\* Encoding: UTF-8.

\* =========================================================== .

\* File name: SURNAME-A1-PartA-2021.sps .

\* Written by: Forename Surname, email@lakeheadu.ca

\* Date: DD-MMM-YYYY.

\* =========================================================== .

\* In the lecture slides on hypothesis testing, the first example

\* involved flipping a coin N=11 times, and using the decision rule

\* that minimizes the overall probability of error. In that example,

\* H0 stated that p, the probability of a Head on each toss, was 0.5;

\* and H1 stated that p = 0.15.

\* In this syntax file, you will generate another example like that,

\* but with these changes:

\* N = 25 (i.e., toss the coin 25 times)

\* H0: p = 0.5

\* H1: p = 0.75.

\* Issue NEW FILE and DATASET CLOSE commands to start with a new empty dataset.

**[INSERT YOUR COMMANDS HERE].**

\* Use the matrix language MAKE function to create a column matrix

\* with 26 rows, and then save the data to the working dataset.

MATRIX.

COMPUTE X = MAKE(26,1,0).

SAVE {X} /OUTFILE=\* /VARIABLES = X.

END MATRIX.

\* SPSS has a system variable that returns the current row number in the dataset.

\* Look it up and use it to set variable X = the current row number minus 1.

COMPUTE X = [INSERT YOUR CODE HERE].

\* Format X to show no decimals.

[INSERT YOUR COMMAND HERE].

\* Compute new variables pX0 and pX1 where

\* pX0 = p(X | H0) and pX1 = p(X | H1).

\* HINT: Try a search on <SPSS PDF functions>, or see the UNIVERSALS section

\* of the Command Syntax Reference manual.

COMPUTE pX0 = [INSERT YOUR CODE HERE].

COMPUTE pX1 = [INSERT YOUR CODE HERE].

\* Format pX0 and pX1 to display 4 decimals.

\* Then list the data in the output window.

[INSERT YOUR COMMANDS HERE].

\* Use the Legacy graphics dialogs to plot the two binomial distributions as bar charts.

[INSERT YOUR COMMANDS HERE].

\* For this example, we used the decision rule that minimizes the overall probability of error.

\* Using that decision rule compute a new variable called Reject, and set it equal 1 on rows

\* where you would reject H0 and 0 on rows where you would not reject H0.

COMPUTE Reject = [INSERT YOUR CODE HERE].

\* Format variable reject to show only 1 decimal.

[INSERT YOUR COMMAND HERE].

\* Add value labels "Reject H0" and "Fail to reject H0" to variable Reject.

[INSERT YOUR COMMAND HERE].

\* List the data in the output window.

[INSERT YOUR COMMAND HERE].

\* Split the file by variable Reject, then use the DESCRIPTIVES command

\* to display the SUMS of variables pX0 and pX1.

[INSERT YOUR COMMANDS HERE].

\* Fill in the missing values in the following comment lines.

\* Alpha = \_\_\_\_\_\_.

\* Beta = \_\_\_\_\_\_.

\* Power = \_\_\_\_\_\_.

\* =========================================================== .