1. Starting from the grammar for regular expressions

   E → T '|' E | T ,
   T → FT | F ,
   F → P* | P ,
   P → (E) | 1

write a recursive-descent application which builds internally the expression tree (i.e. the abstract syntax tree, AST) for any regular expression.
Example:

(a|bb)*ba

```
              &
            /   \
          *      &
          |     / \
        '|' b    a
        /  \
      a     &
           /  \
          b    b
```