Level 2 Allocation (Assignment 1)

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Allocates students to second year programs based on free choice and GPA.

Functions

- def CalcModule.sort (S)

  Sorts the list of student dictionaries based on student GPA in descending order.
- def CalcModule.average (L, g)

  Computes average GPA of all males or females depending on the gender selected.
- def CalcModule.allocate (S, F, C)

  Allocates students to a program as long as their GPA is above 4.0.

2.1.1 Detailed Description

Allocates students to second year programs based on free choice and GPA.

Author

Harsh Patel

Date

1/15/2019

2.1.2 Function Documentation

2.1.2.1 allocate()

```
def CalcModule.allocate (
              S,
              F,
              C )
```

Allocates students to a program as long as their GPA is above 4.0.

Allocates students with a GPA above 4.0 to a program beginning from allocating free choice students first, then normal students from highest GPA first. Students will be allocated to their first choice unless its full. If their second choice is full, then they are allocated to their third choice.

Parameters

S	(studentLst) List of student dictionaries created by function readStdnts(s).
F	(freeChoiceLst) List of macIDs of students with free choice created by readFreeChoice(s).
C	(capacityDict) Dictionary with each department and their corresponding capacities.

Returns

Dctionary with each a list of student dictionaries allocated to each department

2.1.2.2 average()

```
def CalcModule.average (
              L,
              g )
```

Computes average GPA of all males or females depending on the gender selected.

Parameters

L	(studentLst) List of student dictionaries created by function readStdnts(s).
g	(gender) Gender, male or female, to compute average GPA.

Returns

Average GPA of a specfic gender.

2.1.2.3 sort()

```
def CalcModule.sort (
              S )
```

Sorts the list of student dictionaries based on student GPA in descending order.

Parameters

S	(studentLst) List of student dictionaries created by function readStdnts(s).

Returns

Sorted list of student dictionaries in descending order based on student GPA score.

2.2 src/ReadAllocationData.py File Reference

Reads student information from files.

Functions

- def ReadAllocationData.readStdnts (s)

  Reads a file and returns a list of dictionaries of student information.
- def ReadAllocationData.readFreeChoice (s)

  Reads a file containing only free choice students and returns their macID's in a list.
- def ReadAllocationData.readDeptCapacity (s)

  Reads a file containing capacities of each department students will be allocated to and returns the name of the department and capacity in a dictionary.

2.2.1 Detailed Description

Reads student information from files.

Author

Harsh Patel

Date

1/15/2019

2.2.2 Function Documentation

2.2.2.1 readDeptCapacity()

```
def ReadAllocationData.readDeptCapacity (
            s )
```

Reads a file containing capacities of each department students will be allocated to and returns the name of the department and capacity in a dictionary.

Parameters

s	("Capacity.txt") Name of file being read.

Returns

Dictionary with each department name and capacity

2.2.2.2 readFreeChoice()

```
def ReadAllocationData.readFreeChoice (
              s )
```

Reads a file containing only free choice students and returns their macID's in a list.

Parameters

s	("FreeChoice.txt") Name of file being read.

Returns

List of macIds of students with free choice.

2.2.2.3 readStdnts()

```
def ReadAllocationData.readStdnts (
              s )
```

Reads a file and returns a list of dictionaries of student information.

Function accepts one parameter that is the name of a file containing student information.

Parameters

s	("students.txt") name of file being read.

Returns

List of dictionaries of student information.

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