

**Computer Lab Assignment # 2**

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| *Name:* | Click here to enter text. |

**Is there a linear relationship between shoe size and height? You will look for evidence using the student survey data set using the variables SHOE\_SIZE\_3 and HEIGHT\_2.**

**First, look at the visual evidence: create a scatterplot for the variables SHOE\_SIZE\_3 and HEIGHT\_2.** To copy the graph into the document: first, produce the graph, then go to “Options” in *StatCrunch* and “Copy” then right click on the image and select “Copy Image”; to paste the image into Word, go to “Paste” and then “Paste Special” and select “Device Independent Bitmap”.

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| **Question 1** |
| *Paste the scatterplot in the cell below:* |
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| **Question 2** |
| *Does the scatterplot suggest a linear relationship between the two variables? Explain.* |
| Click here to enter text. |

**Now, you will look at the numerical evidence: the value of *r* (correlation coefficient) and *R*2 (coefficient of determination). Compute and interpret the values of *r* and *R*2 for the relationship.**

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| **Question 3** | |
| *State the value of r.* | ***r*** =Click here to enter text. |
| *Interpret the value of r below (strength, direction, and linearity):* | |
| Click here to enter text. | |

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| **Question 4** | |
| *State the value of R-squared.* | ***R*2 =** Click here to enter text. |
| *Interpret this value:* | |
| Click here to enter text. | |

**Assume that the scatterplot, value or *r*, and value of *R*-square all suggest that there is a linear relationship between shoe size and height**.

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| **Question 5** | |
| *State the linear regression equation. Round to two decimal places.* | Click here to enter text. |
| **Question 6** | |
| *State the value of the slope.* | Click here to enter text. |
| *Interpret the slope (be sure to include the units):* | |
| Click here to enter text. | |
| **Question 7** | |
| *State the value of the y-intercept.* | Click here to enter text. |
| *Interpret the y-intercept:* | |
| Click here to enter text. | |
| *Does the y-intercept make sense in the terms of this relationship? Explain:* | |
| Click here to enter text. | |

**Now, use the linear model to predict the height of the suspect who left the bloody shoe prints at the crime scene who had a shoe size of 15.**

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| **Question 8** | |
| *What is the predicted height for the person with a shoe size of 15?* | *Predicted height* =Click here to enter text. |
| *Is this value an interpolation or extrapolation? Explain* | |
| Click here to enter text. | |

**Use the model to predict your height and compute the residual for your height. Do you think the linear model did a good job of predicting your height? Finally, can you think of any suggestions to improve the model? (extra credit)**

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| **Question 9:** | |
| *What is your height (in inches)?* | Click here to enter text. |
| *What is your predicted height (in inches)?* | Click here to enter text. |
| *Compute the residual of your height?* | Click here to enter text. |
| *Did the model do a good job of predicting your height? Explain.* | |
| Click here to enter text. | |
| *EXTRA CREDIT: Suggestions for improving the model?* | |
| Click here to enter text. | |

**Upload this document to Blackboard using the Assignment Manager. Be sure to include your name.**