MATH 2310
Probability

For this lab, we will be looking at data on incomes for Washington state from the 2000 census, available in the file census.txt

You will use this data to answer a number of questions regarding probabilities.

Goals for this assignment:
- Use data to calculate and understand probabilities
- Develop problem-solving skills in deciding how to approach probability problems
- Understand connections between counts and probabilities

When you submit your lab, I want you to show me the calculations for how you came up with each answer - for example, if a question asked what the probability is, if picking from people between 21 and 64 in Washington state, of picking someone who has an advanced degree, your answer should look something like "307,405 / 3,391,405 = 9.06%". This will make it easier to give you suggestions if you have a mistake in any of your answers.

Grading: there are two possible points for each question.

For each problem, unless otherwise specified, suppose we randomly select one individual between the ages of 21 and 64 living in Washington state in 2000.

1) What is the probability that that individual is older than 44?

2) What is the probability that the individual has completed at least a Bachelor's degree (that is, a Bachelor's degree or an advanced degree)?

3) What is the probability that the individual has completed an advanced degree and worked full-time year-round in 1999?

4) What is the probability that the individual has completed an advanced degree or worked full-time year-round in 1999?

5) What is the probability that the individual has completed at least high school and worked full-time year-round in 1999?

6) Suppose that we know that an individual did not work full-time year-round in 1999. What is the probability that they did not graduate high school?

7) Does it appear that biological sex is independent of completing high school? Explain.

8) What percentage of people aged 25 to 44 years are female?