

# Assignment 1

Due: 09/06/2017

(1) Heap of Beans (/10)

Write a letter to a friend or family member explaining the rules of the game and how to win. (Refer to Pg. 96 of your text for a checklist in writing this and future assignments).

(2) **EXTRA CREDIT:** Heap of Beans 2.0 (/1)

Let  $n$  be a positive whole number that is greater than one (e.g., 2, 3, 4, 5, 6, ...). Suppose we have a heap of beans containing  $n \times n$  beans (e.g., 4, 16, 25, 36, ...). For this game, use the same rules used for Heap of Beans except that each player may take up to  $n - 1$  beans. For example, if  $n$  was 5, then there are 25 beans in the pile and each player takes turns taking 1, 2, 3, or 4 beans from the pile until there are no beans left. Describe a winning strategy.