Bottom-Up Parsing

1. Show that the following simplified if-then-else grammar is not LR(0)
   $S \rightarrow$ i c t S | i c t S e S | a

2. Investigate the two possibilities to patch the parsing table in the above grammar, and their consequences. In both cases show the parsing of nested if-then-else statement: i c t i c t a e a

   Conclude that it is not possible to parse this grammar with LR(0), even with conflict resolution.

   Bonus (10 points): Construct an LR(1) parsing table (Modern Compiler Design book, pages 165–170) and show that after conflict resolution it is possible to parse the input string given above.

3. Develop an LR(0) parser for the grammar: $S \rightarrow$ a S | b.

4. Apply your parser to an input 'aaab'. What is the conclusion that you draw from the usage of right-recursive grammars in LR parsers?

Submission Guidelines

- You may prepare this assignment individually (indicate "individual submission", first name, last name, id and username) or in the same team as for the programming assignments (indicate "team submission" and the team account).
- Submit this assignment in class, after your recitation session (paper submission, no electronic submission for this assignment), or to mailbox 268.

GOOD LUCK!