# Homework 4 (54 points)

This homework assignment covers Chapter 4 in Python Crash Course. For Questions 1-5, write your answers in red font below the questions in this Word document. For Questions 6 and 7, create two separate Python scripts. Upload a zip folder to Moodle containing this document in Word or PDF format with the two Python scripts to receive full credit.

## Question 1 (3 points)

Describe the difference between a list and a tuple. How is creating a list different than creating a tuple? How is accessing an element in a list different than accessing an element in a tuple?

You can edit the elements of a list but you can not edit the elements of a tuple. To create a tuple use () instead of [].There’s no difference in accessing an element in a tuple or a list

## Question 2 (5 points)

Write a Python script that creates a list of the following numbers: 13, 18, 23, 28, 33, 38, 43. Paste the code for your Python script here, making sure that it compiles. No comments necessary.

Nums = [13, 18, 23, 28, 33, 38, 43]

## Question 3 (3 points)

Give 3 examples of how you could use a list to store strings. For example (don’t use these): (1) a list of your favorite movies, (2) a list of the names of people in your phone’s contacts, and (3) a list of items to get at the grocery store.

You can use lists to store names of employees. You can use lists to store the models of cars available in a dealership. You can use lists to store the names of different cities.

## Question 4 (3 points)

Give 3 examples of how you could use a list of numbers. For example (don’t use these): (1) a list of your grades for each assignment in this class, (2) a list of high scores that is displayed at the end of an arcade game, (3) a list of all of the totals from your receipts for the month.

You can use a list to store a list of salaries for employees. You can use a list to store the finishing times for a race. You can use a list to store the height of different buildings.

## Question 5 (14 points)

For each of the items below, (1) find and explain the error, and (2) explain how to fix it. You must provide both of these points for each part to receive full points.

1. employees = ['Michael', 'Jim', 'Pam', 'Dwight', 'Angela', 'Oscar', 'Kevin']

for employee in employees:

print(employee.upper()) # Will capitalize every item in list

print(employee.lower()) # Will lowercase every item in list

print('All employees printed.') # Will print message indicating end of list

“all employees printed” is printed after each employee instead of at the end of the list like the comment suggests it should do. To fix put the print statement outside the loop.

1. employees = ['Michael', 'Jim', 'Pam', 'Dwight', 'Angela', 'Oscar', 'Kevin']

for employee in employees:

print(employee.upper()) # Will capitalize every item in list

the print statement is not indented meaning it is not part of the for loop. Indent the print statement to fix it.

1. employees = [‘Michael’, ‘Jim’, ‘Pam’, ‘Dwight’, ‘Angela’, ‘Oscar’, ‘Kevin’]

print(employees)

the print statement is indented when it should not be. To fix remove the indent

1. employees = [‘Michael’, ‘Jim’, ‘Pam’, ‘Dwight’, ‘Angela’, ‘Oscar’, ‘Kevin’]

for employee in employees

print(employee)

missing a colon at the end of the for statement. Add a colon to fix it.

1. employees = [‘Michael’, ‘Jim’, ‘Pam’, ‘Dwight’, ‘Angela’, ‘Oscar’, ‘Kevin’]

scranton\_employees = employees # Creates a separate copy of the employees list

# Add new element to new list to prove that the lists are separate

scranton\_employees.append(‘Phyllis’)

print(employees)

print(scranton\_employees)

when creating a new list employees needs to have no indices otherwise the lists become linked and then changes happen to both lists. To fix add [:] after employees.

1. employees = (‘Michael’, ‘Jim’, ‘Pam’, ‘Dwight’, ‘Angela’, ‘Oscar’, ‘Kevin’)

employees[5] = ‘Andy’

a tuple was created instead of a list so you cant insert anything into it. To fix make a list instead by replacing the () with [].

1. boss = (‘Michael’)

print(boss[0]) # Prints the only element in the boss tuple

there is no comma after ‘Michael’ so python forces order of operation instead of creating a list. To fix add a comma after ‘Michael’.

## Question 6 (10 points)

Write a Python script that:

1. Creates a list that contains at least 5 of your favorite movies
2. Uses a for loop that wil prints every element of the list to the screen
3. Prints a slice of the list without using a loop. The start/stop positions are up to you, but must print a slice and not the entire list
4. Includes comments

## Question 7 (16 points)

Write a Python script that:

1. Generates a list of 10 numbers containing random values between 0-100, inclusive
2. Prints to the screen the list of numbers
3. Prints to the screen the smallest number in the list
4. Prints to the screen the largest number in the list
5. Prints to the screen the average of the numbers in the list
6. Prints to the screen the sorted list, from lowest to highest value
7. Prints to the screen the median of the numbers in the list
8. Includes comments