COMP0009. Propositional Parser in C.

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Your main assessed coursework will be to implement a theorem prover for propositional logic, the deadline will be 6th December 2019. More details will follow. You will need to implement a parser for propositional logic, to be completed by 8th November. Here is a definition of a propositional formula.

$$\begin{aligned} prop &::= p|q|r. \\ BC &::= v \mid \widehat{} \mid > . \\ fmla &::= prop \mid - \ fmla \mid (fmla\ BC\ fmla). \end{aligned}$$

Write a C program that prompts for an input string s and outputs

1. whether s is a propositional formula or not
2. in the case where s is a formula, it outputs: proposition, negation, or a binary formula, as appropriate
3. in the case where s is a binary formula, it outputs the first and second part of the formula.

Here are some sample strings and expected outputs.

- (pvq^r) is not a formula.
- ((p>q)v-p) is a binary formula, the first part is (p>q) and the second part is -p.
- -((p^q)v-(p>q)) is a negation.
- ((p^- -q) > (-qv-p)) is a binary formula, the first part is (p^- -q) and the second part is (-qv-p).