

Extra Practice with Lists

These additional practice problems will help you to review and practice working with lists.

Number Lists

Ask to build list

Ask a person 5 times to enter a numbers. Verify that each value entered is a number, and if not ask again. Store each number in a list. When all numbers have been entered, use a **for each** loop to say each number.

Extra: Modify this script to allow the person to enter numbers until they indicate they are done by entering a different value such as Q for quit. Make sure you don't add the Q to the number list.

Keep evens only

Write a block to keep only the even numbers in a list. Try to write this two ways:

1. Making a new list to maintain the original values in the input list
2. Altering the input list itself (could be a command block, no report)

Make sure to create good test data for validating the block. Create some script variables to hold the test lists so that you can confirm they were changed (or unchanged) correctly.

Delete the negative numbers

Write a block to remove any negative numbers (numbers less than zero) in a list. Try to write this two ways:

1. Making a new list to maintain the original values in the input list
2. Altering the input list itself (could be a command block, no report)

Make sure to create good test data for validating the block. Create some script variables to hold the test lists so that you can confirm they were changed (or unchanged) correctly.

Sum the numbers

Write a block to add up all of the numbers (positive and negative) in a list. Do not alter the original list. If you are a 4-credit student, write this both with and without recursion. (Hint: use the ``all but first of list`` block.)

Make sure to create good test data for validating the block. Create some script variables to hold the test lists so that you can confirm they were unchanged correctly.

Pretty numbers

1. Write a block to format a number for display by adding commas. The number 1000456 would become 1,000,456.
2. Write a block to remove commas from a number so that 1,000,456 would become 1000456.

Make sure to use good test data for validating the blocks.

Words in Lists

Ask to build list

Ask a person 5 times to enter a three-letter word. Verify that each value entered is text and is three letters. If not ask again. Store each word in a list. When all numbers have been entered, use a **for** loop (not a for each) to say word separately. Then put them together to say them in a single say block as a “sentence”.

Extra: Modify this script to allow the person to enter any number of words by asking after each word is entered if they want to enter another word. Use Yes or Y to indicate you should ask again and No or N to stop asking.

Count the letters

Write a block to count the number of times a letter is found in a word. Both the letter and the word should be input parameters. Make sure to use good test data for validating the block.

Count the words

Write a block to count the words in a sentence. Make sure to use good test data for validating the block.

Mirror speak (sort of)

Write a block to reverse the letters in a word, then use that block to reverse the words in a sentence. The entire sentence should come out backwards.

For example:

Code is awesome!

becomes

!emosewa si edoC

Word Jumble

Write a block to randomize the words in a sentence. Ensure that each word is used once, and only once. The result must be random, meaning a different result should be obtained each time the block is run.

Extras:

- Ensure that any final punctuation stays at the end of the sentence, but allow for commas to remain in the middle. Remove any commas that show up at the end.
- Ensure that if the first word was capitalized, that the new first word is also capitalized. Remove the capitalization on the original first word before it is placed elsewhere in the sentence.

You can identify a letter as a capital if it has a unicode value between 65 and 90 (inclusive). A lowercase letter has a unicode value between 97 and 122 (inclusive). Make predicate blocks to identify capital and lowercase letters. Make reporter blocks to convert between capital and lowercase.