Write code that starts with a string of words and results in a new string consisting of the same words, but where the first word swaps places with the second, and so on. For example, 'the cat sat on the mat' will be converted into 'cat the on sat mat the'.bold text

```
from typing_extensions import Text
def swap_words(string):
    words = string.split()
    return ' '.join([words[i+1]+' '+words[i] for i in range(0, len(words), 2)])

text = str(input("Enter the string: "))
print(swap_words(text))
```

```
Enter the string: the cat sat on the mat
cat the on sat mat the
```

Write a function that takes a list of words (containing duplicates) and returns a list of words (with no duplicates) sorted by decreasing frequency. E.g. if the input list contained 10 instances of the word table and 9 instances of the word chair, then table would appear before chair in the output list.

```
def sort_by_frequency(words):
  frequency = {}
  for word in words:
    if word in frequency:
      frequency[word] += 1
    else:
      frequency[word] = 1
  return [word for word, count in sorted(frequency.items(), key=lambda item: ite
words = ["table", "chair", "table", "chair", "table", "chair", "table", "chair",
sorted_words = sort_by_frequency(words)
print(sorted_words)
```

```
['table', 'chair']
```

Write code that removes whitespace at the beginning and end of a string, and normalizes whitespace between words to be a single space character.

```
def normalize_whitespace(string):
    return ' '.join(string.strip().split())
given = str(input("Enter string: "))
print(normalize_whitespace(given))
```

```
Enter string:  hellow     world.
hellow world.
```

Write code to initialize a two-dimensional array of sets called word_vowels and process a list of words, adding each word to word_vowels[l][v] in ascending order of l, where l is the length of the word and v is the number of vowels it contains.

```
def process_words(words):
  vowels = set("aeiouAEIOU")
  word_vowels = {}
  for word in words:
    l = len(word)
    v = sum(letter in vowels for letter in word)
    if l not in word_vowels:
        word_vowels[l] = {}
    if v not in word_vowels[l]:
        word_vowels[l][v] = set()
    word_vowels[l][v].add(word)
    return word_vowels

words = ["table", "chair", "apple", "banana", "elephant"]
word_vowels = process_words(words)
print(word_vowels)
```

```
{5: {2: {'table'}}}
```

Assign a new value to sentence, namely the string ’she sells sea shells by the sea shore’, then write code to perform the following tasks: a) Print all words beginning with ’sh’: b) Print all words longer than 4 characters.

```
given = "she sells sea shells by the sea shore"
words = given.split()
print("Part a\n\n")
for word in words:
  if(word.startswith("sh")):
    print(word)
print("Part b\n\n")
for word in words:
  if(len(word)>4):
    print(word)
```

```
Part a


she
shells
shore
Part b


sells
shells
shore
```