# Exercise 1

"""

File: student.py

Resources to manage a student's name and test scores.

"""

from random import shuffle

class Student(object):

"""Represents a student."""

def \_\_init\_\_(self, name, number, age):

"""All scores are initially 0."""

self.name = name

self.scores = []

self.age = age

for count in range(number):

self.scores.append(0)

def getAge(self):

return self.age

def setName(self, newName):

self.name = newName

def getName(self):

"""Returns the student's name."""

return self.name

def setScore(self, i, score):

"""Resets the ith score, counting from 1."""

self.scores[i - 1] = score

def getScore(self, i):

"""Returns the ith score, counting from 1."""

return self.scores[i - 1]

def getAverage(self):

"""Returns the average score."""

if len(self.scores)==0:

return "No score"

else:

return sum(self.scores) / len(self.scores)

def getHighScore(self):

"""Returns the highest score."""

return max(self.scores)

def \_\_str\_\_(self):

"""Returns the string representation of the student."""

return "Name: " + self.name + "\nScores: " + \

" ".join(map(str, self.scores))

def \_\_eq\_\_(self, other):

"""Tests the two strings of the two students for equality"""

if self.name == other.name:

return True

else:

return False

def \_\_lt\_\_(self, other):

"""Tests the two strings of the two students to see if one is less than the other"""

if self.name < other.name:

return True

else:

return False

def \_\_ge\_\_(self, other):

"""Tests the two strings of the two students to see if one is greater than or equal to the other"""

if self.name >= other.name:

return True

else:

return False

"""The main function of the program"""

def main():

"""Gathers inputs for student names. Mainly to make multiple tests cases easier."""

s1 = input("Please enter the first student's name: ")

s2 = input("Please enter the second student's name: ")

"""Assigns user-inputed names into 2 student variables in the student class"""

student1 = Student(s1, 6, 20)

student2 = Student(s2, 6, 20)

"""Prints the results of comparisons"""

print("The students names are equal: " + str(student2 == student1))

print(s2 + " is less than " + s1 + ": " + str(student2 < student1))

print(s2 + " is greater than or equal to " + s1 + ": " + str(student2 >= student1))

if \_\_name\_\_ == "\_\_main\_\_":

main()

1.

Please enter the first student's name: Zimmermann

Please enter the second student's name: Schmitt

The students names are equal: False

Schmitt is less than Zimmermann: True

Schmitt is greater than or equal to Zimmermann: False

2.

Please enter the first student's name: Zach

Please enter the second student's name: Ryan

The students names are equal: False

Ryan is less than Zach: True

Ryan is greater than or equal to Zach: False

3.

Please enter the first student's name: Mr. Cool Guy

Please enter the second student's name: Mr. Uncool Guy

The students names are equal: False

Mr. Uncool Guy is less than Mr. Cool Guy: False

Mr. Uncool Guy is greater than or equal to Mr. Cool Guy: True

4.

Please enter the first student's name: Justin Timberlack

Please enter the second student's name: Katelyn Parry

The students names are equal: False

Katelyn Parry is less than Justin Timberlack: False

Katelyn Parry is greater than or equal to Justin Timberlack: True

# Exercise 2

"""

File: student.py

Resources to manage a student's name and test scores.

"""

from random import shuffle

class Student(object):

"""Represents a student."""

def \_\_init\_\_(self, name, number, age):

"""All scores are initially 0."""

self.name = name

self.scores = []

self.age = age

for count in range(number):

self.scores.append(0)

def getAge(self):

return self.age

def setName(self, newName):

self.name = newName

def getName(self):

"""Returns the student's name."""

return self.name

def setScore(self, i, score):

"""Resets the ith score, counting from 1."""

self.scores[i - 1] = score

def getScore(self, i):

"""Returns the ith score, counting from 1."""

return self.scores[i - 1]

def getAverage(self):

"""Returns the average score."""

if len(self.scores)==0:

return "No score"

else:

return sum(self.scores) / len(self.scores)

def getHighScore(self):

"""Returns the highest score."""

return max(self.scores)

def \_\_str\_\_(self):

"""Returns the string representation of the student."""

return "Name: " + self.name + "\nScores: " + \

" ".join(map(str, self.scores))

def \_\_eq\_\_(self, other):

"""Tests the two strings of the two students for equality"""

if self.name == other.name:

return True

else:

return False

def \_\_lt\_\_(self, other):

"""Tests the two strings of the two students to see if one is less than the other"""

if self.name < other.name:

return True

else:

return False

def \_\_ge\_\_(self, other):

"""Tests the two strings of the two students to see if one is greater than or equal to the other"""

if self.name >= other.name:

return True

else:

return False

"""The main function of the program"""

def main():

"""Gathers inputs for student names. Mainly to make multiple tests cases easier."""

s1 = input("Please enter the first student's name: ")

s2 = input("Please enter the second student's name: ")

s3 = input("Please enter the third student's name: ")

s4 = input("Please enter the fourth student's name: ")

s5 = input("Please enter the fifth student's name: ")

"""Assigns student variables to student class"""

student1 = Student(s1, 6, 20)

student2 = Student(s2, 6, 20)

student3 = Student(s3, 4, 8000)

student4 = Student(s4, 8, 8)

student5 = Student(s5, 3, 91)

"""Puts students into a list"""

stlist = [student1, student2, student3, student4, student5]

"""Shuffles the list"""

shuffle(stlist)

"""Sorts the list"""

stlist.sort

"""Prints the list of studetns and all of their data"""

for i in range(5):

print(str(stlist[i]) + "\nAge: " + str(Student.getAge(stlist[i])))

if \_\_name\_\_ == "\_\_main\_\_":

main()

1.

Please enter the first student's name: Holdon

Please enter the second student's name: Homor

Please enter the third student's name: Justin

Please enter the fourth student's name: Hulio

Please enter the fifth student's name: Jake

Name: Jake

Scores: 0 0 0

Age: 91

Name: Justin

Scores: 0 0 0 0

Age: 8000

Name: Holdon

Scores: 0 0 0 0 0 0

Age: 20

Name: Homor

Scores: 0 0 0 0 0 0

Age: 20

Name: Hulio

Scores: 0 0 0 0 0 0 0 0

Age: 8

2.

Please enter the first student's name: Guy

Please enter the second student's name: Montag

Please enter the third student's name: Lillian

Please enter the fourth student's name: President Person

Please enter the fifth student's name: Military

Name: Guy

Scores: 0 0 0 0 0 0

Age: 20

Name: Montag

Scores: 0 0 0 0 0 0

Age: 20

Name: Military

Scores: 0 0 0

Age: 91

Name: Lillian

Scores: 0 0 0 0

Age: 8000

Name: President Person

Scores: 0 0 0 0 0 0 0 0

Age: 8

3.

Please enter the first student's name: Fry

Please enter the second student's name: Peter

Please enter the third student's name: Stan

Please enter the fourth student's name: Homor

Please enter the fifth student's name: Rick

Name: Homor

Scores: 0 0 0 0 0 0 0 0

Age: 8

Name: Rick

Scores: 0 0 0

Age: 91

Name: Stan

Scores: 0 0 0 0

Age: 8000

Name: Peter

Scores: 0 0 0 0 0 0

Age: 20

Name: Fry

Scores: 0 0 0 0 0 0

Age: 20

4.

Please enter the first student's name: Tim Apple

Please enter the second student's name: Steven Bills

Please enter the third student's name: Elon Musk

Please enter the fourth student's name: HAL

Please enter the fifth student's name: T-800

Name: HAL

Scores: 0 0 0 0 0 0 0 0

Age: 8

Name: Elon Musk

Scores: 0 0 0 0

Age: 8000

Name: Steven Bills

Scores: 0 0 0 0 0 0

Age: 20

Name: Tim Apple

Scores: 0 0 0 0 0 0

Age: 20

Name: T-800

Scores: 0 0 0

Age: 91