Week 2 Lecture Problem 1

The problem can be solved using brute force approach by while loop. Every time when the avg is less than 9.5 we will be adding 10 to the sum and keep counting. The pseudo code is given below.

```
numbers = length of array
WHILE (sum/numbers) < 9.5
      numbers += 1;
      sum += 10;
RETURN (numbers - length of array)
```

As the lecturer mentioned in the class, we can achieve the better result by finding a formula and then we can easily solve the formula to solve the problem.

Week 2 Lecture Problem 2

To solve this problem using brute force approach I suggested that we find the digit which has appeared the most. Then we can increase/decrease every other value.

```
Initially we join the whole list and get a combinedList
We calculate the appearance of each digit in the list
So we get highestFrequencyDigit
We also get secondHighestFrequencyDigit

count = 0

IF highestFrequencyDigit > secondHighestFrequencyDigit
      we want all the digits to be lower than highestFrequencyDigit

      FOR ch : combinedList.toCharArray()
            count += abs(int(highestFrequencyDigit) - int(ch) - 1)
ELSE
      We want all the digits to be higher than highestFrequencyDigit

      FOR ch : combinedList.toCharArray()
            count += abs(int(ch) - int(highestFrequencyDigit) - 1)

RETURN count
```

This is obviously not a good approach, but it should work.

Week 2 Lecture Problem 3

To solve this problem, we will start with all the box of 8 eggs. If the total size is covered with all the box of 8 eggs, then we already have the solution, otherwise we will replace each 8 size with one 6 size unit we converted all the 8 size with 6 size. If still not covered then we can understand that there is no solution for this.

```
bag = 20
bigSize = 8
smallSize = 6
countOfBigSize = int(bag / bigSize)
leftSpace = bag % bigSize
IF LeftSpace >= smallSize
      countOfSmallSize = 1
Else
      countOfSmallSize = 0

leftSpace = bag - countOfBigSize*8 - countOfSmallSize*6

WHILE leftSpace > 0:
      If countOfBigSize > 0
            countOfBigSize -= 1;
      countOfSmallSize += 1;
      leftSpace = bag - countOfBigSize*8 - countOfSmallSize*6

IF leftSpace == 0
      RETURN countOfBigSize + countOfSmallSize

RETURN -1
```

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