3460:460/560 Artificial Intelligence and Heuristic Programming Spring 2020
Project #2 (50 pts) Due: 3/22/2020

Problem:
Use Python to implement a simple machine learning program to learn naïve Bayesian classifiers from data and a simple inference engine to apply classifiers to classify new examples.

Inputs:
Interactive inputs: create the following menu

1. Learn a Naïve Bayesian classifier from categorical data.
2. Save a model.
3. Load a model and test its accuracy.
4. Apply a naïve Bayesian classifier to new cases interactively. The submenu of this item includes:
   - 4.1 Enter a new case interactively.
   - 4.2 Quit.
5. Quit.

Menu item 1:

- Prompt the user to enter the file name of data consisting of headers (attribute names) and training examples in csv format.
- Your program will generate a naïve Bayesian classifier.

Menu item 2:

- Save the learned model to an external file using the name convention model_file_name.**bin** where the model_file_name is taken from the user input file name without extension.

Menu item 3:

- To load a model: ask the user to enter a model file saved previously.
- To do testing: ask the user to enter a file name of testing data (file is in csv format without headers).
- Output is a confusion matrix derived from the testing data set.

Menu item 4:

Your program should guide the user to enter values of condition attributes interactively, and allow the user to enter as many cases as desired.

Driver Function:

Use "py_nb( )" to run your program.

Submission:
Name your zipped source files as p2_xxxx.zip where xxxx is the last four digit of your student ID.
Use Brigthspace to submit your source files by midnight of the due day.