Assignment 2

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3.1 File List

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Chapter 4

Class Documentation

4.1 AALst.AALst Class Reference

Abstract data type that represents the allocated sequence.

Static Public Member Functions

- def init ()
  init function
- def add_stdnt (d, m)
  add_stdnt function
- def lst_alloc (d)
  lst_alloc function
- def num_alloc (d)
  num_alloc function

Static Public Attributes

- list **s** = [ ]

4.1.1 Detailed Description

Abstract data type that represents the allocated sequence.

4.1.2 Member Function Documentation

4.1.2.1 add_stdnt()

```
def AALst.AALst.add_stdnt (
              d,
              m )  [static]
```

add_stdnt function

Adds students to the list of the corresponding department

Parameters

d	Department name
m	macid of the student

4.1.2.2 init()

```
def AALst.AALst.init ( )  [static]
```

init function

Initilizes a sequence with tuples of department name and empty list

4.1.2.3 lst_alloc()

```
def AALst.AALst.lst_alloc (
              d )  [static]
```

lst_alloc function

Retrieves the list of macids of students allocated to the department

Parameters

d	Department name

Returns

List of macids of students allocated to the department

4.1.2.4 num_alloc()

```
def AALst.AALst.num_alloc (
              d )  [static]
```

num_alloc function

Number of students allocated to a department

Parameters

d	Department name

Returns

length of a list corresponding to a department represting number of students allocated

The documentation for this class was generated from the following file:

- src/AALst.py

4.2 DCapALst.DCapALst Class Reference

DCapALst is an abstract data type.

Static Public Member Functions

- def init ()
  init function
- def add (d, n)
  add function
- def remove (d)
  remove function
- def elm (d)
  elm function
- def capacity (d)
  capacity function

Static Public Attributes

- list **s** = [ ]

4.2.1 Detailed Description

DCapALst is an abstract data type.

4.2.2 Member Function Documentation

4.2.2.1 add()

```
def DCapALst.DCapALst.add (
              d,
              n )  [static]
```

add function

Adds a department and its capacity to the sequence

Parameters

d	Department name
n	Department capacity

Exceptions

KeyError	raised if department already exists in the sequence

4.2.2.2 capacity()

```
def DCapALst.DCapALst.capacity (
              d )  [static]
```

capacity function

Gets capacity of the department

Parameters

d	Department name

Exceptions

KeyError	raised if department not in the sequence

Returns

Returns department capacity

4.2.2.3 elm()

```
def DCapALst.DCapALst.elm (
              d )  [static]
```

elm function

Checks if the department is in the sequence

Parameters

d	Department name

Returns

Boolean value representing if department is in the sequence

4.2.2.4 init()

```
def DCapALst.DCapALst.init ( )  [static]
```

init function

Initializes the sequence to an empty sequence

4.2.2.5 remove()

```
def DCapALst.DCapALst.remove (
              d )  [static]
```

remove function

Removes a department and its capacity from the sequence

Parameters

d	Department name

Exceptions

KeyError	if department is not in sequence

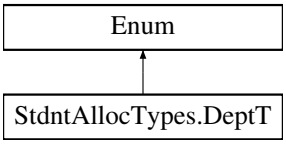
The documentation for this class was generated from the following file:

- src/DCapALst.py

4.3 StdntAllocTypes.DeptT Class Reference

An enumerated type representing the department set.

Inheritance diagram for StdntAllocTypes.DeptT:



Static Public Attributes

- int **civil** = 1
- int **chemical** = 2
- int **electrical** = 3
- int **mechanical** = 4
- int **software** = 5
- int **materials** = 6
- int **engphys** = 7

4.3.1 Detailed Description

An enumerated type representing the department set.

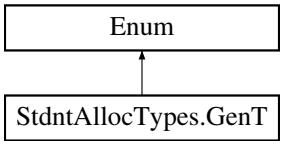
The documentation for this class was generated from the following file:

- src/StdntAllocTypes.py

4.4 StdntAllocTypes.GenT Class Reference

An enumerated type representing the gender set.

Inheritance diagram for StdntAllocTypes.GenT:



Static Public Attributes

- int **male** = 1
- int **female** = 2

4.4.1 Detailed Description

An enumerated type representing the gender set.

The documentation for this class was generated from the following file:

- src/StdntAllocTypes.py

4.5 SALst.SALst Class Reference

Abstract data type that represents a sequence with student information.

Public Member Functions

- def average (f)
  average function
- def allocate ()
  allocate function

Static Public Member Functions

- def init ()
  init function
- def add (m, i)
  add function
- def remove (m)
  remove function
- def elm (m)
  elem function
- def info (m)
  info function
- def sort (f)
  sort function

Static Public Attributes

- list **s** = [ ]

4.5.1 Detailed Description

Abstract data type that represents a sequence with student information.

4.5.2 Member Function Documentation

4.5.2.1 add()

```
def SALst.SALst.add (
            m,
            i )  [static]
```

add function

Adds a student's information to the sequence

Parameters

m	macid of the student
i	Student information of type SInfoT

Exceptions

KeyError	raised if information for student already exists in the sequence

4.5.2.2 allocate()

```
def SALst.SALst.allocate ( )
```

allocate function

Allocates students to their respective departments based on choices selected, Gpa, and freechoice

4.5.2.3 average()

```
def SALst.SALst.average (
              f )
```

average function

calculates the average gpa students that meet the condition specified

Parameters

f	condition that filters students that don't meet its standards

Returns

Average gpa of students that meet condition f

4.5.2.4 elm()

```
def SALst.SALst.elm (
              m )  [static]
```

elem function

Checks if student information is in sequence

Parameters

m	macid of the student

Returns

Boolean value representing if information in sequence

4.5.2.5 info()

```
def SALst.SALst.info (
              m )  [static]
```

info function

Retrieves a student's information based on macid

Parameters

m	macid of the student

Exceptions

ValueError	raised if student is not in sequence

Returns

Information of the specific student of type SInfoT

4.5.2.6 init()

```
def SALst.SALst.init ( )  [static]
```

init function

Initilizes an empty sequence

4.5.2.7 remove()

```
def SALst.SALst.remove (
              m )  [static]
```

remove function

Removes the information of the student in the sequence

Parameters

m	macid of the student

Exceptions

KeyError	raised if macid not in the sequence

4.5.2.8 sort()

```
def SALst.SALst.sort (
              f )  [static]
```

sort function

Sorts the students in order of descending gpa

Parameters

f	condition that filters macids that don't meet its standards

Returns

A sequence of macids in order of descending gpa of the students that passed the condition f

The documentation for this class was generated from the following file:

- src/SALst.py

4.6 SeqADT.SeqADT Class Reference

Abstract data type for sequence manipulation.

Public Member Functions

- def __init__ (self, x)
  SeqADT constructor.
- def start (self)
  start function
- def next (self)
  next function
- def end (self)
  end function

Public Attributes

- **s**
- **i**

4.6.1 Detailed Description

Abstract data type for sequence manipulation.

4.6.2 Constructor & Destructor Documentation

4.6.2.1 __init__()

```
def SeqADT.SeqADT.__init__ (
              self,
              x )
```

SeqADT constructor.

takes a list of values

Parameters

x	list of values

4.6.3 Member Function Documentation

4.6.3.1 end()

```
def SeqADT.SeqADT.end (
              self )
```

end function

checks if index reached end of list

Returns

boolean value representing if index, i, is at the end of the list

4.6.3.2 next()

```
def SeqADT.SeqADT.next (
              self )
```

next function

increments index, i, of list

Exceptions

StopIteration	if index, i, is equal to the length of list

Returns

element of list at index, i, before increment

4.6.3.3 start()

```
def SeqADT.SeqADT.start (
              self )
```

start function

sets index, i, of list to 0

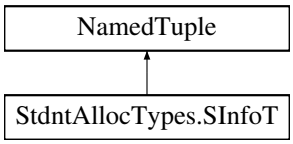
The documentation for this class was generated from the following file:

- src/SeqADT.py

4.7 StdntAllocTypes.SInfoT Class Reference

A named tuple representing general information for a student.

Inheritance diagram for StdntAllocTypes.SInfoT:



4.7.1 Detailed Description

A named tuple representing general information for a student.

The documentation for this class was generated from the following file:

- src/StdntAllocTypes.py

Chapter 5

File Documentation

5.1 src/AALst.py File Reference

AALst.

Classes

- class AALst.AALst

  Abstract data type that represents the allocated sequence.

5.1.1 Detailed Description

AALst.

Author

Harsh Patel

Date

11/02/2019

5.2 src/DCapALst.py File Reference

DCapALst.

Classes

- class DCapALst.DCapALst

  DCapALst is an abstract data type.

5.2.1 Detailed Description

DCapALst.

Author

Harsh Patel

Date

11/02/2019

5.3 src/Read.py File Reference

Reads files and loads data.

Functions

- def Read.load_stdnt_data (s)
  Reads stduent data from text file.
- def Read.load_dcap_data (s)
  Reads department data from text file.

5.3.1 Detailed Description

Reads files and loads data.

Author

Harsh Patel

Date

11/02/2019

5.3.2 Function Documentation

5.3.2.1 load_dcap_data()

```
def Read.load_dcap_data (
              s )
```

Reads department data from text file.

Populates DCapALst with department and capacity data

Parameters

s	String representing name of the text file

5.3.2.2 load_stdnt_data()

```
def Read.load_stdnt_data (
              s )
```

Reads stduent data from text file.

Populates SALst with student data from the text file

Parameters

s	String representing name of the text file

5.4 src/SALst.py File Reference

SALst.

Classes

- class SALst.SALst

  Abstract data type that represents a sequence with student information.

5.4.1 Detailed Description

SALst.

Author

Harsh Patel

Date

11/02/2019

5.5 src/SeqADT.py File Reference

SeqADT.

Classes

- class SeqADT.SeqADT

  Abstract data type for sequence manipulation.

5.5.1 Detailed Description

SeqADT.

Author

Harsh Patel

Date

11/02/2019

5.6 src/StdntAllocTypes.py File Reference

Enumerated types and NamedTuples.

Classes

- class StdntAllocTypes.GenT

  An enumerated type representing the gender set.
- class StdntAllocTypes.DeptT

  An enumerated type representing the department set.
- class StdntAllocTypes.SInfoT

  A named tuple representing general information for a student.

5.6.1 Detailed Description

Enumerated types and NamedTuples.

Author

Harsh Patel

Date

11/02/2019

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