The University of Texas
Computer Science

313E Programming Assignment 08
Leetcode Practice

Setup

This assignment may be completed individually or with a pair programming partner. Be sure to include your and your partner's name and EID in the Python file header. If you are working alone, you may delete one of them.

Complete these steps to prepare for the Assignment.

Check	Description
☐	Sign into leetcode.com. For each problem, make sure that you are on Python3 for the language.
☐	Download leetcode.py. You will be copy/pasting your solutions into the leetcode.py file.
☐	You may not change the file name.

If you would like to turn on autosave in VSCode, click on **File -> Autosave.**

Problem Description

Complete the following Leetcode questions.

1. Two Sum
- Write an O(N) time complexity solution.

17. Letter Combinations of a Phone Number
- Use recursive backtracking to solve the problem.
- Write an $O(N*4^N)$ time complexity solution.

206. Reverse Linked List
- Use recursion.
- Write an O(N) time complexity solution.

744. Find Smallest Letter Greater Than Target
- Write an O(logN) time complexity solution.

2974. Minimum Number Game

- Write an O(NlogN) time complexity solution.

Requirements
1. Your program should make an attempt to complete the problem with the specified time complexity if given.
2. Your program should make an attempt to complete the problem using the specified techniques if one is provided.
3. When you have finished a problem, copy/paste your solution into leetcode.py
4. **You may not change the names or parameters of the methods given. They must have the functionality as given in the problem specifications. You can always add more functions than those listed.**

Input/Output

Test your code on Leetcode. You may hit the run button to run your solution against their sample output. You may hit the submit button to run your solution against their complete test suite.

Grading

The assignment is graded on completion. You should make an honest effort on the problems.

The TAs will complete a manual code review for each assignment to confirm that you have followed the requirements and directions on this document.

Submission

Follow these steps for submission.

Check	Description
☐	Verify that you have no debugging statements left in your code.
☐	Submit **only** leetcode.py (the starter code file with your updates) to the given assignment in Gradescope.
☐	If you have a partner, make sure you are submitting it for you **and** your partner on Gradescope. See this Gradescope documentation for more details.

Academic Integrity

Please review the Academic Integrity section of the syllabus. We will be using plagiarism checkers, and we will cross-reference your solution with AI-generated solutions to check for similarities. Remember the goal in this class is not to write the perfect solution; we already have many of those! The goal is to learn how to problem solve, so:

- Don't hesitate to ask for guidance from the instructional staff.
- Discuss with peers about **only** bugs, their potential fixes, **high-level** design decisions, and project clarifying questions. Do not look at, verbalize, or copy another student's code when doing so.

Attribution

Thanks to Dr. Carol Ramsey for the instructions template.