Exercises for chapter: *yacc*

1.   Try to write *lex* or *yacc* programs for the following languages:

$$a^n b^m, \quad a^n b^n, \quad a^n b^n c^n$$

Discuss the theoretical power of *lex* and *yacc*.

2.   Use the TeX parser you wrote in *lex* to parse LaTeX documents. The parser should
     - Report the documentclass used;
     - Check that `\begin{document}` and `\end{document}` are used, with no text before the begin command;
     - Know about some commands with one argument, such as `\textbf`, and properly recognize that argument
     - Recognize proper matching of begin/end of an environment.

     Bonus: let your parser interpret `\newcommand` correctly. You can limit yourself to the the case of commands with one argument, that is `\newcommand{\foo}[1]{ ...}`