Metropolitan State University

ICS 140 Computational Thinking with Programming

Class Exercise 10

**Lecture Section**

1. What operator can be used to make multiple copies of a list and join them together?

+ or +=

1. Write a python line to iterate over items in a list called **my\_list** using a target variable called **item**.

for item in my\_list:

1. How can you access the first item in a list?

My\_list[0]

1. How can you access the last item in a list?

My\_list[-1]

1. What function can be used to determine how many items a list has?

Len(my\_list)

1. How can you concatenate two lists together?

List1 + list2

1. What is list slicing?

Taking a specified part of a list to pull

1. How can you write a Boolean expression to check if an item is in a list?

If item in my\_list:

1. How can you add an item to the end of a list?

Append(item)

1. How can you add an item to a specific point in a list?

Insert(index, item)

1. How can you find where an item is stored in a list?

Index(item)

1. How do you reference an item in a two-dimensional list?

Books[i][j]

**Working with Lists**

1. Write a python statement that will create a list called names with elements Alice, Bob and Charlie.

my\_list = ['alice','bob','charlie']

1. Write a python statement that will create a list called numbers with values from 1 to 5 using the range function.

numbers = []

for x in range(5):

numbers.append(x+1)

1. Write a python statement that will append the value 6 to the end of the numbers list created in the previous question.

numbers.append(6)

1. Write a python statement that will insert 0 at the beginning of the numbers list.

numbers.insert(0,0)

1. What is the output for the following command?

    numbers = [3,1,4] \* 2

    print(numbers)

[3, 1, 4, 3, 1, 4]

1. What is the output for the following code snippet?

    heroes = ["superman", "wonder woman", "batman"]

    heroes.sort()

    for hero in heroes:

        print(hero)

batman

superman

wonder woman

1. What is the output for the following code snippet?

    range\_list = list(range(2,11,2))

    print(len(range\_list))

5

1. What is the output for the following code snippet?

    marvel = ["Ant Man", "Black Panther", "Captain Marvel"]

    dc = ["superman", "wonder woman", "batman"]

    mixed\_heroes = marvel + dc

    mixed\_heroes.sort()

    print(mixed\_heroes)

['Ant Man', 'Black Panther', 'Captain Marvel', 'batman', 'superman', 'wonder woman']

1. What will the following code display?

  avengers = ["Captain America", "Iron Man", "Hulk", "Thor", "Black Widow", "Hawkeye"]

    sliced\_list = avengers[2:5]

    print(sliced\_list)

['Hulk', 'Thor', 'Black Widow']

1. Suppose you have the list of avengers from the previous problem (not sliced\_list) write the expression to evaluate whether “Black Panther” was in the avengers list.

if "Black Panther" in avengers:

print("It is")

else:

print("it is not")

1. Write a statement to add the marvel list from question 8 to the avengers list from question 9.

avengers += marvel

1. Write a statement to add “Spiderman” to the end of the avengers list.

avengers.append("Spiderman")

1. Write the code to find where “Thor” is in the avengers list.

print(avengers.index("Thor")+1)

1. Those of you who follow the marvel movies or even Greek mythology will know that sometimes Loki will team up with Thor. Write the code to add “Loki” to the list and place him next to “Thor”.

avengers.insert(i, "Loki")

1. Shockingly, Loki betrayed the heroes. Write the code to remove him from the list.

avengers.remove("Loki")

**2 Dimensional Lists**

For the next set of questions use the following multi-dimensional list.

marvel\_characters = [["Thor", "Loki", "Odin"], ["Hawkeye", "Black Widow"], ["Captain America", "Bucky"]]

1. Write a statement to print the Thor character list including Loki and Odin.

print(marvel\_characters[0])

1. Write a statement to print the “Black Widow” element.

print(marvel\_characters[1][1])

1. Write a statement to replace the “Captain America” value with “Falcon”

marvel\_characters[2][0] = "falcon"

1. Write code that will loop through the nested lists and print out each individual element.

for heros in marvel\_characters:

for hero in heros:

print(hero)