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Programming Challenges

Assignment 6

SNGINT – Encode Integer:

The objective for this problem is to find the smallest positive integer such that the product of digits equals that integer. For this assignment, I decided to switch from scanner to buffered reader, as I had read that it makes your programs a little bit faster. This program basically just goes through every number 9 to 2 and if the number modded equals 0, add it to the list. The time complexity of this program is O(n\*m).  


ABA12C – Buying Apples!:

The objective of this problem is to find the minimum number of apples a person must buy given a list of prices and the amount of people to give them to. I started out this program by filling in an array of the prices, I then went through and filled in another array using dynamic programming to find the minimum cost to buy a certain number of apples. The program then iterates over each number of apples to buy and checks all possible last purchases that could have been made. If the last purchase is valid then it updates the dynamic programming array with the minimum of its current value and the cost of reaching it. The time complexity of this program is O(n­­2).  


COLCOIN – Collecting Coins:

The objective of this problem was to count the maximum number of different coins a person can collect in a single withdrawal. After getting the amount of each coin, I then sorted that array in greatest to least order. After, I set the sum to the highest coin and the maximum amount of different coins to one. Unfortunately, I was unable to figure this problem out. I kept getting the wrong number of coins. The time complexity of this program is O(n log n).

