Jared Tobias

CSC 229 – Week 3 Assignment

*2. You have 20 M&Ms bags. 19 bags have 1.0 gram pieces, but one has pieces of weight 1.1 grams. Given a scale that provides an exact measurement, how would you find the heavy bag? You can only use the scale once.*

To find the heavier M&M’s bag, I would use an algorithm with a Big O of *n*. I’d first assign each bag a number from 1 to 20, and then take and *n* amount of M&Ms based on the bag’s number, i.e. 1 M&M from bag #1, 20 M&Ms from bag #2.

I’d then expect each bag contains 1g M&Ms, which the expected sum would be 210g, and then weigh the actual total of the 20 M&Ms bags. The actual total will weigh more since one bag weighs more than others.

From there I’ll calculate the difference between the expected weight and the total weight, which the number would give me the heavy bag. For example, if the total weight was 215g, I would know that the heavy bag is bag #5 because the difference between the total and expected is 5.