Sensors and Scatterplots Activity – Excel® Worksheet

Directions
Using our class datasheets, we will analyze additional scatterplots, using Microsoft Excel® to make those plots.

To get started, please launch the Excel program, and follow the steps described below.

Scatterplot Questions

A. Is there a relationship between BMI and pulse rate? (Follow the steps below to find the answer.)

STEP 1: Enter Data
1. Type ‘BMI’ in Cell A1.
2. Type ‘Pulse Rate’ in Cell A2.
3. Enter all BMI values from your class data sheet in Row 1.
4. Enter the pulse rate values from your class data sheet in Row 2.

STEP 2: Create Scatterplot
1. Select the data in both rows.
2. Select Insert from the top menu and then Scatter from the Charts submenu.
3. Select and click on Scatter with Only Markers option.

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Sensors and Scatterplots Activity – Excel Worksheet 1
A scatterplot as shown to the right below will be generated.

STEP 3: Edit Scatterplot

1. Edit the axis titles and plot title by completing the following:
   a. Select Layout from top menu, then Axis Titles from the Labels submenu.
   b. For the horizontal axis, select Primary Horizontal Axis Title and then Title Below Axis, as illustrated below.
   c. Edit (change) the horizontal axis title to your own title.
   d. To edit the vertical axis title, select Primary Vertical Axis Title and then Rotated Title.
   e. Edit (change) the vertical axis title to your own title.
   f. To edit the chart title, select Chart Title under the Labels submenu and then selecting Above Chart.
   g. Edit (change) the chart title to your own title.
   h. To delete the legend, select Legend under the Labels submenu and select None.
2. Set the *Min-Value* and *Max-Value* for the x-axis and y-axis.

   For the *x-axis* –
   a. Under *Layout* on the top menu, select *Axes* under the submenu, then select *Primary Horizontal Axis*, followed by *More Primary Horizontal Axis Options* (bottom of the sub-menu panel).
   b. On the *Format Axis* window and under *Axis Options*, Select *Fixed* for *Minimum* and *Maximum* values; enter the desired minimum and maximum values.

   For the *y-axis* –
   a. Repeat steps a-b above, as completed for the *x-axis*.

**STEP 4: Review Scatterplot**

1. Check your scatterplot for accuracy.
2. If you need to make corrections, go back to the previous steps.

**STEP 5: Analyze Your Scatterplot**

Write an explanation of the relationship between BMI and pulse rate.
B. Is there a difference between male/female data in the relationship BMI and systolic blood pressure?

(Note: The following illustrations assume that the class data in Section A was organized such that the first three data represent male data and the last three data represent female data.)

STEP 1: Enter Data
1. Type ‘Male’ in Cell A4 and ‘Female’ in Cell A8.
2. Type ‘BMI’ in Cell A5 and in Cell A9.
3. Type ‘Pulse Rate’ in Cell A6 and Cell A10.
4. Enter all BMI values for the males in the class in Row 5, and the BMI values for the females in the Class in Row 9.
5. Enter the pulse rate values for the males in the class in Row 6, and the pulse rate values for the females in Row 10.

STEP 2: Create Scatterplot for Male Data
1. Create the scatterplot for the male data by following all steps under Question A.

STEP 3: Add Female Data to Scatterplot
1. Select the Scatterplot by left clicking the mouse.
2. Select the male data points by right clicking on the mouse and Select Data.
3. In the **Select Data Source** window, click on **Add**.

4. In the **Edit Series** window, type ‘Female’ in the **Series name** field.

5. Place the cursor in the **Series X values** and type: ‘=Sheet1!$B$9:$D$9’ *(Note: Change D to the last column letter of your data.)*

6. Place the cursor in the **Series Y values** and type: ‘=Sheet1!B$10:$D$10’ *(Note: Change D to the last column letter of your data.)*

7. Click **Ok**.

8. Edit the **title** of the data series for Male data, by selecting **Pulse Rate** and then clicking on **Edit**.

9. In the **Edit Series Window**, type ‘Male’ in the **Series name** field. Click **Ok**.
10. Add a Male and Female Legend
   a. Under Layout in the top menu, select Legend in the Labels submenu, then select Show Legend at Right.

11. The legend Male and Female will be added to the scatterplot (as shown at right).

STEP 4: Review Scatterplot
1. Check your scatterplot for accuracy.
2. If you need to make corrections, go back to the previous steps.

STEP 5: Analyze Your Scatterplot
Write an explanation of the relationship between BMI and pulse rate.

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