

CS 116

HW Assignment #7 : Recursion

- **Points: 3**
- **Submission**
 - **Deadline: Saturday, 12/01 11:59 PM**
 - **Submit on Blackboard under Submissions -> HW assignment. Please make sure that you click the “Submit” button and not just “Save”.**
 - **Late submission will not be accepted.**
- **Getting help**
 - **From instructor during office hours in SB228 or by email.**
 - **By seeing one of the TAs during the listed TA office hours in room SB108. (check the course website <http://cs.iit.edu/~jkorah/cs116/>)**
 - **By visiting the ARC (Academic Resource Center).**
- **Academic Dishonesty Policy**
 - **Working with a partner: You can work with a partner as assigned by the instructor. Otherwise this should be considered individual work.**
 - **Even if you are working with a partner, you and your partner are required to make individual submissions.**
 - **Please note: In case two submissions are declared identical (and if you are not supposed to work together) the excuse: we worked together, does not hold and both submission will be treated according to ethics rules.**

PROGRAMMING TASK :

- You can use the solutions to practice exercises and any other help including lecture presentations and your text book.
- The current directory where your source code files are located should be a folder named <LastName>-<FirstName>-HW7.

Programming Task specification

The digits on the dial pad of a phone are associated with letters that can be used to generate mnemonics for telephone numbers. Mnemonics are helpful to remember the phone number, and also provide associations such as 1-800-FLOWERS that can help with promotions.

Your task is to design and implement a program that will use recursion to generate all possible mnemonics for a given set of digits. Your program will take the set of digits as a command line argument and print out all the possible mnemonics on the console. Note that a mnemonic is simply a combination of letters associated with the digits and does not have to make sense. For example, few mnemonic possibilities for 423 are “GAD”, “GAE” and “GCD”.

Your program should be able to deal with different number of digits. You can assume that the input will only contains digits 0 to 9. Use the digit and letter associations as shown in the figure. Ignore a digit if it does not have any letter associations. Your recursive function should have the following signature:

Vector<String> listMnemonics(String number)

