

# Moneythink Scheduler

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## Introduction

The Moneythink Scheduler program was developed to assist in the assignment of mentoring sites to mentors for the Carnegie Mellon University chapter of Moneythink. It accomplishes this objective by generating the spreadsheets that are used to match mentors with suitable sites based on inputted iCal files containing the mentors' schedules.

The program generates two spreadsheets which facilitate in the matching process:

1. **Moneythink Schedules Tabulation.xlsx (Monday.csv-Friday.csv)**

Contains a tabulation of every mentor and what times they are free, broken up by half-hour intervals, for each weekday. A blank cell means that the mentor is busy during that interval.

	A	B	C	D	E
1	8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30
2	Aaron Tian	Aaron Tian	Aaron Tian		
3	Achyuta Burra	Achyuta Burra	Achyuta Burra		
4	Apoorva Havanur	Apoorva Havanur	Apoorva Havanur		
5				Justin Lu	Justin Lu
6	Kenny Zheng	Kenny Zheng	Kenny Zheng	Kenny Zheng	Kenny Zheng
7	Leslie Williams	Leslie Williams			
8	Michael Quinlan	Michael Quinlan	Michael Quinlan	Michael Quinlan	Michael Quinlan
9	Mohin Banker	Mohin Banker	Mohin Banker		
10					
11	Qiyang Xu	Qiyang Xu	Qiyang Xu		
12	Richard Lee	Richard Lee	Richard Lee		
13	Shouvik Mani	Shouvik Mani			

2. **Matches.csv**

Contains a tabulation of available mentors for each site.

	A	B	C	D	E	F
1	FAME Tuesdays	FAME Thursdays	Urban Mondays		Westinghouse MONDAY	Westinghouse TUESDAY
2	Boyan Zhang	Boyan Zhang	Shashwat Srivastava		Boyan Zhang	Kenny Zheng
3	Krystal Xu	Krystal Xu			Qiyang Xu	Shashwat Srivastava
4	Qiyang Xu	Qiyang Xu			Sarah Wang	
5	Sarah Wang	Sarah Wang			Shashwat Srivastava	
6		Sushain Cherivirala				
7						
8						
9						

## Dependencies

- Python
- `XlsxWriter` module (optional)

## File structure

- `iCals` (folder)
- `Template.csv`
- `Site Times Input.csv`
- `scheduler.py`

## Setup

Before the program can run, it must first be configured properly.

1. Ensure that the `iCals` folder only contains the iCal files of the current mentors whose schedules are to be processed. No other files should be in the `iCals` folder.
2. Ensure that the iCal files are named appropriately. For example, `Anusha Kukreja.ics`
3. Open `scheduler.py` and, in the constructor, update the variable `self.year` with the string of current year and the arrays `self.startDatesReg`, `self.startDatesMini`, `self.endDatesReg`, and `self.endDatesMini`, with information from the current Carnegie Mellon Academic Calendar.
4. In the root directory, ensure that there are no instances of `Monday.csv-Friday.csv`, `Matches.csv`, or `Moneythink Schedules Tabulation.xlsx`.

## Program operation

1. Run `scheduler.py` in the Python interpreter.
2. Instantiate a class: `a = iCal()`
3. Read the iCal files: `a.read()`  
**Warning:** While the program has a decent algorithm for analyzing non-SIO iCal files, such files could still crash the program. Even when the program successfully parses a non-SIO iCal file, it is highly recommended to manually double-check the results of any such parses.
4. Generate the CSV tabulation: `a.writeToCSV()`  
Optional (`XlsxWriter` must be installed): Generate the XLSX tabulation: `a.writeToXLSX()`  
The files are generated to the root directory. The CSV tabulation must be generated in order to run the matching function.
5. Input site information in `Site Times Input.csv`. Inputting "ANALYSIS" for a weekday cell causes the program to check for the site's availability during the specified time for each weekday. Start and end times must be inputted in 24-hour time without colons delimiters. See example below:

	A	B	C	D	E	F
1	Name:	FAME	FAME	Westinghouse	Urban	
2	Weekday:	Tuesdays	Thursdays	ANALYSIS	Mondays	
3	Start time:	930	1600	1300	1130	
4	End time:	1020	1800	1400	1400	
5	Commuting minutes:	20	20	30	30	

6. Generate the matches: `a.matchFromCSV()`

The file `Matches.csv` is generated to the root directory.

7. In addition to simply viewing `Matches.csv`, the function `findSites` takes in as input the name of a mentor as a string and outputs the sites to which the mentor was matched. Make sure the inputted mentor's name is spelled the way it was spelled in the iCal filename of that mentor.

```
>>> a.findSites("Anusha Kukreja")
FAME Tuesdays
FAME Thursdays
>>> a.findSites("Jillian Ward")
Urban Mondays
>>> a.findSites("Jilian Ward")
Invalid mentor name entered:  Jilian Ward
>>> a.findSites("Satvika Neti")
Satvika Neti cannot be matched with any sites.
```

## Schedule modifications

In practice, `matchFromCSV` would not be run immediately after the CSV tabulation was generated because the SIO iCal files, which the original CSV tabulation is based, does not take into account the extracurricular commitments each mentor may have. Before running `matchFromCSV`, modify the CSV tabulation by manually deleting the cells where a mentor has indicated an extracurricular commitment.

Schedules that were submitted as an image file should also be manually entered into the CSV tabulation before running `matchFromCSV`.