Assignment #8

Indexing Sequences

Write definitions for each of the following Python functions, and for each function, include a clear and concise comment to describe its purpose. Use only the Python topics covered so far in class.

1. `SSet( s, i, c )`

   A copy of string 's' with the character in position 'i' set to 'c', if $0 \leq$ `i` $\leq$ `len(s)-1`, or a copy of 's' itself, otherwise; do *not* using indexing in this function

```
>>> s = "Bond"
>>> t = SSet( s, 3, "o" )
>>> s
'Bond'
>>> t
'Bono'
>>> t = SSet( s, 4, "x" )
>>> t
'Bond'
```

2. `AllDifferent( s )`

   Are all items of sequence 's' different from one another?

```
AllDifferent( "abcdefg"   ) ⇒ True
AllDifferent( [ 2, 5, 2 ] ) ⇒ False
AllDifferent( "a"         ) ⇒ True
AllDifferent( [ ]         ) ⇒ True   (since no two items are equal)
```

   Is the solution here an improvement on that for Assignment #5 in any way?

3. `Positions( x, s )`

   The list of index values at which item 'x' occurs in sequence 's'

```
Positions( "a", "abababa"      ) ⇒ [ 0, 2, 4, 6 ]
Positions( "a", "bcdefgh"      ) ⇒ [ ]
Positions(  7,  [ 3, 7, 7, 4 ] ) ⇒ [ 1, 2 ]
```

4. `Extract( s, positions )`

   The list of items of sequence 's' which occur at the index values given in the integer list 'positions' (ignore any out-of-bounds values in 'positions')

```
Extract( "abcdefg", [ 1, 4, 2 ]  ) ⇒ [ "b", "e", "c" ]
Extract( "abcdefg", [ 8, 3, -4 ] ) ⇒ [ "d" ]
Extract( "",        [ 8, 3, -4 ] ) ⇒ [ ]
```

Program Submission:

Store the function definitions in a file named 'a08.py', and turn it in for grading by typing:

```
submit-cs1117 a08.py
```

Due Date: Fri Nov 6, 11:00am