University of Nevada, Las Vegas Computer Science 456/656 Spring 2025

Assignment 6: Due Saturday March 29, 2025, 11:59 PM

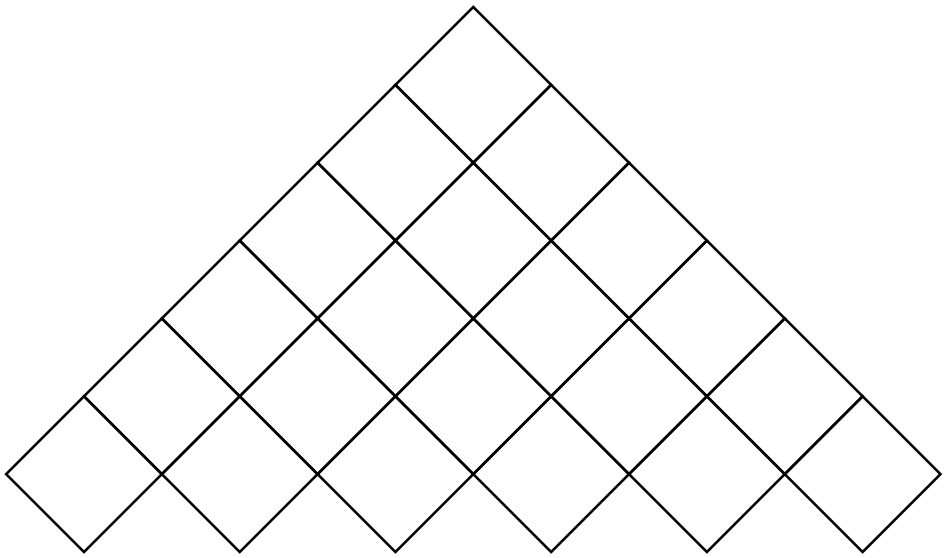
Name:_____

You are permitted to work in groups, get help from others, read books, and use the internet. You will receive a message from the graduate assistant, Louis DuMontet, telling you how to turn in the assignment.

1. Read the handouts CanonEnum.pdf, ComplexityI.pdf, ComplexityII.pdf, ComplexityIII.pdf, cyk.pdf, and lalrhandout1.pdf.

2. Use the CYK algorithm to prove that the language generated by the following CNF grammar, with start symbol S, contains the string $iiaewa$, by completely filling in the matrix shown below.

$S \to a$
$S \to IT$
$S \to WT$
$S \to XY$
$X \to IT$
$Y \to ET$
$T \to a$
$T \to IT$
$T \to WT$
$T \to XY$
$I \to i$
$E \to e$
$W \to w$



3. Carefully examine the Euler diagram on the last page of ComplexityIII.pdf. Then, redraw the diagram, without looking. Then check your figure. If it is not correct, draw it again. Keep going until you get it right. (You don't have to turn it in.)

4. Work Exercises 1 and 2 on page 3 of lalrhandout1.pdf. Then work Exercises 3 and 4 on page 4.

5. The next assignment, due April 5, will include Exercises 5 through 9 on lalrhandout1, some exercises from lalrhandout2, and some proofs from CanonEnum.