

Explain the operation called slicing on a List using an example.

- a. Slicing on a list just takes certain cells within the list and either removes or adds the information into an output.

Write an expression to test whether integer x is even

- b. IF `X == 1`
 - i. `PRINT("YES")`

Suppose `s1 = [2,1,4,3]` and `s2 = ['c', 'a', 'b']`. Show the result of evaluating the following expressions.

- c. a) `s1 + s2`
 - i. `[2, 1, 4, 3, 'c', 'a', 'b']`
- d. b) `3 * s1 + 2 * s2`
 - i. `[2, 1, 4, 3, 2, 1, 4, 3, 2, 1, 4, 3, 'c', 'a', 'b', 'c', 'a', 'b']`
- e. c) `s1[1]`
 - i. `1`
- f. d) `s1[1:3]`
 - i. `[1, 4]`
- g. e) `s1 + s2[-1]`
 - i. `Traceback (most recent call last):`
 - ii. `File "C:\Users\lance\Documents\CS1400\s1.py",`
`line 7, in <module>`
 - iii. `print(s1 + s2[-1])`
 - iv. `TypeError: can only concatenate list (not`
`"str") to list`
 - v.

Write a function `shuffle(myList)` that scrambles a list into random order using the Fisher-Yates algorithm (hint: look it up online). Do not use the built-in Python `shuffle` function.

```
1  import random
2
3  ary = [1, 2, 3, 4, 5, 6, 7, 8, 9, 0]
4  def shuffle(ary):
5      a=len(ary)
6      b=a-1
7      for d in range(b,0,-1):
8          e=random.randint(0,d)
9          if e == d:
10             continue
11         ary[d],ary[e]=ary[e],ary[d]
12     return ary
13
14 result = shuffle(ary)
15 print(result)
```

Write and test a function *innerProd*(*x*, *y*) that computes the inner product of two lists *x* and *y* and returns the result. Assume *x* and *y* are the same length.

```
X = [1, 2, 3, 4]
Y = [5, 6, 7, 8]

def innerProd(X, Y):
    if len(X) != len(Y):
        return X * Y

    return sum(i[0] * i[1] for i in zip(X, Y))

result = innerProd(X, Y)
print(result)
```