# Worksheet 6 Sorting lists Answers

**Task 1**

1. Complete this program to put the list of names in alphabetical order.

oneD = ["Niall","Zayn","Liam","Harry","Louis"]  
oneDSorted = sorted(oneD)  
print(oneDSorted)

1. Alter the program so that it will print the names in reverse alphabetical order (Z to A).

oneD = ["Niall","Zayn","Liam","Harry","Louis"]  
oneDSorted = sorted(oneD, reverse=True)  
print(oneDSorted)

1. Write a program that will ask for six numbers and will then print those numbers in ascending order.

numbers = []  
for loop in range(6):  
 newNumber = int(input("Enter a number: "))  
 numbers.append(newNumber)  
numbers = sorted(numbers)  
print(numbers)

*OR*  
numbers = [0]\*6  
for loop in range(6):  
 newNumber = int(input("Enter a number: "))  
 numbers[loop] = newNumber  
numbers = sorted(numbers)  
print(numbers)

1. Alter the program so that it will print the numbers in descending order.

numbers = []  
for loop in range(6):  
 newNumber = int(input(“Enter a number: “))  
 numbers.append(newNumber)  
numbers = sorted(numbers, reverse=True)  
print(numbers)

1. Complete this program so that the user can select whether to print the names in ascending (A-Z) or descending (Z-A) order.

actorsWhoPlayedBatman = ["Adam","Michael","Val","Christian"]  
choice = input("Choose (a)scending or (d)escending order: ")  
if choice == "a":  
 choice = False  
elif choice == "d":  
 choice = True  
else:  
 print("Error, invalid response. Sorting (a)scending")  
 choice = False  
actors = sorted(actorsWhoPlayedBatman,reverse=choice)  
print(actors)  
  
*OR*  
  
actorsWhoPlayedBatman = ["Adam","Michael","Val","Christian"]  
choice = input("Choose (a)scending or (d)escending order: ")  
if choice == "a":  
 actors = sorted(actorsWhoPlayedBatman)  
elif choice == "d":  
 actors = sorted(actorsWhoPlayedBatman,reverse=True)  
else:  
 print("Error, invalid response. Not sorting")  
 actors = actorsWhoPlayedBatman  
print(actors)

**Task 2 Other functions**

**Functions and methods you may (or may not) need:**

values = [17,12,5,9,16,23,4,31,13]

sortedValues = sorted(values)

sortedValues = sorted(values,reverse=True)

size = len(values) # Find size of list

largest = max(values)

smallest = min(values)

total = sum(values) # Add up all values

values = [] # sets up an empty list

del values[n] # deletes the values[n] from the list and reduces the length of the list by 1

values.append(weight) # appends the value of weight to the list end

6. Write a program which allows a user to enter several parcel weights in grams and appends each weight to a list. Data entry stops when the user enters 0 for a parcel weight.

The list is then sorted into ascending sequence and the maximum and minimum weight deleted from the list. The number of items remaining in the list is printed.

The average of these items is calculated and printed out.

***(See program L6 WS6 Ex6 Parcel weights.py)***

# program L6 WS6 Ex6 Parcel weights.py

parcelWeights = []

weight = 100

while weight!=0:

weight = int(input("Enter weight as an integer value, 0 to end "))

if weight!=0:

parcelWeights.append(weight)

print(parcelWeights)

sortedWeights = sorted(parcelWeights, reverse = True)

#delete the first item in the list

del sortedWeights[0]

print("sorted weights, without maximum ",sortedWeights)

size = len(sortedWeights)

# delete the last item in the sorted list

# remember the last index is size-1 because we start counting at 0

del sortedWeights[size-1]

print("sorted weights, less max and min: ", sortedWeights)

averageWeight = sum(sortedWeights)/(size-1)

print ("average weight = ", averageWeight)

**Extension**

7. (Challenging!) A game program keeps a list of the top five scores that a player has achieved in this session of repeatedly playing the game. The top five scores are held in descending order in a list called highScores.

When the program starts, the list contains all zeroes. To test the scorekeeping, write a program which allows the user to put in his or her latest score.

The program checks whether this is greater than the minimum value in the highScores list and if it is, prints a “Well done” message and replaces the minimum value with the latest score. The list is then resorted into descending sequence and printed out. If the latest score is less than the minimum, the list is simply printed out with a suitable message.

***(See program L6 WS6 Ex7 high scores.py in Sample Programs folder)***

highScores =[0,0,0,0,0]

print ("This program allows you to put in your score for a game, ")

print("which you can play any number of times ")

print ("It keeps the best 5 scores and prints them each time")

print ("there's no actual game in this program, it just tests the scoring")

anotherGo = 'y'

while anotherGo == 'y':

newScore = int(input("Enter your latest score: "))

if newScore > min(highScores):

print("Well done - that's in the top 5!")

n=0

while n<5:

if newScore > highScores[n]:

temp = highScores[n]

highScores[n] = newScore

highScores[4] = temp

n=5

else:

n=n+1

# now re-sort the list

sortedValues = sorted(highScores, reverse= True)

highScores = sortedValues

print("the 5 highest scores are ", highScores)

anotherGo = input("Another go? Answer y or n ")