

University of Nevada, Las Vegas Computer Science 456/656 Spring 2026

Assignment 2: Due Monday March 9, 2026, 7:00:00 AM

Name: \_\_\_\_\_

You are permitted to work in groups, get help from others, read books, and use the internet. Turn in the assignment as instructed by the Graduate Assistant, Shubhashish Kar, [shubhashish.kar@unlv.nevada.edu](mailto:shubhashish.kar@unlv.nevada.edu)

1. True, False, or Open.
  - (i) Every language generated by a CF grammar can be parsed with an LALR parser.
  - (ii)  $\mathcal{P} = \mathcal{NP}$ .
  - (iii) The *small subset sum problem* is  $\mathcal{P}$ -TIME. The input of an instance of the small subset sum problem is a list consisting of only positive integers that are no greater than the length of that list.
2. Work problems 1. through 5. on pages 1 through 3 of lalrhandout2.
3. Using the grammar given in Example 5 on page 3 of lalrhandout2, walk through the computation of the LALR parser given on that page for the input string  $x - (x - x)$ .
4. Give a  $\mathcal{P}$ -TIME reduction of 3-SAT to the independent set problem. You are not required to draw a figure, but it might help.
5. Give a  $\mathcal{P}$ -TIME reduction of the subset sum problem to the partition problem.