Our data is called Midlife Development in the U.S., and it’s a national survey conducted by a multidisciplinary team of scholars from fields of psychology, sociology, epidemiology, demography, anthropology, medicine, and health care policy. The main aim of the study was to investigate how psychological, behavioral, and social factors affect well-being and health.

The four of us are all every interested in personality traits, and how different traits can help predict important outcomes in a variety of aspects in our lives, such perceived mental health, as job demand, psychological well-being, and life satisfaction.

**Lee Rushing:**

**Research question:**

*How does personality predict stress management?*

**Analysis and results:**

1. Observations with missing values were excluded from the analysis;
2. Simple descriptive statistic of the data were obtained;
3. Fit the model with the Big Five personality and stress coping variables using GLM. The stress coping variables are treated as categorical variables. Based on the Q-Q plot and histogram, the residuals distribution looks skewed. The adjusted R square is .19.
4. A box cox test was performed to figure out an appropriate way to transform the outcome variable, and it turns out that it’s best to take the square root of the outcome variable. After transforming the dependent variable, a PROC GLM was performed again, and a stepwise selection was conducted at the same time. The diagnostics show that the normality assumption looks OK. The adjusted R square went down al little to .18.
5. Final model: Perceived mental health = 2.73 + 0.16\* (agreeableness) -.28\* (extraversion) + .41\* (neuroticism) - .31\* (conscientiousness) - .05\* (Admit can’t deal and quit) + .07\* (Take action to get rid of the problem). The model indicates that holding other variables constant, agreeableness, neuroticism, and ‘Take action to get rid of the problem’ are positively associated with perceived mental health, while extraversion, conscientiousness, and Admit can’t deal and quit are negatively associated with perceived mental health.

**Jing Luo:**

**Research question:**

*How do the Big Five personality traits predict job demand?*

**Analysis and results:**

1. Observations with missing values were not included in the analysis, and the size of the sample used for analysis is 2105.
2. Pearson correlations between every two variables were obtained, and it turns out that neuroticism is positively related to job demand (r=.22) while extraversion is negatively realted to job demand (r=-.06).
3. PROC REG was used to fit the model, where the outcome variable is job demand, and the predictors are the Big Five personality traits. A stepwise selection was conducted to select variables, and neuroticism, openness, and extraversion were kept. The adjusted R square was .06.
4. VIFs were smaller than 2, multicollinearity is not a problem. According to the Q-Q plot and histogram, normality assumption was also met. All observations have normal Cook’s D, but a few have extreme studentized residuals, and therefore are flagged as outliers.
5. After removing the outliers, the model was refitted using PROC REG, and the adjusted R square became .20.
6. The final model is: job demands=11.00 + 1.23 (neuroticism) + .98 (openness) - .47 (extraversion).
7. The model indicates that, when holding other variables constant, neuroticism and openness is positively associated with job demands, while extraversion is negatively associated with job demands.

**Yaxian Xie:**

**Research Question:**

*How do personality traits along with general health conditions (including physical health and mental health) affect psychological well-being?*

**Analysis and results:**

1. Observations with missing values for well-being were eliminated from the sample. N=3962 (45% male).
2. Correlations were obtained among items of the well-being scale, and all items are highly positively correlated with each other.
3. PCA was conducted on all six items of the well-being scale, and eigenvalues were all larger than 1, which indicates that one component is reasonable.
4. Factor scores were computed based on the six related items on the well-being scale using factor analysis.
5. Self-reported physical health and mental health were reverse coded, so that high values stand for better health condition.
6. Multiple linear regression was used to explore effects of predictor variables. VIFs are all smaller than 5, indicating that multicollinearity is not a problem. A stepwise selection was conducted, and the variable Gender was excluded from the model. The intercept is almost 0.
7. According to the Q-Q plot, normality assumption is OK, and based on Cook’s D, no observation was flagged as outlier. The final model is: Well-being = 0.18\*(agency) + 0.12\*(agreeableness) + 0.34\*(extraversion) – 0.49\* (neuroticism) + 0.38\* (conscientiousness) + 0.13\* (openness) + 0.05\* (physical health) + 0.17\* (mental health).
8. The model indicates that holding all other variables constant, agency, agreeableness, extraversion, conscientiousness, openness, physical health, and mental health are positively associated with psychological well-being, while neuroticism is negatively associated with well-being.

**Luyao Zhang**

**Research question:**

1. *How do chronic job discrimination, perceived inequality at work, self-esteem, conscientiousness, and neuroticism affect life satisfaction?*
2. *Are there any interaction effects between job-related variables and personality traits?*

**Analysis and results:**

1. Missing values: all observations with missing values were removed from the sample and not included in the analysis. This was done because the proportion of observations with missing values is approximately 5%, which is relatively small. The final sample size is N = 2658.
2. Data summary was obtained for all six variables.
3. Normality was checked for all six variables, and according to the histogram, none of the variables follow a normal distribution, and therefore, a Spearman rank correlation instead of Pearson correlation was obtained between every two variables. Turns out that chronic job discrimination, perceived inequality at work, and neuroticism were negatively correlated with life satisfaction, while self-esteem and conscientiousness were positively correlated with life satisfaction. All correlations are significant at 0.05 level.
4. The value 0 is of little meaning to the personality and job-related variables (options all start from 1), and for easier and more meaningful interpretations, I used the mean-centered predictor instead of the original ones.
5. After 4, I used “PROC REG” to fit the model of interest, where the response variable is ‘sat’. In addition to all 5 predictors (chronic, perceived, self-esteem, neuroticism, and conscientiousness). Interaction terms are also included of all possible pairs containing one job-related variable and one personality variable. According to the Q-Q plot and histogram, the distribution of residuals was skewed. VIFs look fine, and are all larger than 1 but smaller than 2, indicating no problem with multicollinearity. There are outliers with absolute values of studentized residuals larger than 2. The adjusted R square is 0.35.
6. After removing the outliers, the same model is refitted, and a stepwise selection was used. The Q-Q plot and histogram obtained from refitting the model showed that normality assumption looks ok, and is not a problem anymore. The main effects of all predictors are significant (p < .0001). The interaction effects between mean-centered ‘chro’ and mean-centered ‘con’, and between mean-centered ‘per’ and mean-centered ‘se’ are also significant (p <.01). The adjusted R square is 0.41.
7. The final model I come up with is:

Sat = 7.84-0.04 \*(chro-mean)-0.49\*(per-mean)-0.16\*(neu-mean) +0.25\*(con-mean) +0.03\*(se-mean) +0.01\*(se-mean)\*(per-mean)-0.04\*(con-mean)\*(chro-mean)

1. Interpretation:
2. Given everything at its average level, life satisfaction is 7.84.
3. Main effects:
4. Given all the other predictors unchanged, and conscientiousness at its mean level, higher chronic job discrimination is associated with lower life satisfaction.
5. Given all the other predictors unchanged, and self-esteem at its mean level, higher perceived inequality at work is associated with lower life satisfaction.
6. Given all the other predictors unchanged, and chronic job discrimination at it mean level, higher conscientiousness is associated with life satisfaction.
7. Given all the other predictors unchanged, and perceived inequality at work at its mean level, higher self-esteem is associated with higher life satisfaction.
8. Given all the other predictors unchanged, higher neuroticism is associated with lower life satisfaction.
9. Interaction effects:
10. Given all the other predictors unchanged, when chronic job discrimination is 6.5 units or more higher than the average level, life satisfaction decreases as conscientiousness increases.
11. Given all the other predictors unchanged, when perceived inequality at work is no more than 3 units below the mean level, life satisfaction increases as self-esteem increases perceived inequality at work is no more than 3 units below the mean level.

**Group project results summary:**

1. Through the various models and outcome variables we explored, it is obvious that personality traits paly an extremely important role in a variety aspects of our lives, including aspects that have to do with mental health, life satisfaction, and job-related performance.
2. The interaction effects between personality traits and other variables are also interesting. To be more specific, conscientiousness has shown an intriguing effect on life satisfaction, in that alone the trait is positively associated with life satisfaction, but the interaction between conscientiousness and chronic job discrimination tells a different story. This, I think is a reflection of how differently people are going to react facing the same situation, and how complicated our lives and feeling can be.