Operating System vs. Stress Level in MDS

Exploratory Data Analysis

Our Data

For our study, we had 52 MDS students from the 2018-2019 cohort respond to our survey discussing operating systems and self-reported stress levels.

We have slightly more Mac users than Windows users. We decided to not include Linux users as we didn't have enough responses to preserve student anonymity.

Variable	Description
stress	Self-reported stress level on a scale from 0-10 with 10 being the most stressed and 0 being not stressed.
os	Operating System, (Windows, Mac, Linux).
coding	Self-reported pre-MDS programming skills, (No Level, Low, Average, Moderately High, High).
background	Undergraduate Subject of Study, (Biological/Life Sciences, Finance/Business/Management/Economics, Math
work_year	Number of years of work experience pre-MDS, (Integer, Prefer Not to Say).
gender	Self-identified Gender, (Female, Male, Freetext Response, Prefer Not to Say)
age	Age, (Integer, Prefer Not to Say)

Summary Tables

	Mean	Std.Dev.	Min	Median	Max	N.Valid	% Valid
age	27.595745	5.194728	20	27	46	47	90.38462
stress	6.346154	2.177286	1	7	10	52	100.00000
work_year	3.894231	3.793566	0	3	18	52	100.00000

Categorical Variables - Tally Tables

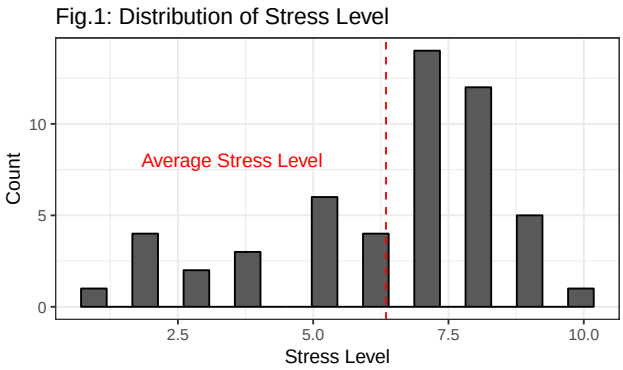
os	Linux	Mac	Windows
count	4	27	21

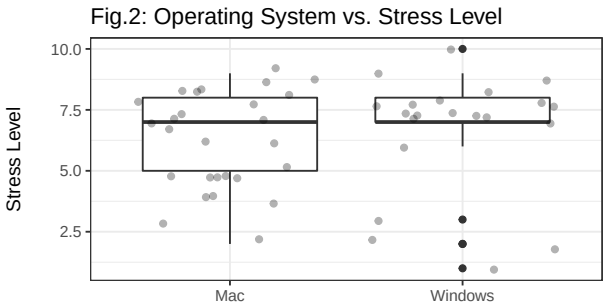
coding	average	high	low	moderate	none
count	19	3	15	9	6

background	count
Arts, Humanities, and Social Sciences	4
Biological or Life Sciences	8
Computer Science/Engineering	5
Engineering (excluding Computer Engineering)	12
Finance/Business/Management/Economics	9
Math/Physical Sciences	14

gender	female	male	NA
count	20	28	4

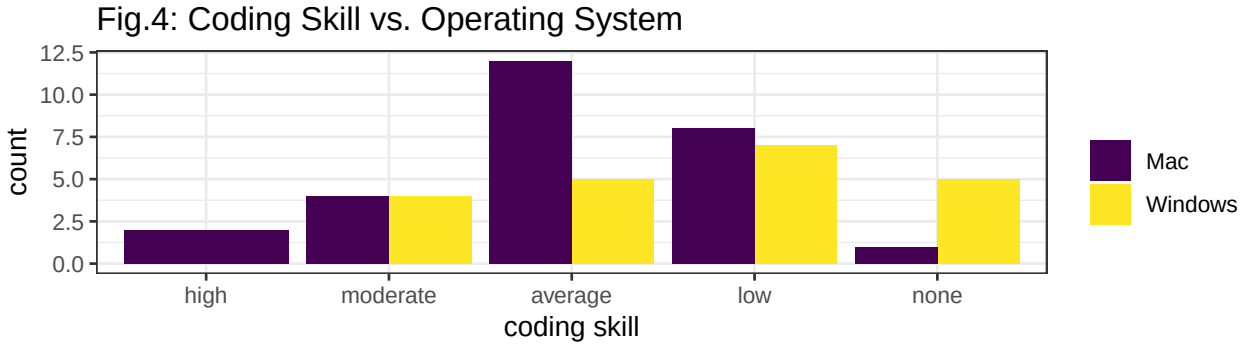
Figures





We can see that stress is slightly skewed to the right, and centered around an average stress level of 6.35 (Figure 1).

It's also interesting to note that the median stress level is not really different between the two operating systems, but the distribution of stress actually is. Figure 2 shows that most Windows users are concentrated around higher stress levels, whereas a significant part of Mac users present mid-low levels of stress (< 7 in the 0-10 scale).



From Figure 3, we can see that the median stress level doesn't vary drastically across different coding skill groups.

That said, students with Mac operating systems tended to report higher pre-MDS coding skills than those students with Windows operating systems (Figure 4).

Fig.5: Experience vs. Stress Level

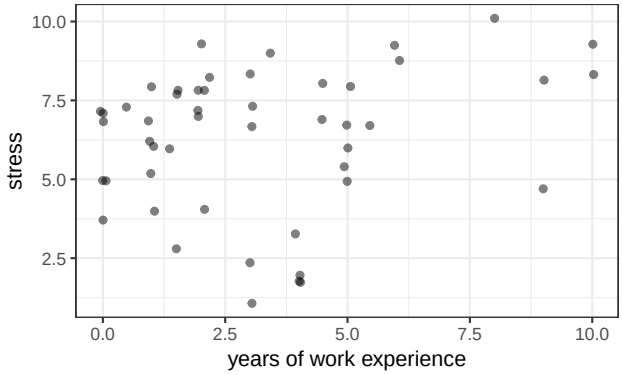
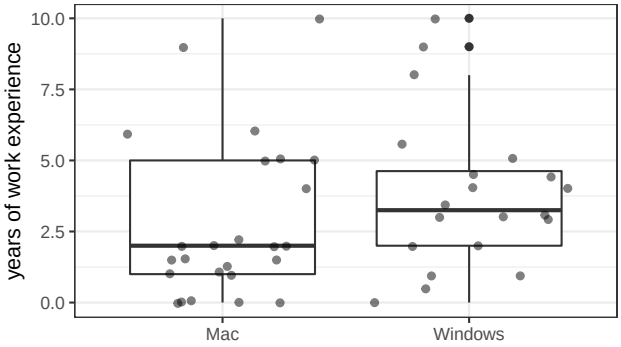


Fig.6: Experience vs. Operating System



Examining pre-program work experience (in years) and stress levels, it's hard to see a clear pattern beyond the distribution of the work experience data– most students have less than ~5 years of work experience (Figure 5).

Given that our data set is small, we decided to limit our figure to a range of 0 - 10 years to preserve the anonymity of the students who participated in our survey.

It's possible that students with more than ~5 years of work experience report higher stress levels, though there's considerably less data here.

It is interesting to note that the median number of work experience years is slightly higher for Windows users versus Mac users, though both OS groups are quite spread out in terms of work experience years (Figure 6).

We decided to not visualize the Age variable in order to preserve student anonymity. We also found that the patterns in the Age variable were similar to the patterns in the Work Experience variable, so visualizing both variables would no add value to this exploratory analysis.

Fig.7: Gender vs. Stress Level

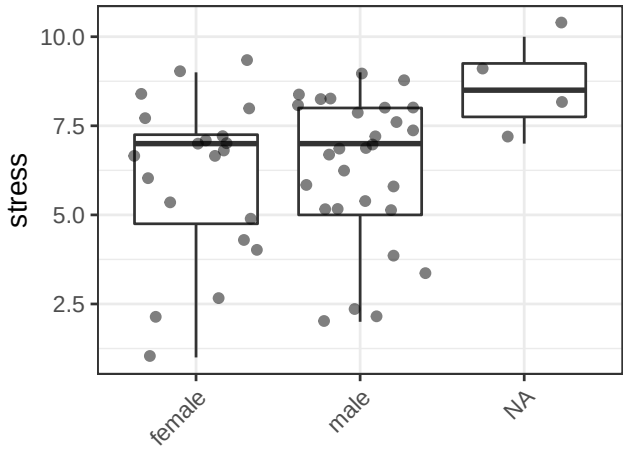
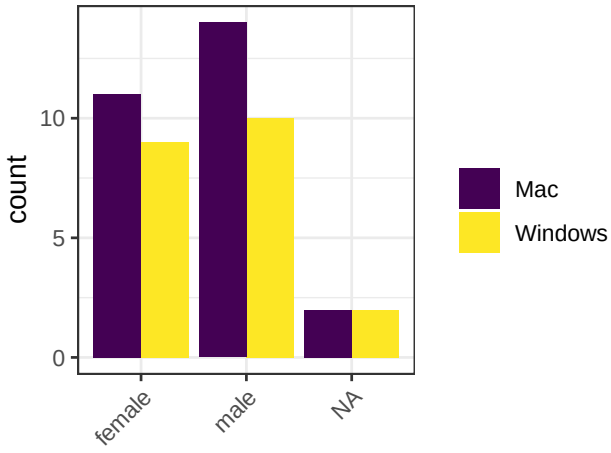


Fig.8: Gender vs. Operating System



In terms of gender identities and stress levels, a very small number of survey respondents prefered not to report their gender identity and these students also reported higher stress levels than binary gender identities (Figure 7). Otherwise, among female and male gender identities, there were no considerable differences in stress or OS system usage (Figure 8).

Fig.9: Background vs. Stress Level

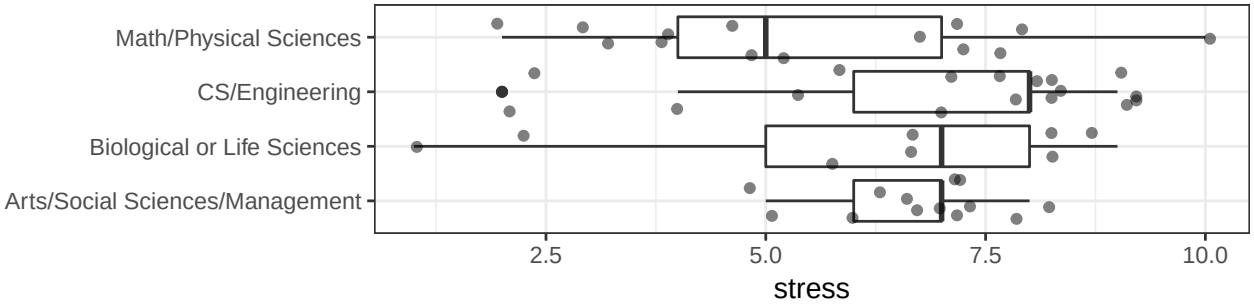
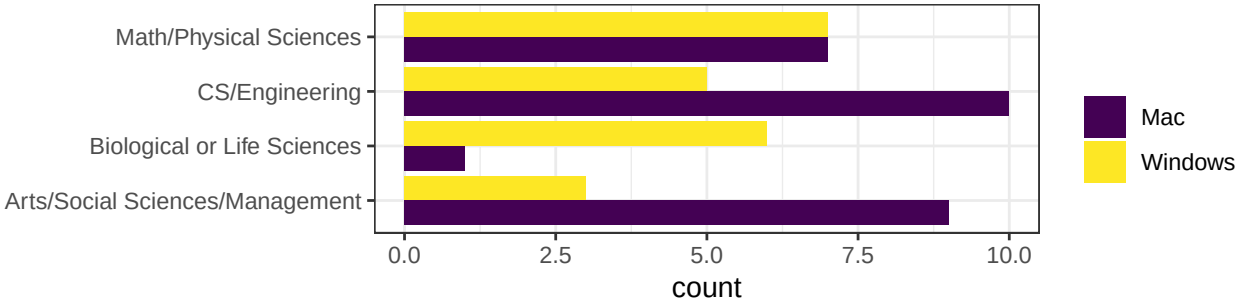


Fig.10: Background vs. Operating System



For Figures 9 and 10 examining student education backgrounds, we decided to group Computer Science and Engineering backgrounds, as well as Arts, Social Sciences and Business/Managament backgrounds, in order to preserve student anonymity. In both the Computer Science group as well as the Arts, Humanities, and Social Sciences groups, we had 5 or less respondents.

Following the grouping, in Figure 10, we see that students with Computer Science/Engineering as well as Arts/Social Sciences/Business/Mangagement backgrounds both were groups that preferred Mac over Windows.

The group with the lowest median stress level was Math/Physical Sciences and the group with the highest median stress level is the Computer Science and Engineering group. The group with the least variance is Arts, Social Sciences, Business/Management (Figure 10).