**Summarizing Data and Probability**  
  
introduce basic measures of centrality and dispersion that are used to summarize and describe a data set. We use these sample statistics to estimate the true, but unknown, population parameters.

**Problem 1:**  
For the first problem you will need to refer to the following table of blood pressure data collected at a local blood drive.

**Blood Pressure Data**

|  |  |  |
| --- | --- | --- |
| **Patient ID** | **Systolic** | **Diastolic** |
| 1 | 160 | 110 |
| 2 | 150 | 90 |
| 3 | 110 | 60 |
| 4 | 120 | 80 |
| 5 | 130 | 70 |
| 6 | 150 | 90 |
| 7 | 130 | 80 |
| 8 | 120 | 60 |
| 9 | 90 | 40 |

Using the data in the preceding table to:

* Calculate the mean, median, standard deviation, and variance of the systolic and diastolic blood pressure measurements using the formulas provided in the course text. In your write-up, show the formulas you use to calculate each statistic.
* Create a histogram and box plot for systolic blood pressure and a histogram and box plot for diastolic blood pressure.
* Scan your completed work into an image file and then insert it into a Word document.
* You could also create the histogram and box plot charts with Excel or use the PASS software that came with your text.
* You will then need to copy and paste the output from the Excel or PASS software into the Word document with your work for Problem 2.

**Problem 2:**

* Briefly interpret the results from Problem 1. Describe what the numerical summary statistics you calculated signify and what the visual displays suggest.
* Do you think the distribution of either systolic or diastolic blood pressure in this sample follows a normal distribution?
* Be sure to include Problem 1 in the same document as Problem 2.

**Problem 3:**you were introduced to probability theory and how it allows us to interpret random phenomena. To prepare for this

Assignment, review Chapters 3 and 4 in the course text for examples of how clinicians use probability in research and practice.  **To complete** this Application Assignment, **write a 1-page paper** addressing the following:

* Identify two specific ways in which probability is used in clinical research. These may relate, for instance, to relative risk, odds ratio, and number needed to treat.
* Briefly discuss the impact or importance of probability in clinical research and practice.

**Part 1:** Problem 1 and Problem 2  
**Part 2:** Problem 3