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# Name Dipika Sharma
# DSC 540-T302 Data Preparation
# Week 1&2
# Question 4.a.

# **** Task 1 ****
# Create a list of random numbers (at least 100 in length
# but we encourage you to play with the length)

import random
LIMIT = 100
list_rd_num = [random.randint(0, LIMIT) for x in range(0, LIMIT)]

print(list_rd_num)
[72, 97, 14, 21, 27, 12, 6, 8, 91, 37, 44, 38, 59, 66, 28, 98, 30, 80, 72, 70, 2, 31, 39, 99, 18, 37, 78, 47, 71, 73, 32, 5
9, 93, 33, 77, 60, 32, 74, 2, 98, 62, 48, 92, 85, 0, 49, 95, 70, 22, 75, 15, 57, 18, 71, 68, 1, 53, 49, 76, 52, 10, 28, 52,
2, 77, 14, 26, 5, 62, 93, 34, 60, 91, 3, 49, 97, 42, 25, 33, 94, 89, 38, 85, 94, 70, 45, 85, 96, 34, 25, 18, 44, 18, 25, 9
2, 55, 44, 83, 69, 96]

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[3]:

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# **** Task 2 ****
# Write a list comprehension to generate a second list from the one you just created.
# The condition of membership in the second list is divisibility by 3.


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list_divi_by_3 = [a for a in list_rd_num if a % 3 == 0]
print(list_divi_by_3)
[72, 21, 27, 12, 6, 66, 30, 72, 39, 99, 18, 78, 93, 33, 60, 48, 0, 75, 15, 57, 18, 93, 60, 3, 42, 33, 45, 96, 18, 18, 69, 9
6]

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[4]:

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# **** Task 3 ****
# Use the len function to measure the length of the first list and the second list
# Store both in two different variables


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length_list_rd = len(list_rd_num)
length_list_divi_3 = len(list_divi_by_3)


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Calculate the difference of length between them

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diff = length_list_rd - length_list_divi_3
print(diff)
68

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[5]:

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# **** Task 4 ****
# Pack Task-2 and Task-3 in a single while loop and perform them few times in
# such a way that at the end you have a list with difference of length
# End the while loop when desired number of experiments are finished
# (at least three, please feel free to do more)


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Try = 10 # number of time we want to perform the task
difference_list = []
count = 1
while count <= Try:
    list_rd_num = [random.randint(0, LIMIT) for x in range(0, LIMIT)]
    list_divi_by_3 = [a for a in list_rd_num if a % 3 == 0]

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length_list_rd = len(list_rd_num)
length_list_divi_3 = len(list_divi_by_3)
diff = length_list_rd - length_list_divi_3

difference_list.append(diff)
count = count + 1
print(difference_list)
[64, 64, 63, 51, 68, 72, 74, 68, 72, 64]
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[6]:

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# Calculate the arithmetic mean (common average) on the difference of
# length that you have. (How to sum all values of a list?)
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average_diff = sum(difference_list) / float(len(difference_list))
print(average_diff)
66.0
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