Project 1 — Pulse Rate

Measure your pulse rate 24 times over a period of 3-5 days. The suggested method is to measure the number of heart beats in 30 seconds and multiply by 2, but you may use another method if you find it more satisfactory. Don't take more than one measurement in any ten-minute period. Record the circumstances related to each measurement. (Examples: Watching TV, After climbing stairs, Studying, Immediately on awakening, During workout, Sitting in class.) Of the 24 measurements, exactly 8 should be taken during activity that you would classify as "normal" for you, 8 in circumstances that are more strenuous/stressful than normal, and the remaining 8 in circumstances that are more relaxing than normal.

Before taking any measurements, make a list of activities that fit into each of these three categories. All activities should be ones that are part of your usual life; this is not the time to start strenuous workouts or relaxation therapy. (Do not switch activities among categories later based on pulse rate measurements.)

(a) Make a data table or columns in a Minitab worksheet for 'Date', 'Time of day', 'Pulse rate', 'Activity code' (1 for relaxing, 2 for normal, 3 for strenuous), and 'Activity description'. This table (or a Minitab worksheet with the same information) must be submitted as the last page of the project. It may be handwritten or a printout of a Minitab worksheet (use FILE ➤ Print worksheet).

(b) Find descriptive statistics: mean, standard deviation, and five-number summary (minimum, lower quartile, median, upper quartile, maximum) for all 24 measurements. Also find these statistics separately for the 8 measurements in each of the three activity categories. You may do this with a calculator or using Minitab.

(c) Make the following graphical presentations: dotplot, boxplot, and any others that seem appropriate. The data are simple enough that you could make these plots by hand (carefully and preferably on graph paper), but you can use printouts from Minitab if you prefer. One graphical display should illustrate the differences in pulse rates for the various activity categories. You may use either transparent tape or electronic cut-and-paste to put the graphics into your report.

(d) Give a written assessment of the pulse rate measurements based on the descriptive and graphical summaries of the data.

Submit a typewritten report organized exactly according to the sections shown in the outline below.

DUE DATE: October 21 at beginning of class. (Severe grade penalties for late projects.)

Report outline: Name and SSN4 top right corner of first page; name on all pages. Title centered at top of first page. Minimum four pages, maximum five:

1. Abstract (Two or three short sentences: What you did and your most important findings)

2. Method and design (Short paragraph: How you took the pulse measurements, how you decided when to take them, how many measurements in unusual circumstances, etc.) Describe any difficulties you encountered in taking the measurements.

3. Summary of findings. Numerical and graphical descriptions of the data, perhaps with brief comments interspersed.

4. Assessment and Conclusions. Include comments on variability, reliability of measurements, how extremely high or low rates correspond to unusual activity, etc. (half to full page)

5. Data table (Separate page, at end.) Also, include this instruction sheet after the data table.