Sequences and Dictionaries worksheet
CS51 - Fall 2026

Practice Problem 1 - Strings
You are given the string `message = 'I love cs51!'`. What will the following expressions evaluate to?

a. `message[1:4]`

b. `message[:2]`

c. `message[2:]`

d. `message[:]`

e. `message[2:11:2]`

f. `message[:11:2]`

g. `message[3::2]`

h. `message[-1]`

i. `message[-1]='0'`

j. `message.upper()`

k. `message.isupper()`

Practice Problem 2 - Lists

a. Define a list `favorite_numbers` with two elements, the numbers 24 and 47.

b. Create an empty list. There are two ways you can achieve this.

c. Convert the string `'cs51'` into a list of its individual characters.

d. Consider the lists `list_1 = [1, 2]` and `list_2 = [3, 4]`. What will `list_1 + list_2` return?

e. Consider the list `list_1 = [1, 2]`. What will the contents of `list_2` be if `list_2 = list_1 * 3`?

f. Consider the list `cheeses = ['Feta','Cheddar', 'Edam', 'Gouda']`. What will happen after the execution of each of the following lines?

```
cheeses.append('Haloumi')
cheeses.extend(['Emmental', 'Gruyere'])
cheeses.insert(1, 'Brie')
```

g. Consider the list `cheeses = ['Feta','Cheddar', 'Edam', 'Gouda']`. What will happen after the execution of each of the following lines?

```
removed_cheese = cheeses.pop(1)
cheeses.remove('Cheddar')
```

h. How can you break the string `motto = 'cs51 is my favorite class'` into a list of individual words?

i. How can you concatenate a list of strings into a single string? E.g., how can you turn the list `favorite_list = ['cs51', 'is', 'my', 'favorite', 'class']` into `'cs51 is my favorite class'`?

Practice Problem 3 - Tuples

a. Define a tuple `tup` with the characters `'c','s','5', '1'`.

b. Create an empty tuple. There are two ways you can achieve this.

c. Convert the string `'cs51'` into a tuple of its individual characters.

d. Consider the code `tuple('lup') + ('i', 'n')` . What will happen?

e. Consider the code `tuple('spam') * 2`. What will happen?

f. Consider the code `tuple('cs51')`. What will happen if we execute `tuple[3]='0'`?

Practice Problem 4 - Ranges

a. What will the following code do?

```
for i in range(1,10,2):
    print(i)
```

Practice Problem 5 - Dictionaries

a. Create an empty dictionary `d`. There are two ways you can achieve this

b. Create an dictionary that associates English words with their translation to a language of your choice. Insert two such pairs of words. Print in pairs the keys and associated values.