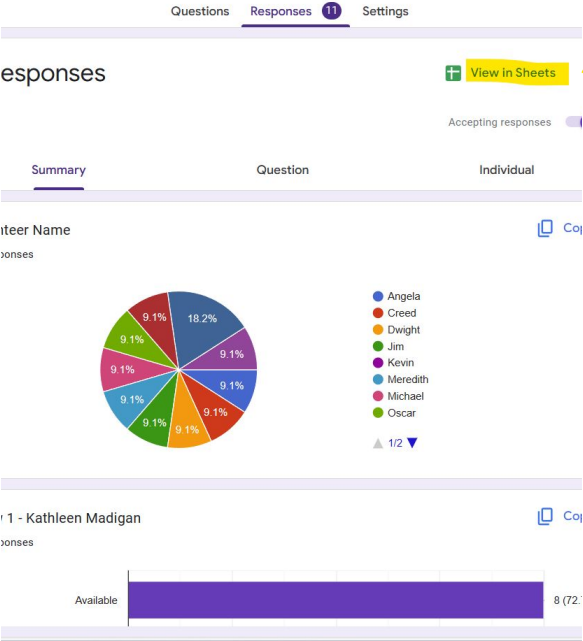
- Google forms - intake volunteers' availabilities
  - Status
  - Name
  - Show
- Data cleaning script
  - Saves google sheets
  - Cleans google sheets
    - Standardizes column header
    - Takes the latest submission per volunteer
- Usher generator script
  - Selects 3 volunteers per show
  - Priority 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 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
13	3/15/2024 22:03:37	Darryl	Unavailable	Unavailable	Available	Special	Unavailable
14	3/15/2024 22:04:09	Ryan	Available	Available	Available	Available	Available
15	3/15/2024 22:04:27	Toby	Special	Available	Special	Available	Special
16							

# 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
13	3/15/2024 22:03:37	Darryl	Unavailable	Unavailable	Available	Special	Unavailable
14	3/15/2024 22:04:09	Ryan	Available	Available	Available	Available	Available
15	3/15/2024 22:04:27	Toby	Special	Available	Special	Available	Special
16							

# 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()

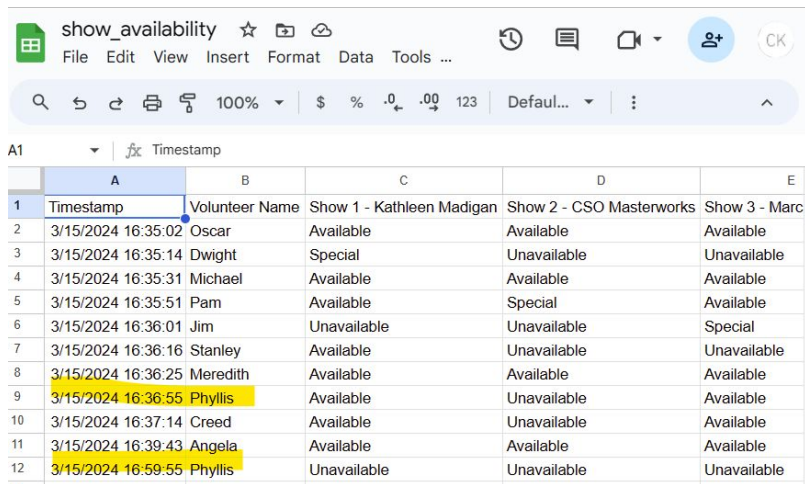
# Convert the timestamp column to datetime format
raw_df['TIMESTAMP'] = pd.to_datetime(raw_df['TIMESTAMP'])

# 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

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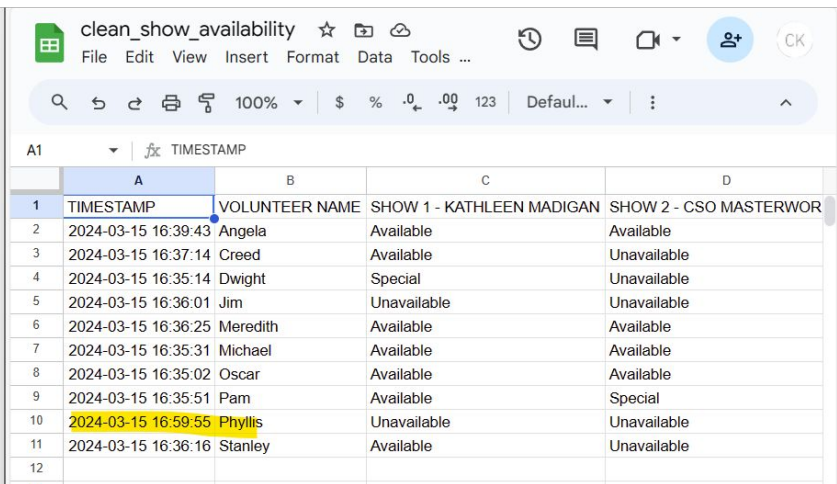
show\_availability

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
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6	3/15/2024 16:36:01	Jim	Unavailable	Unavailable	Special
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10	3/15/2024 16:37:14	Creed	Available	Unavailable	Available
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

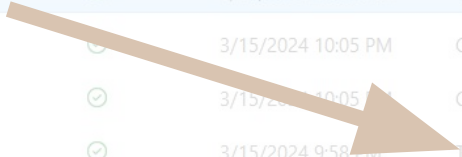
```
def generate_pool(df, col_name):
    special = list(df[df[col_name] == "Special"]["VOLUNTEER NAME"])
    available_volunteers = list(df[(df[col_name] == "Available") | (df[col_name] == "Special")]["VOLUNTEER NAME"])

    # 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

<input type="checkbox"/>	Name	Status	Date modified	Type	Size
<input checked="" type="checkbox"/>	results_2024-03-15_22-06-09	✓	3/15/2024 10:06 PM	Text Document	1 KB
	clean_show_availability	✓	3/15/2024 10:05 PM	Comma Separated...	2 KB
	show_availability	✓	3/15/2024 10:05 PM	Text Document	1 KB
	results_2024-03-15_21-58-41	✓	3/15/2024 9:58 PM	Text Document	1 KB
	schedule_generator_presentation	✓	3/15/2024 6:53 PM	Microsoft PowerPoint	1 MB
	usher_schedule_generator	✓	3/15/2024 6:24 PM	Python Script	1 KB
	data_cleaning	✓	3/15/2024 6:24 PM	Python Script	1 KB
	results_2024-03-15_17-55-20	✓	3/15/2024 5:56 PM	Text Document	1 KB

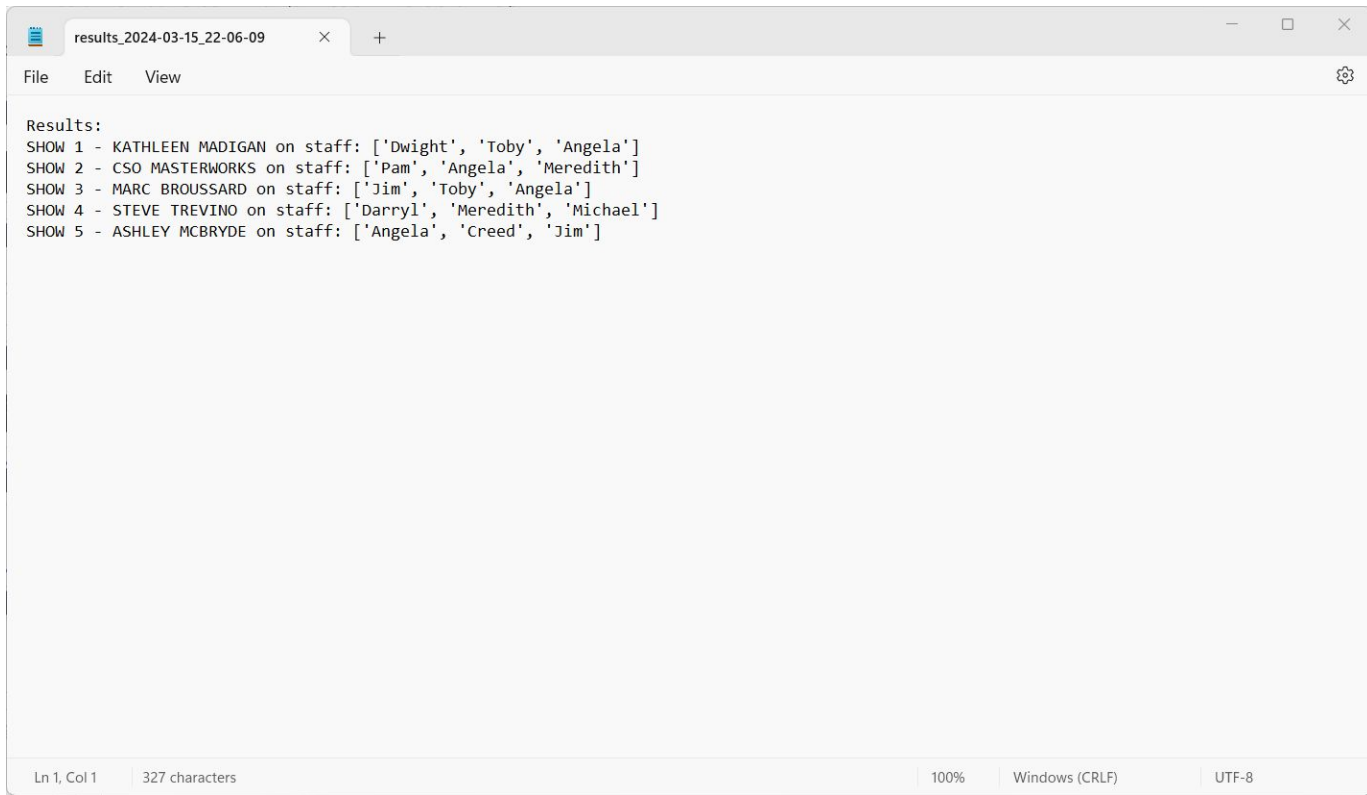


```
results_2024-03-15_22-06-09
File Edit View

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

Ln 1, Col 1 327 characters 100% Windows (CRLF) UTF-8
```

# Usher generator



The screenshot shows a web browser window with a single tab titled "results\_2024-03-15\_22-06-09". The browser's address bar is empty. The page content displays the output of a Usher generator, which lists five shows and their associated staff members. The output is formatted as follows:

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

The browser's status bar at the bottom indicates the current position is "Ln 1, Col 1", the total length is "327 characters", the zoom level is "100%", the line endings are "Windows (CRLF)", and the encoding is "UTF-8".

# 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. \(github.com\)](#)