Artificial Intelligence, As part of the Intelligent Interaction module

Creating an interactive learner using a naive bayesian classifier

Group 10B:

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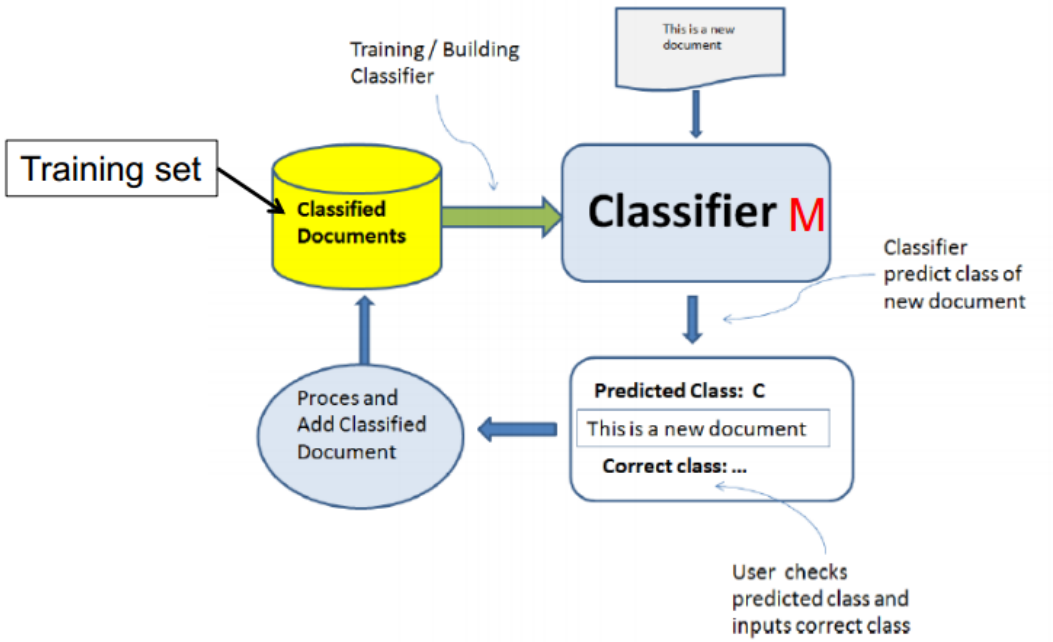
Building an Interactive Learner

Interactive learner

We have built an interactive learner using a naïve bayesian classifier as we built as part of this course. The implementation and design of the naïve bayesian classifier are discussed in an accompanying document called “AI Practical (Part A, B, and C)”, in part A. On top of this classifier we applied machine learning principles such as using user feedback to dynamically train the classifier during runtime. This is pictured below:



Male/Female Interactive learner

We decided on making a system that reads user input, and will try to correctly classify the input in either a male or in a female class. Next the user will be prompted to enter the actual class that the text belongs to. The program will then decide if it has succesfully guessed the class and report this to the user. Also reported will be a numerical indication of the ‘score’ that class has gotten for the certain input, however this should not be used to compare different

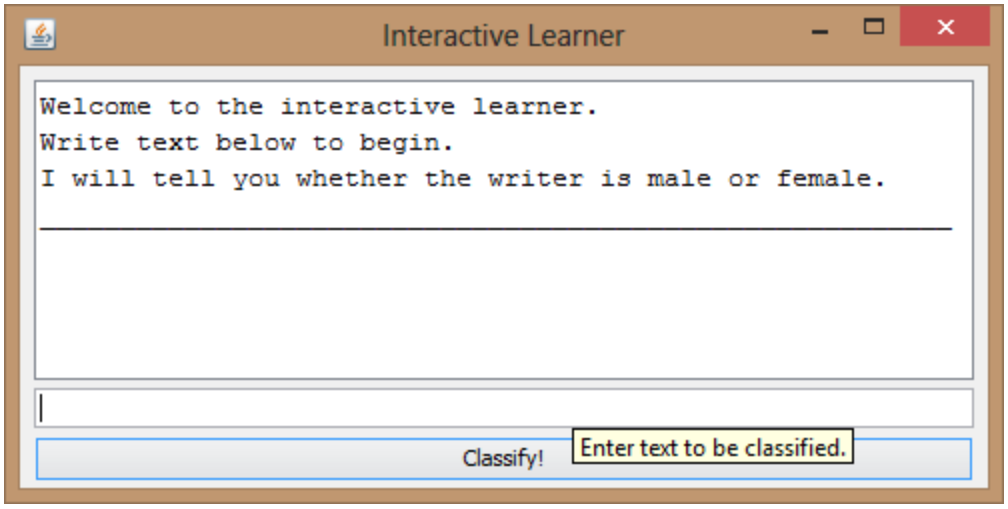
text inputs as it's mostly an internal score used, and for comparing different results one should first have knowledge about the algorithm used internally for deciding this "score".

Initial Training

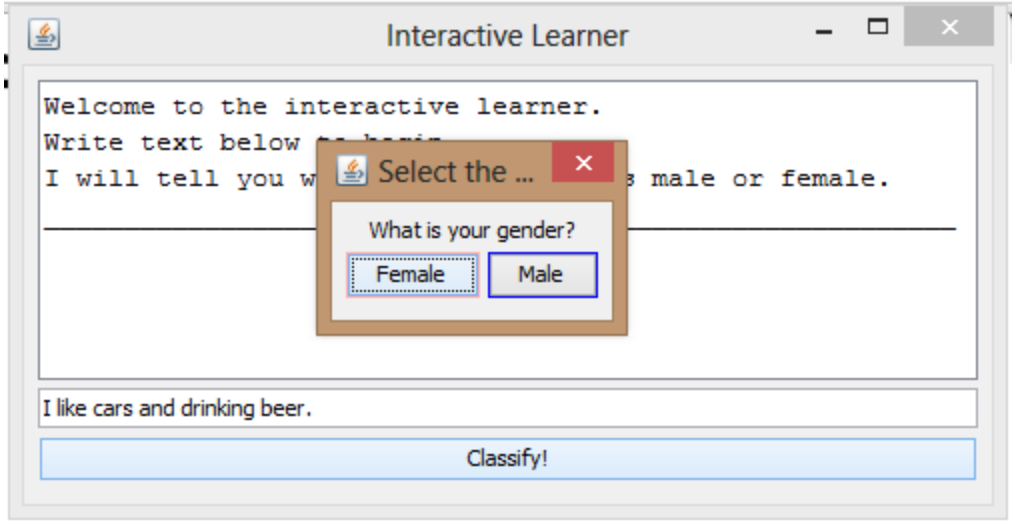
To provide the program with some initial data for the classifier it is first trained with the existing blogstrain data set, which consists of blog posts sorted by male and female writers.

The program

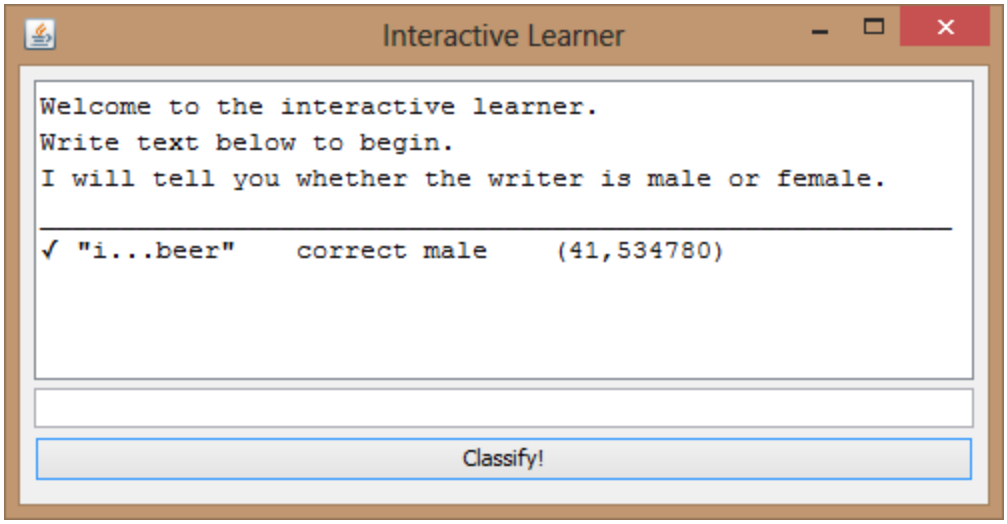
Upon starting the program you will be greeted with the following screen:



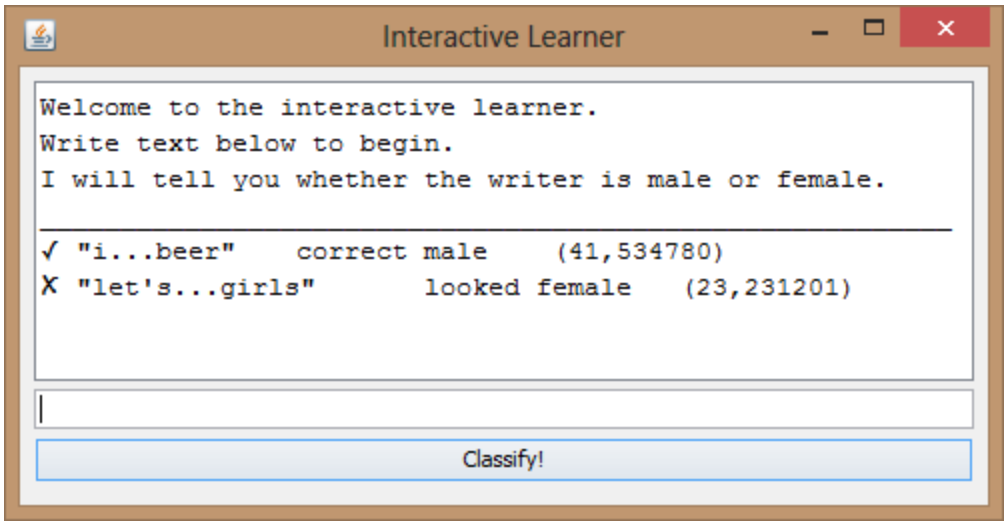
Now you can enter some text in the textfield. When you then press the Classify button (or press enter) you will get the following dialog:



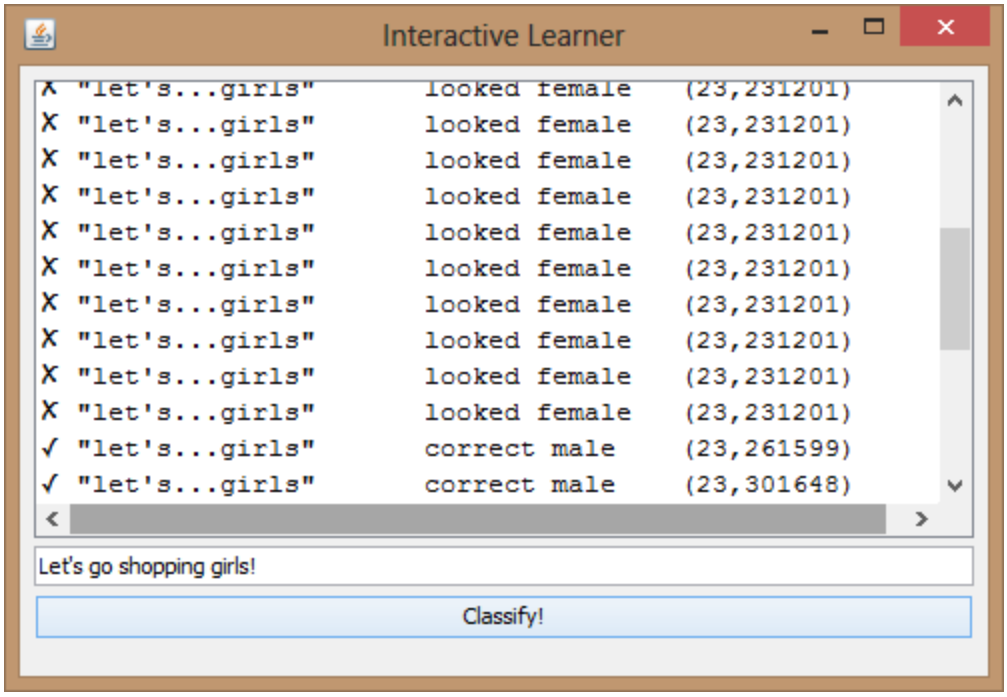
Next you choose what the actual gender is of the person that wrote the input text. In this case it was male (note that at this point the program has already calculated and decided what it thinks is the gender of the writer).



As seen it was able to correctly predict the gender of the writer.
Now suppose we enter “Let's go shopping girls!”, which was written by a male person. We also press the male button. The program identifies the text as feminent, and therefore the following message will be displayed:



As visible it guessed wrong. It will however now update classifier to learn from the user’s input. Therefore, after telling it sufficient times that it is written by a male person it has learned that it is actually not a female person that wrote the text:



You can see that now the likelyhood for the writer being male has risen above the likelyhood for the writer to be female, and therefore it now correctly classifies the text at which it first failed to correctly classify it.