SPSS Regression Practice Problems: One predictor variable

1. An investigator wants to know whether it is possible to predict which employees at the company are most likely to experience feelings of burnout two years from now. One variable she is interested in as a potential predictor variable is the level of job stress the person is experiencing now. She has 10 employees fill out a questionnaire measure of job stress and then two years later she has the same employees fill out a questionnaire measure of job burnout. None of the10 employees have left the company. Higher scores for both variables reflect higher levels of the constructs being measured (job stress, job burnout). Using the data presented below, please address the following questions:

    a. What is the regression equation for obtaining predicted scores for job burnout two years from now from current scores on job stress? If an employee has a score of 10 on the measure of job stress, what is their predicted score for job burnout two years from now?
    b. Please provide a scatterplot with the predictor variable on the X-axis and the criterion variable on the Y-axis. Have SPSS insert the regression line into this scatterplot.
    c. Does job stress account for a significant amount of variability in scores on job burnout? Why do you think so?
    d. What is the standard error of estimate associated with the use of this regression equation?

Job stress	Job Burnout
6	25
10	30
15	27
17	37
5	21
16	30
20	34
8	21
12	27
18	38

2. An investigator obtains scores for a person's age in years and their score on a measure of memory function. Higher scores on the memory task reflect better memories. The investigator has predicted that the two variables will be significantly correlated.

a. What is the correlation between the two variables?
b. What is the percentage of overlap in the information provided by the two variables?
c. What is the regression equation for predicting scores on memory function from a person's age?
d. Please provide a scatterplot of the relationship between the two variables. Please provide a scatterplot with the predictor variable on the X-axis and the criterion variable on the Y-axis. Have SPSS insert the regression line into this scatterplot.
e. Does age account for a significant amount of variability in scores on memory function? Why do you think so?
f. What is the standard error of estimate associated with the use of this regression equation?
g. Do the data meet the assumptions of linearity and homoscedasticity? Why do you think so?

Age	Memory
23	16
45	18
18	21
61	9
56	12
79	9
41	15
33	10
67	8
30	14