HW3

For HW3, you will write a program that will store sentences in a list and get practice with working with lists and strings. First, ask how many sentences the user wants to store. You can assume that you will get an integer, but if it is non-positive, default to the value of 5. Next, get the user input (i.e. the sentences) and store them in your list in all lower-case letters. You can assume that the user will enter sentences without the . at the end.

Next, you will loop the same number of times as the number of sentences in your list and in each iteration you will display the following menu:

```
print ("Enter 1 to see a sentence")
print ("Enter 2 to see the whole list")
print ("Enter 3 to change a sentence")
print ("Enter 4 to switch words")
print ("Enter 5 to count letters")
```

You can assume that the user will enter an integer. Below is what you should do depending on the choice.

Choice 1

Ask for the index of the sentence they want to see. If it is valid, display the sentence. If the index is not valid, display an error message.

Choice 2

Display the contents of the entire list (all the sentences).

Choice 3

Ask for the index of the sentence they want to change. If it is valid, change the sentence at that index with the new input. If the index is not valid, display an error message and don't make any changes.

Choice 4

Ask for the words (and the sentences that the words are in) that need to be swapped. You need to error check in the following order:

1. Check to see if the index of the first sentence is valid.

2. Check to see if the first word is actually in the first sentence.

3. Check to see if the index of the second sentence is valid.

4. Check to see if the second word is actually in the second sentence.

5. Check to see if the two sentences are different (index of sentence 1 and 2 are different).

As soon as you find an error, display an appropriate error message (see sample outputs). Assuming none of the five errors listed above occur, perform the swap.

Choice 5

First, ask for a letter. If the user enters more than one letter (e.g. a word), just use the first letter. Count how many times the letter appears in all the sentences in your list and display the count. It should not be case-sensitive (e.g. A = a).

If the user enters a choice number outside of 1-5, display an "Invalid choice" message.

After your program has completed all the iterations of the menu loop, display a summary to the user of the count of the choices.

Use the samples below as a guide for developing your program and for the format of the prompts and the outputs. Don't add anything extra and create your program to exactly match the specifications given above and in the samples. In the sample runs, the user input is shown in bold so you can easily distinguish input from program generated text (it does not have to show up as bold in your program).

Sample run 1

```
This program will demonstrate lists
How many sentences? 3
Enter a sentence: Python is fun
Enter a sentence: cs is a good major
Enter a sentence: i like Math

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 1

You selected choice 1
Which sentence? 2
i like math

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 1

You selected choice 1
Which sentence? 3
No such sentence with index 3

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: -1
Invalid choice

----------------
Thank you for using this program
Choice 1 selected 2 time(s)
Choice 2 selected 0 time(s)
Choice 3 selected 0 time(s)
Choice 4 selected 0 time(s)
Choice 5 selected 0 time(s)
Invalid choice: 1 time(s)
```

Sample run 2

```
This program will demonstrate lists
How many sentences? -10
Enter a sentence: Python is fun
Enter a sentence: cs is a good major
Enter a sentence: i like Math
Enter a sentence: i will Learn Java
Enter a sentence: i hope this program works

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 3

You selected choice 3
Which sentence? 5
No such sentence with index 5

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
```

```
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 3

You selected choice 3
Which sentence? 4
Enter a new sentence: i will learn C++

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 2

You selected choice 2
python is fun
cs is a good major
i like math
i will learn java
i will learn c++

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 5

You selected choice 5
Enter a letter: a
The count is 7

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 5

You selected choice 5
Enter a letter: read
The count is 3

----------------
Thank you for using this program
Choice 1 selected 0 time(s)
Choice 2 selected 1 time(s)
Choice 3 selected 2 time(s)
Choice 4 selected 0 time(s)
Choice 5 selected 2 time(s)
Invalid choice: 0 time(s)
```

Sample run 3

```
This program will demonstrate lists
How many sentences? 4
Enter a sentence: Python is fun
Enter a sentence: cs is a good major
Enter a sentence: i like Math
Enter a sentence: i will Learn Java

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
```

```
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 4

You selected choice 4
Swap word: MATH
in sentence: 2
with word: CS
in sentence: 1

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 2

You selected choice 2
python is fun
math is a good major
i like cs
i will learn java

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 4

You selected choice 4
Swap word: c++
in sentence: 2
with word: java
in sentence: 3
No word:  c++ ,in sentence:  i like cs

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 4

You selected choice 4
Swap word: c++
in sentence: 5
with word: java
in sentence: 3
No sentences with index:  5

----------------
Thank you for using this program
Choice 1 selected 0 time(s)
Choice 2 selected 1 time(s)
Choice 3 selected 0 time(s)
Choice 4 selected 3 time(s)
Choice 5 selected 0 time(s)
Invalid choice: 0 time(s)
```

Sample run 4

```
This program will demonstrate lists
How many sentences? 2
Enter a sentence: I can program in python but not in c++
Enter a sentence: HW3 is fun to program

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 4

You selected choice 4
Swap word: c++
in sentence: 0
with word: python
in sentence: 0
Must be two different sentences

----------------
Enter 1 to see a sentence
Enter 2 to see the whole list
Enter 3 to change a sentence
Enter 4 to switch words
Enter 5 to count letters
Enter your choice: 4

You selected choice 4
Swap word: c++
in sentence: 0
with word: HW4
in sentence: 1
No word:  hw4 ,in sentence:  hw3 is fun to program

----------------
Thank you for using this program
Choice 1 selected 0 time(s)
Choice 2 selected 0 time(s)
Choice 3 selected 0 time(s)
Choice 4 selected 2 time(s)
Choice 5 selected 0 time(s)
Invalid choice: 0 time(s)
```

When you've finished your homework, use the submit command to submit the file.

You must be logged into your account and you must be in the same directory as the file you're trying to submit.

At the Linux prompt, type

```
submit cs201 HW3 hw3.py
```

After entering the submit command shown above, you should get a confirmation that submit worked correctly:

```
Submitting hw3.py...OK
```

If not, check your spelling and that you have included each of the required parts and try again.

You can check your submission by entering:

```
submitls cs201 HW3
```

You should see the name of the file that you just submitted, in this case hw3.py