YOUR TITLE HERE

STAT 231: Calendar Query

Bilal Tariq

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Introduction

We all are familiar with the same loop: you wake up ready for a brand new day at 9am with so much energy, and all of a sudden you look at the clock it's 2am and you still haven't finished your physics assignments. Where does all your time go? More specifically, how is an average college student's time (like mine) divided between each of his courses, work routine and sleep, and in which locations? These are the questions that I aim to tackle in this report.

But why is knowing where our time is spent important in the first place? I realize that over the course of a semester our lives become rather disorganized and haphazard. We also get stuck in the same routine, in the same places, over and over again. By looking at ***where*** I spend my time and ***how,*** I am able to then consider how I could optimize work efficiency and change up where I work; this would in turn allow me to have more time for friends and activities and meet new people in new places.

Data collection

For the duration of the two weeks, I made sure to record the duration of my "work" and sleep at the end of each day. In particular, my work was subdivided into 3 categorical variables: courses, homework, and my job. The variables for courses and homework were further subdivided into 4 categorical variables i.e which course was the work being done for. (For instance, Physics124 Coursework and Stat231 Homework). All these categorical variables intended to record two things:

1. Location Data (where did this event take place?)

2. Interval Duration (how long did this event last?)

```
# Data import (requires **ical** package)
cal_import <- ical_parse_df("stat231tracking.ics")

# Data wrangling
mycal <- cal_import %>%
  # Google Calendar event names are in a variable called "summary";
  # "activity" is a more relevant/informative variable name.
  rename(activity = summary) %>%
  mutate(
    # Specify time zone (defaults to UTC otherwise)
    across(c(start, end),
           .fns = with_tz,
           tzone = "America/New_York"),
    # Compute duration of each activity in hours
    duration_hours = interval(start, end) / hours(1),
    # Examples of getting components of dates/times
    # Note:
    # i. these could be based on either start datetime or end datetime
    # ii. you do NOT need all of these!! so only use what you need
    date = date(start),
    year = year(start),
    month_number = month(start),
    month_label = month(start,
                        label = TRUE,
                        abbr = FALSE),
    weekday_number = wday(start),
    weekday_label = wday(start,
                         label = TRUE,
                         abbr = FALSE),
    hour = hour(start),
    time = hour(start) + minute(start)/60,
    # Convert text to lowercase and remove repeated or leading/trailing
    # spaces to help clean up inconsistent formatting.
    across(c(activity, description),
           .fns = str_to_lower),
```

```
    across(c(activity, description),
           .fns = str_squish)
  ) %>%
  # The first Google Calendar entry is always an empty 1969 event
  filter(year != 1969)
```

```
Warning: There was 1 warning in `mutate()`.
i In argument: `across(c(start, end), .fns = with_tz, tzone =
  "America/New_York")`.
Caused by warning:
! The `...` argument of `across()` is deprecated as of dplyr 1.1.0.
Supply arguments directly to `.fns` through an anonymous function instead.

  # Previously
  across(a:b, mean, na.rm = TRUE)

  # Now
  across(a:b, \(x) mean(x, na.rm = TRUE))
```

```
kable(mycal)
```

uid	activity	start	end	description	last.modified	status	duration	date	year	month	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6u1k892ikia[illegible]@google.com	Sleep	2024-02-07 01:00:00	2024-02-07 08:15:00		2024-02-26 19:03:46	CONFIRMED	7.25	2024-02-07	2024	2	February	4	Wednesday	1	1.00000
2duto7sh3r[illegible]@google.com	Sleep	2024-02-08 02:00:00	2024-02-08 09:00:00		2024-02-26 19:05:23	CONFIRMED	7.00	2024-02-08	2024	2	February	5	Thursday	2	2.00000
2k12qla11a7[illegible]@google.com	Start homework	2024-02-07 08:30:00	2024-02-07 10:00:00		2024-02-26 19:13:03	CONFIRMED	1.50	2024-02-07	2024	2	February	4	Wednesday	8	8.50000

uid	activity	start	end	description	last_modified	status	duration	date	year	month	month_label	weekday	weekday_label	hour	hour_label
1i7ra0vsuf5[illegible]	[illegible]	[illegible]02-07 10:00:00	[illegible]02-07 11:00:00	[illegible]	2024-02-26 19:13:10	CONFIRMED	1.000000	2024-02-07	2024	2	February	4	Wednesday	10	10.00000
54ll9guuq5[illegible]	[illegible]	[illegible]02-07 11:00:00	[illegible]02-07 12:00:00	[illegible]	2024-02-26 19:13:16	CONFIRMED	1.000000	2024-02-07	2024	2	February	4	Wednesday	11	11.00000
3uq786ila5[illegible]	[illegible]	[illegible]02-07 12:00:00	[illegible]02-07 13:00:00	[illegible]	2024-02-26 19:13:21	CONFIRMED	1.000000	2024-02-07	2024	2	February	4	Wednesday	12	12.00000
4o5j5gh1p2[illegible]	[illegible]	[illegible]02-08 09:30:00	[illegible]02-08 11:30:00	[illegible]	2024-02-26 19:13:43	CONFIRMED	2.000000	2024-02-08	2024	2	February	5	Thursday	9	9.50000
4opt82vdqe[illegible]	[illegible]	[illegible]02-08 14:30:00	[illegible]02-08 17:30:00	[illegible]	2024-02-26 19:14:06	CONFIRMED	3.000000	2024-02-08	2024	2	February	5	Thursday	14	14.50000
51egud3sf9[illegible]	[illegible]	[illegible]02-07 21:00:00	[illegible]02-07 23:00:00	[illegible]	2024-02-26 19:16:20	CONFIRMED	2.000000	2024-02-07	2024	2	February	4	Wednesday	21	21.00000
223ave61jc[illegible]	[illegible]	[illegible]02-07 18:00:00	[illegible]02-07 19:30:00	[illegible]	2024-02-26 19:16:31	CONFIRMED	1.500000	2024-02-07	2024	2	February	4	Wednesday	18	18.00000
3gmhq086r[illegible]	[illegible]	[illegible]02-07 16:00:00	[illegible]02-07 17:30:00	[illegible]	2024-02-26 19:16:42	CONFIRMED	1.500000	2024-02-07	2024	2	February	4	Wednesday	16	16.00000

uid	activity	start	end	description	last_modified	status	duration	date	year	month	month_name	weekday	day_name	hour	hour_decimal
6avldng9i0lh0tgh21[illegible]	math	2024-02-07 19:30:00	2024-02-07 20:45:00	[illegible]@google.com sciencecentre	2024-02-26 19:16:46	CONFIRMED	1.25	2024-02-07	2024	2	February	4	Wednesday	19	19.50000
706667hbf0jo1rhel[illegible]vqj8[illegible]	job	2024-02-08 12:30:00	2024-02-08 14:30:00	[illegible]@google.com	2024-02-26 19:16:57	CONFIRMED	2.00	2024-02-08	2024	2	February	5	Thursday	12	12.50000
7ms7qrgt1dj2fbusv920f31[illegible]	job	2024-02-10 16:30:00	2024-02-10 20:30:00	[illegible]@google.com sciencecentre	2024-02-26 19:17:23	CONFIRMED	4.00	2024-02-10	2024	2	February	7	Saturday	16	16.50000
289f2p0788[illegible]	physics	2024-02-08 20:30:00	2024-02-08 21:45:00	[illegible]@google.com sciencecentre	2024-02-26 19:18:09	CONFIRMED	1.25	2024-02-08	2024	2	February	5	Thursday	20	20.50000
639thf1a9cqm[illegible]	math	2024-02-09 20:00:00	2024-02-09 21:30:00	[illegible]@google.com	2024-02-26 19:18:11	CONFIRMED	1.50	2024-02-09	2024	2	February	6	Friday	20	20.00000
2m0di092m3[illegible]	physics	2024-02-10 12:00:00	2024-02-10 15:15:00	[illegible]@google.com library	2024-02-26 19:18:45	CONFIRMED	3.25	2024-02-10	2024	2	February	7	Saturday	12	12.00000
5ppk8qfn383[illegible]	math	2024-02-09 10:00:00	2024-02-09 11:00:00	[illegible]@google.com	2024-02-26 19:19:01	CONFIRMED	1.00	2024-02-09	2024	2	February	6	Friday	10	10.00000
1c6n4orbc3jf[illegible]	physics	2024-02-09 11:00:00	2024-02-09 12:00:00	[illegible]@google.com sciencecentre	2024-02-26 19:19:10	CONFIRMED	1.00	2024-02-09	2024	2	February	6	Friday	11	11.00000

uid	activity	start	end	description	last_modified	status	duration	date	year	month	month_name	week_number	weekday	hour	hour_label
498bm9eba[illegible]	[illegible]	2024-02-09 12:00:00	2024-02-09 13:00:00	[illegible]	2024-02-26 19:19:24	CONFIRMED	1.000000	2024-02-09	2024	2	February	6	Friday	12	12.00000
3rlatqk9285[illegible]	sleep	2024-02-09 03:00:00	2024-02-09 09:00:00	[illegible]	2024-02-26 19:19:51	CONFIRMED	6.000000	2024-02-09	2024	2	February	6	Friday	3	3.00000
6heu47nj1j[illegible]	sleep	2024-02-09 23:00:00	2024-02-10 07:00:00	[illegible]	2024-02-26 19:20:38	CONFIRMED	8.000000	2024-02-09	2024	2	February	6	Friday	23	23.00000
6s2q1gut39[illegible]	[illegible]	2024-02-10 09:15:00	2024-02-10 11:00:00	[illegible]	2024-02-26 19:21:08	CONFIRMED	1.750000	2024-02-10	2024	2	February	7	Saturday	9	9.25000
42lgo32h2b[illegible]	sleep	2024-02-12 00:30:00	2024-02-12 08:00:00	[illegible]	2024-02-26 19:21:39	CONFIRMED	7.500000	2024-02-12	2024	2	February	2	Monday	0	0.50000
4qf43ursop[illegible]	sleep	2024-02-13 04:00:00	2024-02-13 13:00:00	[illegible]	2024-02-26 19:21:46	CONFIRMED	9.000000	2024-02-13	2024	2	February	3	Tuesday	4	4.00000
775jjkk2a5a[illegible]	sleep	2024-02-15 03:00:00	2024-02-15 12:00:00	[illegible]	2024-02-26 19:21:51	CONFIRMED	9.000000	2024-02-15	2024	2	February	5	Thursday	3	3.00000
7pp2pr1fo5[illegible]	[illegible]	2024-02-16 01:00:00	2024-02-16 09:00:00	[illegible]	2024-02-26 19:22:00	CONFIRMED	8.000000	2024-02-16	2024	2	February	6	Friday	1	1.00000

uid	activity	start	end	description	last_modified	status	duration	date	years	month	month_label	weekday	weekday_label	hour	hour_double
5dpuacu6q[illegible]	sleep? [illegible]	2024-02-17 02:00:00	2024-02-17 08:30:00	[illegible]@google.com	2024-02-26 19:22:05	CONFIRMED	6.5	2024-02-17	2024	2	February	7	Saturday	2	2.00000
315mjfdfjm[illegible]	[illegible]	2024-02-12 08:30:00	2024-02-12 10:00:00	[illegible]@google.com	2024-02-26 19:22:36	CONFIRMED	1.5	2024-02-12	2024	2	February	2	Monday	8	8.50000
4ut0geb4f7[illegible]	[illegible]	2024-02-12 10:00:00	2024-02-12 11:00:00	[illegible]@google.com	2024-02-26 19:22:46	CONFIRMED	1.0	2024-02-12	2024	2	February	2	Monday	10	10.00000
3dac7muf89[illegible]	physics [illegible]	2024-02-12 11:00:00	2024-02-12 12:00:00	[illegible]@google.com	2024-02-26 19:22:59	CONFIRMED	1.0	2024-02-12	2024	2	February	2	Monday	11	11.00000
4mv3e86ep[illegible]	[illegible]	2024-02-12 13:00:00	2024-02-12 14:00:00	[illegible]@google.com	2024-02-26 19:23:10	CONFIRMED	1.0	2024-02-12	2024	2	February	2	Monday	13	13.00000
2abfa8gboo[illegible]	physics [illegible]	2024-02-13 14:30:00	2024-02-13 15:30:00	[illegible]@google.com	2024-02-26 19:23:25	CONFIRMED	1.0	2024-02-13	2024	2	February	3	Tuesday	14	14.50000
3vu3upgdl7[illegible]	[illegible]	2024-02-16 14:30:00	2024-02-16 15:30:00	[illegible]@google.com	2024-02-26 19:23:52	CONFIRMED	1.0	2024-02-16	2024	2	February	6	Friday	14	14.50000
27ppvpkom[illegible]	[illegible]	2024-02-12 19:30:00	2024-02-12 21:45:00	[illegible]@google.com	2024-02-26 19:24:12	CONFIRMED	2.25	2024-02-12	2024	2	February	2	Monday	19	19.50000

uid	activity	start	end	description	last_modified	status	duration	date	year	month	month_name	week_day	weekday_label	hour	hour_label
3gdn2qjlclv64s39e8224	physics...@group.calendar.google.com	2024-02-12 16:30:00	2024-02-12 19:30:00	sciencecentre	2024-02-26 19:24:31	CONFIRMED	3.000000	2024-02-12	2024	2	February	2	Monday	16	16.50000
7ibuqht7n0j3o	johetc...2018k...@google.com	2024-02-12 22:00:00	2024-02-13 01:15:00		2024-02-26 19:25:02	CONFIRMED	3.250000	2024-02-12	2024	2	February	2	Monday	22	22.00000
0atu7og94ca...	maths...@google.com	2024-02-14 10:00:00	2024-02-14 11:00:00		2024-02-26 19:25:45	CONFIRMED	1.000000	2024-02-14	2024	2	February	4	Wednesday	10	10.00000
2632caf5q6...	sju823...@google.com	2024-02-14 08:30:00	2024-02-14 10:00:00	webster	2024-02-26 19:25:54	CONFIRMED	1.500000	2024-02-14	2024	2	February	4	Wednesday	8	8.50000
7f4j2po50g8...	physics...@group.calendar.google.com	2024-02-14 11:00:00	2024-02-14 12:00:00	sciencecentre	2024-02-26 19:26:06	CONFIRMED	1.000000	2024-02-14	2024	2	February	4	Wednesday	11	11.00000
2f96rilue80s...	cs...@google.com	2024-02-14 12:00:00	2024-02-14 13:00:00	sciencecentre	2024-02-26 19:26:19	CONFIRMED	1.000000	2024-02-14	2024	2	February	4	Wednesday	12	12.00000
0qg370jdt58...	jobjpfsu...@google.com	2024-02-13 15:30:00	2024-02-13 17:45:00	library	2024-02-26 19:27:15	CONFIRMED	2.250000	2024-02-13	2024	2	February	3	Tuesday	15	15.50000
42v4djn6pt...	physics...@group.calendar.google.com	2024-02-13 19:00:00	2024-02-13 20:45:00	sciencecentre	2024-02-26 19:27:18	CONFIRMED	1.750000	2024-02-13	2024	2	February	3	Tuesday	19	19.00000

uid	activity	start	end	description	last_modified	status	duration	date_only	year	month_num	month	day	weekday_num	weekday	hour	duration_label
4p1lsrjci4lgs	[illegible]	2024-02-13 22:00:00	2024-02-13 23:00:00	[illegible]	2024-02-26 19:27:29	CONFIRMED	1:00:00	2024-02-13	2024	2	February	3	2	Tuesday	22	22.00000
4rmscvi4qus	[illegible]	2024-02-14 00:30:00	2024-02-14 08:00:00	[illegible]	2024-02-26 19:27:48	CONFIRMED	7:30:00	2024-02-14	2024	2	February	4	3	Wednesday	0	0.50000
583ecv9sac	[illegible]	2024-02-14 18:14:00	2024-02-14 22:15:00	[illegible]	2024-02-26 19:28:10	CONFIRMED	4:01:00	2024-02-14	2024	2	February	4	3	Wednesday	18	18.23333
1pu6atrh7ac	[illegible]	2024-02-14 15:00:00	2024-02-14 16:00:00	[illegible]	2024-02-26 19:28:25	CONFIRMED	1:00:00	2024-02-14	2024	2	February	4	3	Wednesday	15	15.00000
307ievqpq5j	[illegible]	2024-02-15 19:00:00	2024-02-15 20:00:00	[illegible]	2024-02-26 19:28:45	CONFIRMED	1:00:00	2024-02-15	2024	2	February	5	4	Thursday	19	19.00000
5qjn2smlio	[illegible]	2024-02-16 18:58:00	2024-02-16 23:00:00	[illegible]	2024-02-26 19:28:57	CONFIRMED	4:02:00	2024-02-16	2024	2	February	6	5	Friday	18	18.96667
0l37p423gu	[illegible]	2024-02-15 22:30:00	2024-02-16 00:00:00	[illegible]	2024-02-26 19:29:30	CONFIRMED	1:30:00	2024-02-15	2024	2	February	5	4	Thursday	22	22.50000
2nv24j89qs	[illegible]	2024-02-17 12:00:00	2024-02-17 16:00:00	[illegible]	2024-02-26 19:33:35	CONFIRMED	4:00:00	2024-02-17	2024	2	February	7	6	Saturday	12	12.00000

uid	activity	start	end	description	last_modified	status	duration	date	year	month	month_name	weekday	weekday_name	hour	hour_label
790racngeh[illegible]	[illegible]	2024-02-17 18:30:00	2024-02-17 20:00:00	[illegible]@google.com	2024-02-26 19:33:51	CONFIRMED	1.50000	2024-02-17	2024	2	February	7	Saturday	18	18.50000
6pl339a9kd[illegible]	[illegible]	2024-02-17 20:00:00	2024-02-17 22:00:00	[illegible]@google.com	2024-02-26 19:34:03	CONFIRMED	2.00000	2024-02-17	2024	2	February	7	Saturday	20	20.00000
49noiebr2ot[illegible]	[illegible]	2024-02-16 10:00:00	2024-02-16 11:00:00	[illegible]@google.com	2024-02-26 19:37:23	CONFIRMED	1.00000	2024-02-16	2024	2	February	6	Friday	10	10.00000
107af1prgm[illegible]	[illegible]	2024-02-16 11:00:00	2024-02-16 12:00:00	[illegible]@google.com	2024-02-26 19:37:26	CONFIRMED	1.00000	2024-02-16	2024	2	February	6	Friday	11	11.00000
1s8dvtifvt2t[illegible]	[illegible]	2024-02-16 12:00:00	2024-02-16 13:00:00	[illegible]@google.com	2024-02-26 19:37:30	CONFIRMED	1.00000	2024-02-16	2024	2	February	6	Friday	12	12.00000
47na6hf63p[illegible]	[illegible]	2024-02-15 14:30:00	2024-02-15 17:30:00	[illegible]@google.com	2024-02-26 19:37:54	CONFIRMED	3.00000	2024-02-15	2024	2	February	5	Thursday	14	14.50000
4tj784cueh[illegible]	[illegible]	2024-02-18 18:00:00	2024-02-18 20:00:00	[illegible]@google.com	2024-02-26 19:38:41	CONFIRMED	2.00000	2024-02-18	2024	2	February	1	Sunday	18	18.00000
70g4vrpmr[illegible]	[illegible]	2024-02-19 08:30:00	2024-02-19 10:00:00	[illegible]@google.com	2024-02-26 19:39:03	CONFIRMED	1.50000	2024-02-19	2024	2	February	2	Monday	8	8.50000

uid	activity	start	end	description	last_modified	status	duration	date	years	month	month_label	weekday_number	weekday_label	hour	hour_label
[illegible]	[illegible]	2024-02-19 10:00:00	2024-02-19 11:00:00	[illegible]	2024-02-26 19:39:12	CONFIRMED	1.00	2024-02-19	2024	2	February	2	Monday	10	10.00000
[illegible]	[illegible]	2024-02-19 11:00:00	2024-02-19 12:00:00	[illegible]	2024-02-26 19:39:20	CONFIRMED	1.00	2024-02-19	2024	2	February	2	Monday	11	11.00000
[illegible]	[illegible]	2024-02-18 00:00:00	2024-02-18 07:00:00	[illegible]	2024-02-26 19:39:25	CONFIRMED	7.00	2024-02-18	2024	2	February	1	Sunday	0	0.00000
[illegible]	[illegible]	2024-02-18 22:00:00	2024-02-19 04:00:00	[illegible]	2024-02-26 19:39:32	CONFIRMED	6.00	2024-02-18	2024	2	February	1	Sunday	22	22.00000
[illegible]	[illegible]	2024-02-18 14:15:00	2024-02-18 15:45:00	[illegible]	2024-02-26 19:39:37	CONFIRMED	1.50	2024-02-18	2024	2	February	1	Sunday	14	14.25000
[illegible]	[illegible]	2024-02-19 13:00:00	2024-02-19 14:00:00	[illegible]	2024-02-26 19:39:52	CONFIRMED	1.00	2024-02-19	2024	2	February	2	Monday	13	13.00000
[illegible]	[illegible]	2024-02-19 19:00:00	2024-02-19 21:15:00	[illegible]	2024-02-26 19:40:09	CONFIRMED	2.25	2024-02-19	2024	2	February	2	Monday	19	19.00000
[illegible]	[illegible]	2024-02-19 21:15:00	2024-02-19 23:15:00	[illegible]	2024-02-26 19:40:26	CONFIRMED	2.00	2024-02-19	2024	2	February	2	Monday	21	21.25000

uid	activity	start	end	description	last_modified	status	duration	date	years	month	month_name	weekday	weekday_name	hour	time_label	
295f5endl35[illegible]	[illegible]	2024-02-19 23:15:00	2024-02-20 00:00:00	[illegible]@google.com	2024-02-26 19:40:57	CONFIRMED	0.75000	2024-02-19	2024	2	February	2	Monday	23	23.25000	
0gcj5a2sjn7[illegible]	job	2024-02-20 15:30:00	2024-02-20 16:30:00	[illegible]@google.com library	2024-02-26 19:41:08	CONFIRMED	1.00000	2024-02-20	2024	2	February	3	Tuesday	15	15.50000	
2toc6aitgi9[illegible]	physics	2024-02-20 18:45:00	2024-02-20 21:45:00	[illegible]@google.com science centre	2024-02-26 19:41:30	CONFIRMED	3.00000	2024-02-20	2024	2	February	3	Tuesday	18	18.75000	
4urg7sm989[illegible]	job	2024-02-20 21:45:00	2024-02-20 23:15:00	[illegible]@google.com science centre	2024-02-26 19:41:42	CONFIRMED	1.50000	2024-02-20	2024	2	February	3	Tuesday	21	21.75000	
4ao44qkrfje[illegible]	job	2024-02-21 19:30:00	2024-02-21 21:00:00	[illegible]@google.com library	2024-02-26 19:42:02	CONFIRMED	1.50000	2024-02-21	2024	2	February	4	Wednesday	19	19.50000	
0miqe6qh36[illegible]	postdoc	2024-02-21 22:30:00	2024-02-21 23:30:00	[illegible]@google.com library	2024-02-26 19:42:13	CONFIRMED	1.00000	2024-02-21	2024	2	February	4	Wednesday	22	22.50000	
6i402ml2vl5[illegible]	student	2024-02-21 21:00:00	2024-02-21 22:30:00	[illegible]@google.com library	2024-02-26 19:42:19	CONFIRMED	1.50000	2024-02-21	2024	2	February	4	Wednesday	21	21.00000	
5k3eq6jiaub[illegible]	sleep	2024-02-20 02:00:00	2024-02-20 13:00:00	[illegible]@google.com dorm	2024-02-26 19:42:36	CONFIRMED	11.00000	2024-02-20	2024	2	February	3	Tuesday	2	2.00000	

uid	activity	start	end	description	last_modified	status	duration	date	year	month	month_number	weekday	day_of_week	day_of_month	label
3446ign3sngu	[illegible]	2024-02-21 03:00:00	2024-02-21 08:00:00	[illegible]	2024-02-26 19:42:44	CONFIRMED	5:00:00	2024-02-21	2024	February	2	Wednesday	3	21	3.00000
2oiisvsccco	[illegible]	2024-02-21 08:30:00	2024-02-21 10:00:00	[illegible]	2024-02-26 19:42:54	CONFIRMED	1:30:00	2024-02-21	2024	February	2	Wednesday	3	21	1.50000
55cqa8rtpua	[illegible]	2024-02-21 10:00:00	2024-02-21 11:00:00	[illegible]	2024-02-26 19:43:13	CONFIRMED	1:00:00	2024-02-21	2024	February	2	Wednesday	3	21	1.00000
5a6lreopn6	[illegible]	2024-02-21 11:00:00	2024-02-21 12:00:00	[illegible]	2024-02-26 19:43:24	CONFIRMED	1:00:00	2024-02-21	2024	February	2	Wednesday	3	21	1.00000
46u39ir7dos	[illegible]	2024-02-21 12:00:00	2024-02-21 13:00:00	[illegible]	2024-02-26 19:43:32	CONFIRMED	1:00:00	2024-02-21	2024	February	2	Wednesday	3	21	1.00000

To analyse my data, I focused on 3 key aspects of the ICS file:

1. The time interval that has been calculated using the code above
2. The location data
3. The activity name

For my first visualization, I decided to make a box plot to encapsulate the median duration of work that was spent on assignments for each class and job. This demonstrates how my time awake was spent outside of class on my work. For the second visualization, I made a bar graph showing the cumulative time spent on each of my courses, my job and sleep. As for the table,

```
wrangled_mycal <- mycal %>%
  select(activity, description, duration_hours) %>%
```

```
  rename(
    Activity = activity, Location = description, Duration = duration_hours)

wrangled_mycal$Duration = round(wrangled_mycal$Duration, 3)

kable(wrangled_mycal)
```

Activity	Location	Duration
sleep	dorm	7.250
sleep	dorm	7.000
stat231coursework	webster	1.500
math211coursework	smudd	1.000
physics124coursework	sciencecentre	1.000
cosc112coursework	sciencecentre	1.000
physics124homework	dorm	2.000
physics124coursework	sciencecentre	3.000
stat231homework	sciencecentre	2.000
job	library	1.500
cosc112homework	dorm	1.500
math211homework	sciencecentre	1.250
job	dorm	2.000
job	sciencecentre	4.000
physics124homework	sciencecentre	1.250
math211homework	dorm	1.500
physics124homework	library	3.250
math211coursework	smudd	1.000
physics124coursework	sciencecentre	1.000
cosc112coursework	sciencecentre	1.000
sleep	dorm	6.000
sleep	dorm	8.000
stat231homework	sciencecentre	1.750
sleep	dorm	7.500
sleep	dorm	9.000
sleep	dorm	9.000
sleep	dorm	8.000
sleep	dorm	6.500

Activity	Location	Duration
stat231coursework	webster	1.500
math211coursework	smudd	1.000
physics124coursework	sciencecentre	1.000
cosc112coursework	sciencecentre	1.000
physics124coursework	sciencecentre	1.000
job	library	1.000
math211homework	sciencecentre	2.250
physics124homework	sciencecentre	3.000
job	dorm	3.250
math211coursework	smudd	1.000
stat231coursework	webster	1.500
physics124coursework	sciencecentre	1.000
cosc112coursework	sciencecentre	1.000
job	library	2.250
physics124homework	sciencecentre	1.750
stat231homework	dorm	1.000
sleep	dorm	7.500
job	library	4.017
cosc112homework	dorm	1.000
job	dorm	1.000
job	sciencecentre	4.033
stat231homework	dorm	1.500
physics124homework	dorm	4.000
cosc112homework	dorm	1.500
stat231homework	dorm	2.000
math211coursework	smudd	1.000
physics124coursework	sciencecentre	1.000
cosc112coursework	sciencecentre	1.000
physics124coursework	sciencecentre	3.000
math211homework	dorm	2.000
stat231coursework	webster	1.500
math211coursework	smudd	1.000
physics124coursework	sciencecentre	1.000
sleep	dorm	7.000
sleep	dorm	6.000

Activity	Location	Duration
job	library	1.500
cosc112coursework	sciencecentre	1.000
job	sciencecentre	2.250
physics124homework	sciencecentre	2.000
math211homework		0.750
job	library	1.000
physics124	sciencecentre	3.000
job	sciencecentre	1.500
job	library	1.500
cosc112homework	library	1.000
stat231homework	library	1.500
sleep	dorm	11.000
sleep	dorm	5.000
stat231coursework	webster	1.500
math211coursework	smudd	1.000
physics124coursework	sciencecentre	1.000
cosc112coursework	sciencecentre	1.000

```
homeActivities_plot <- wrangled_mycal %>%
  filter(
    Activity %in% c("job", "math211homework", "physics124homework", "cosc112homework","sta
  ) %>%

  na.omit()

#Making sure to omit any entries where there was no coursework / data was incomplete or mi


barChart <- wrangled_mycal %>%
  mutate(Activity = case_when(str_detect(Activity, "physics") ~ "Physics",
                              str_detect(Activity, "math") ~ "Math",
                              str_detect(Activity, "cosc") ~ "Comp Science",
                              str_detect(Activity, "sleep") ~ "Sleep",
                              str_detect(Activity, "job") ~ "Job",
```

```
                              str_detect(Activity, "stat") ~ "Statistics",
                              TRUE ~ "Other"))

#What we want is a barchart that merges both my coursework and homework into the same acti

barChart_summarized <- barChart %>%
  group_by(Activity) %>%

  #Here we're grouping by activity so that we can get the cumulative amount of time   spen

  summarize(
    Total_Time = sum(Duration) #Summation of the duration of all the activites
  )
```

Results

So what does my day look like when I'm not in class?

Below (Fig 1.0) are box plots for each of the activities (excluding coursework and sleep) that were carried out throughout the two weeks. The activities are shown categorically on the y-axis and the duration (in hours) is shown as a quantitative variable on the x-axis. Each box plot describes 3 key things: the median duration for the activity, the interquartile range and the minimum and maximum duration of time that has been spent on the activity.

```
ggplot(homeActivities_plot, aes(x = Activity, y = Duration)) +
  geom_boxplot(fill = "white", color = "black") +
  theme_minimal() +
  coord_flip() +
  labs(x = "Activity", y = "Duration (hours)",
      title = "Distribution of Duration for Each Activity") +
      facet_grid(~Location)
```

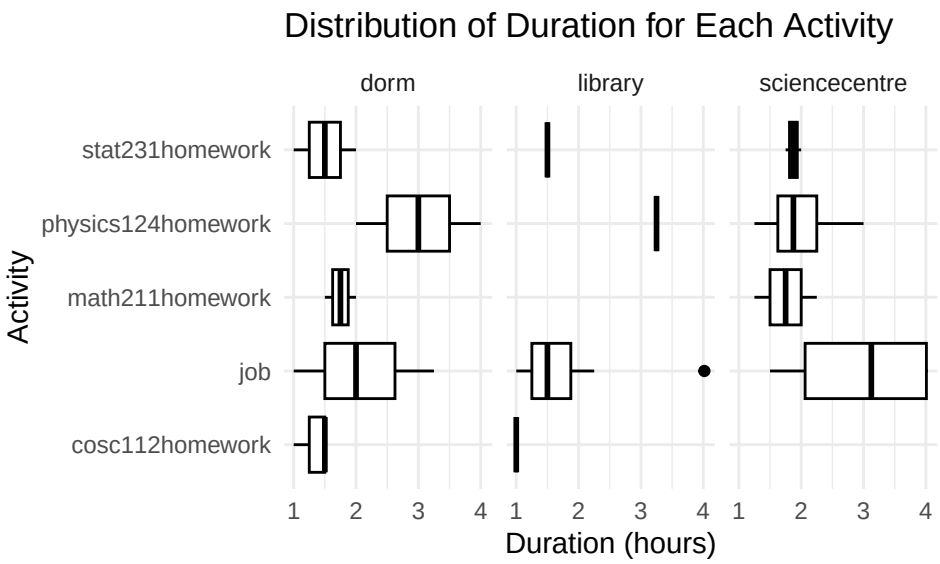

Fig 1.0

Although it was interesting to see how my activities outside of class varied in their duration, I was curious to know *exactly* what my time distribution was including all my activities over the course of the past 2 weeks. This visualization is shown in the bar chart below, where on the x - axis we have the categorical data (the activities that time was spent on) and on the y - axis we have the total duration of time spent on each activity.

```
ggplot(barChart_summarized, aes(x = Activity, y = Total_Time)) + geom_bar(stat = "identity
  labs(x = "Activity", y = "Total Duration (hours)", title = "Total Time Spent on Each Act
```

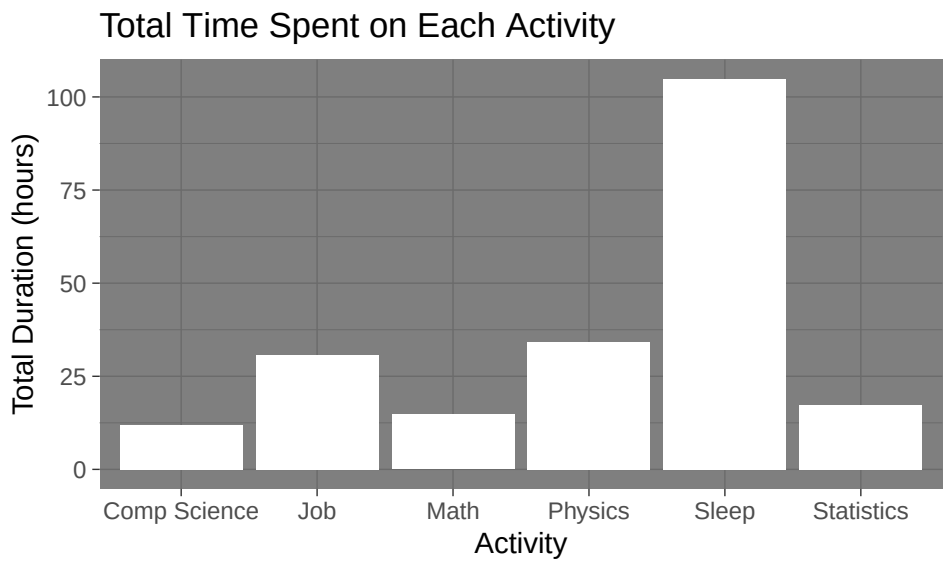

Fig 1.1

```
wrangled_table_mycal <- mycal %>%
  select(
    activity, duration_hours, weekday_number
  ) %>%
  rename(
    Activity = activity, Duration = duration_hours,
    Weekday = weekday_number) %>%
    mutate(Activity = case_when(str_detect(Activity, "physics") ~ "Physics",
                                str_detect(Activity, "math") ~ "Math",
                                str_detect(Activity, "cosc") ~ "Comp Science",
                                str_detect(Activity, "sleep") ~ "Sleep",
                                str_detect(Activity, "job") ~ "Job",
                                str_detect(Activity, "stat") ~ "Statistics",
                                TRUE ~ "Other")) %>%
    filter(Activity %in% c("Job", "Physics", "Math", "Comp Science"
                           ,"Statistics"))

wrangled_table_mycal$Duration = round(wrangled_table_mycal$Duration, 3)
```

```r
summary_table_mycal <- wrangled_table_mycal %>%
  group_by(Activity, Weekday) %>%
  summarize(
  Mean_Time = mean(Duration)
  ) %>%
  arrange(Weekday) %>%
  mutate(Weekday = case_when(str_detect(Weekday, "1") ~ "Monday",
                             str_detect(Weekday, "2") ~ "Tuesday",
                             str_detect(Weekday, "3") ~ "Wednesday",
                             str_detect(Weekday, "4") ~ "Thursday",
                             str_detect(Weekday, "5") ~ "Friday",
                             str_detect(Weekday, "6") ~ "Saturday",
                             str_detect(Weekday, "7") ~ "Sunday"))


pivoted_summary <- summary_table_mycal %>%
  pivot_wider(
    names_from = Weekday,
    values_from = Mean_Time
  )

kable(pivoted_summary, booktabs = TRUE)
```

Activity	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Job	1.5	2.75	1.583333	2.339000	1.5000	2.516500	4.000
Math	2.0	1.25		1.062500		1.166667	
Comp Science		1.00		1.083333		1.000000	1.500
Physics		1.75	1.916667	1.000000	2.3125	1.000000	3.625
Statistics		1.50	1.000000	1.600000	1.5000		1.875

```r
# Code for table
# Only code for your table should be here (no or very minimal wrangling code)
```

Conclusions

Reflection

Throughout this project, there were many considerations that I had to make that ranged from the data collection itself to the analysis and presentation. Each step of the way allowed me to grow as a data scientist, and in this reflection I aim to break down the various aspects of these steps.

Difficulties in Data Collection & Future Projects

Let's start off by stating the obvious: data collection is a **difficult** process. Mainly, it was the problem of making sure that my data was accurate and in line with what the goals of my questions were. My first hurdle was ensuring that I was able to track my time precisely on the calendar - this was difficult to do as often times I would find myself having gone through half the day and remembering that I hadn't tracked my day yet. Luckily, I had solutions to this: I tracked my sleep regularly on my Apple Watch which gave me an accurate representation of sleep as I would not be in a state of mind to note it down when I woke up and secondly, I had a calendar of my courses and time tracking for my job so I could determine where I spent those hours. Unfortunately, my homework time tracking was still somewhat inaccurate due to the forgetfulness of human nature and human error. My second issue with my data tracking cycle was about a couple days in I realized that I had only tracked my time in activities outside of my classes as "work". This was not helpful to me, as I wanted to know how my work outside my classes was split over the day, and so I had to revisit my data analysis cycle and add to my tracking on how much time I spent on specific homework.

If I were to repeat this project, I would focus on making sure that I had a more formalized and rigorous proposal. Although I did do it this time around, for next time I would explicitly define my variables into categorical and quantitative variables and plot dummy visualizations so I could predict the difficulties in the analysis part (i.e wrangling and coding). Sometimes, we need data in the analysis that we didn't realize was relevant in the original proposal, and so going through the process initially would help crystallize a pathway moving forward.

Was the data enough?

After I had plotted my table and visualizations, I came to a stark realization: my dataset wasn't expansive enough. There could have been biases in my data, as these past few weeks have been leading up to midterms it would mean I would have been studying more and sleeping less. It only captures a small segment of how my school semester is spent, and to accurately see the distribution of my time I would have to collect data over the period of the entire semester. This isn't to say my data didn't satisfactorily answer my questions, rather there are more questions that arise from the data I've already collected. I believe collecting data over

the period of a semester would not be too difficult if one makes it a routine, and it is definitely plausible as it's simply time tracking.

Providing Data & Ethical Responsibilites

Data is our modern currency, and so just like a transaction with anyone, I have expectations from that entity. By giving out my data, my most important expectation would be for it to only be used for the activity that I have consented to, for example google maps only using my location for the sole purpose of improving its maps features. If however, they sell my data to other companies so they can use it for targeted ads, it would nullify the contract and my expectations.