Problems 2: Bottom-up parsing

1. Construct the LR(0) automaton for the following grammar. The start symbol is *S'* and the other non-terminal symbols are *S* and *D*.

   1. $S' \rightarrow S\ \$$
   2. $S \rightarrow S\ D$
   3. $S \rightarrow D$
   4. $D \rightarrow [\ D\ ]$
   5. $D \rightarrow x$

2. Construct the GOTO and ACTION tables for the grammar of Q1.

3. For the grammar in Q1, apply the LR(0) parsing algorithm on the string

   x[x]$

   For each parsing step show the stack, the input, action, and output.