Exercise Session (2 June 2023)

Algorithms and Data Structures

Print on Three Columns

Write a python function called `print_in_three_columns(A)` that takes an array of strings A and prints all the strings in A, in the given order left-to-right and top-to-bottom, such that the words are left-aligned in three columns. Words must be separated by at least one space horizon- tally, but in order to align words, the algorithm might have to print more spaces between words.

Examples

```
>>> print_in_three_columns('exam', 'algorithms', 'asymptotic',
exam       algorithms asymptotic
complexity graph      greedy
lugano     np         quicksort
retake     september
```

Sums One-Two-Three

Write a function `sums_one_two_three(n)` that takes an integer n and, in time $O(n)$, returns the number of possible ways to write n as a sum of 1, 2, and 3. For example, `sums_one_two_three(4)` must return 7 because there are 7 ways to write 4 as a sum of ones, twos, and threes ($1 + 1 + 1 + 1, 1 + 1 + 2, 1 + 2 + 1, 2 + 1 + 1, 2 + 2, 1 + 3, 3 + 1$).

Hint: use dynamic programming.