Interview Questions (Python)

Math Questions

1. Write a function that takes two integers (x and y) and returns a list of numbers between x and y that are divisible by 5 but not by 7
2. Write a function that takes two numbers (x and y) as input and returns the value to the following function:
3. Write a function that takes two integers (x and b) as inputs and returns a string that represents the number x in base b
   Example 1: if x=5 and b=2 then the function will return "101"
   Example 2: if x=5 and b=3 then the function will return "12"

O.O. Questions

1. Write a generator that takes a number N and returns all perfect squares less than N.
   Hint: use yield
   Example 1: N=30 then the generator will give 1, 4, 9, 16, 25 sequentially

Games

1. You have a chessboard with only the Rook on it. The Rook can move up, down, left or right from your perspective. Write a function (or a class) that takes a series of movements and at the end of the sequence of movements prints two numbers:
   a. The distance traveled by the Rook
   b. How far away the Rook is from its starting point
   Assume that the chessboard has no edges (the rook can travel any distance in any direction)
   For example, if the Rook is moved in the following sequence (up 1, left 3, down 2), then the Rook as traveled a distance of 6 spaces, and is 4 spaces away from its starting point.
2. Implement Tic-Tac-Toe
3. Implement Connect Four

File Questions

1. Write a function that takes a phrase and a text file as inputs. The function returns True if the phrase is found in the document and returns False otherwise. Note: Newline characters will not be included in the phrase.
2. Give a Comma Separated File (csv) and a column number (zero being the left most column) return the sum of all the entries in that column
   Assume that all the entries in the CSV are numbers.
   Assume also that there are no column headers.
   For example: if the file looks like this:

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1,2,3,4
5,6,7,8
9,10,11,12
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the sum of column 0 will be 1 + 5 + 9 = 15 and the sum of column 2 will be 3 + 7 + 11 = 21