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)
```

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    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]
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    """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