Year 11 Computer Science Transition Work

In year 12 and 13, you will be expected to write code to a high level and quickly. These bite-size challenges are designed to test your GCSE skills with variables, selection and iteration. For each problem you'll need to open a new repl.it python3 file. If you're completely stuck, drop us an email! If you're particularly proud of your working solution and want to show us, drop us an email as well!

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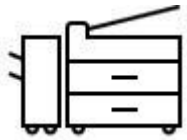
Week 1

	A certain number of friends are hoping to start going on holiday together again soon. In the past they have all chipped in the same number of pounds to cover the cost but this means they often have a few pounds spare which they give to charity. For example, if there are four friends but the holiday costs £202 then they will each pay £51 (because £50 is not enough and they find it easier to round up than use pennies). This would then generate £204 and so they put £2 into the charity pot. Input the number of friends n and the cost of the holiday as a whole number of pounds p. Output the amount donated to the charity pot.	Example Input 4 202 Example Output 2

Week 2

	Your school has a strict uniform policy and a rather strange set of sanctions. Each day has its own detention level D. If your shirt is UNTUCKED, you are given D detentions. If your tie is LOOSE you are given D+5 detentions. You only have to serve the larger sanction for any combination of scruffiness, so if you have a LOOSE tie and an UNTUCKED shirt that would still be D+5 detentions. A teacher inputs D and then supplies two more inputs: one word will be LOOSE or TIGHT and the other word will be UNTUCKED or TUCKED. All inputs will come on separate lines but unfortunately the teachers can't be trained to be consistent and although they will always type in D first, the other two words could be in **ANY** order. Output the number of detentions awarded.	Example Input 7 TUCKED LOOSE Example Output 12

Week 3

	In a photocopier sales office, a record is made of each employees' sales across the month of their two types of product: colour and black & white. Input the number of employees n, followed by n lines to specify their sales record in a space-separated form: Firstname colour_sales b_&_w_sales where the firstname is a single word without spaces and where colour_sales and b_&_w_sales are non-negative whole numbers. These records are to be ranked to determine a monthly winner by allocating 2 points for every colour sale and 1 point for every black and white sale. If points are equal then the number of colour sales are used to determine the ranking and this will always be sufficient to solve the test cases in this problem. Output the winner. Hint: In Python you can convert a string to a list with the function string.split(" ")	Example Input 5 Joe 1 3 Emily 2 1 Abitya 1 3 Amie 0 1 Alex 2 0 Example Output Emily

Week 4

	On another planet far, far away, the aliens have a strange habit of recording their ages in letters using single letters e.g. f or R. Upper case letters are older than lower case letters. Not only that but they grow 'younger' by one letter each year because they think this is more cheerful. For example if you are f years old currently then next year you will be e years old. If you are A years old currently then you will be z next year. This all seems a bit strange to us but works fine for them because every alien is age Z as soon as they are born and, for the sake of privacy/delicacy, aliens who are currently aged a years old would just stick at age a indefinitely from then onwards, regardless of how many more years passed. Read in an alien age as a single letter e.g. c or T. Output their age one year from now.	Example input b Example output a

Week 5

Jane has started her new job in the local carrot factory. She is informed by her manager each morning of that day's minimum length and maximum length for valid carrots (her first 2 program inputs, both inclusive). She then has the exciting task of counting how many carrots were valid, and invalid for that day. This must be reported to her manager at the end of the day as 2 outputs on two separate lines: the valid count and then the invalid count in that order.

Carrot lengths will be provided as a sequence of positive whole number, one on each line, which follow the initial two inputs. A final terminator input value of -1 will be used to indicate the end of the carrot length data: this value should not be included in either count.

Input Format:
Two initial lines, each providing a positive whole number,
followed by an arbitrary number of positive whole numbers, one per line,
and finally a single line containing -1 to indicate end of input

Output Format:
Two lines, each consisting of a non-negative whole number to specify the valid count followed by the invalid count

Example Input

```
5
10
6
3
4
14
10
5
2
-1
```

Example Output

```
3
4
```