COMP 1405B2 (Thursday)
Introduction to Computer Science I
Midterm #2 – October 31st, 2019

Part 1 [10 marks]

Write the code for this part in the part1.py file. Write a function called largest_prime_factor that takes a single integer input argument N. The function must return the largest positive integer X such that:

1. X evenly divides into N. That is, N/X produces no remainder.
2. X is prime. That is, the only positive integers that evenly divide into X are 1 and X.

For example, if N is 9, the function would return 3, since 3 is prime, divides into 9 evenly, and no larger integers meet the requirements. If N was 31, the function would return 31, since 31 is prime and divides into itself once with no remainder. Note that it may be beneficial to write more than one function in your file.

Part 2 [15 marks]

Write the code for this part in the part2.py file. For this problem, you are given several files (houses0.txt – houses4.txt) in the 'exam' directory that contain information about houses. The structure of each of these files will contain four lines of information for each house, representing the number of rooms (integer), square footage (integer), color (string), and price (integer) of the house, in that order. So, the first/second/third/fourth line of the file contain the rooms/size/color/price of house #1, the fifth/sixth/seventh/eighth lines contain the rooms/size/color/price of house #2, etc.

Write a function called get_average_house_price that takes a single string input argument representing a filename. This function must return the average price of all houses within the given file. You can assume that any filename you are given will represent a file that follows the specified structure. As an example, the average house price in the houses0.txt file should be 269385.25.