Python Programming

Strings

- String is a sequence of characters enclosed in single quotes or double quotes
- String traversal can be done using for loops.
  - name="cdac"
  - for ch in name:
    - print(ch,end=' ')

Strings

- \+ concatenation operator
  - creates a new string by joining 2 strings
- * replication operator
  - To use a * operator with strings, the operands has to be string and number, where the string operand tells the string to be replicated and number operand tells the number of times , it is to be repeated

Strings

- String slices
  - name[n : m] will return a slice of the string by returning the characters falling between indices n and m – starting at n,n+1,n+2……..m-1
  - if the begin-index or last-index is not given, it will consider 0 as the begin index and length as the last index
  - name[n : m : i] will return every ith element from the slice

String functions and methods

- len() – This function returns the count of characters in the passed string .
- capitalize()- This method returns a copy of the string with its first character capitalized
- count()- This method returns the number of occurrences of the substring in string.
- find() – This method returns the lowest index in the string where the substring is found within the slice range of start and end. Returns -1 if substring is not found

String functions and methods

- index()- This method returns the lowest indexwhere the specified substring is found. If the substring is not found then an exception ValueError is raised.
- isalnum()- This method returns True if the characters in the string are alphanumeric, False otherwise
- isalpha()- This method returns True if all characters in the string are alphabetic
- isdigit()- This method returns True if all the characters in the string are digits

String functions and methods

- islower()- This method returns True if all cased characters in the string are in lowercase
- isupper()- This method returns True if all cased characters in the string are in uppercase
- isspace()- This method returns True if there are only whitespace characters
- lower()- This method returns a copy of the string converted to lowercase
- upper()- This method returns a copy of the string converted to uppercase

String functions and methods

- lstrip()-This method returns a copy of the string with whitespaces removed from the leftmost end
- rstrip()- This method returns a copy of the string with whitespaces removed from the rightmost end
- strip()- This method returns a copy of the string with whitespaces removed from both the ends
- startswith()- Returns True if the string starts with the substring
- endswith()- Returns True if the string ends with the substring

String functions and methods

- title()- This method returns a title cased version of the string where all words start with uppercase and all remaining letters are in lowercase
- replace()- This method returns a copy of the string with all occurrences of old substring replaced by new string
- join()- This method joins a string or character after each member of the sequence
- split() – This method splits a string based on the given character and returns a list containing split strings as members

String functions and methods

- partition()- This method splits the string at the first occurrence of separator and returns a tuple containing 3 items
  - The part before the separator
  - The separator
  - The part after the separator

Lists

- List is a standard data type of Python that can store a sequence of values belonging to any type.
  - [1,2,'a','b',3.4]
- Lists are mutable
- Empty List
  - l=[]
  - l=list()
- Nested List
  - l=[3,4,[5,6],7]

Accessing values in a list

- The first element in a list will be at index 0
- You can use a negative number to index backwards
- The last element in the list will be at index -1
- Common method used to input lists is eval(input())
- Lists can be created from existing sequences.
  - l=list("hello") will return the list ['h','e','l','l','o']

List Operations

- Joining lists + operator
- Replicating lists * operator
- Slicing a list seq=L[start:stop:step]
- To make a copy of a list
  - a=[1,2,3] b=a
  - b=list(a)
  - a.copy()

List functions and methods

- len() function returns the length of elements in the passed list
- list() function returns a list created from the passed argument. If no argument is passed it will create an empty list.
- index() method returns the index of the first matched item from the list. If the given item is not in the list, it raises ValueError Exception

List functions and methods

- append() method adds an item to the end of the list
- extend() method takes a list as an argument and appends all the elements of the argument list to the list object on which extend() is applied
- insert() method inserts an item at any position in the list.
- pop() method removes an element from the given position in the list and return it. If no index is specified, pop() removes and returns the last item in the list. The method raises an exception if the list is empty.

List functions and methods

- remove() method removes the first occurrence of the given item from the list. The method will report an error if there is no such item in the list.
- del statement can be used to remove an individual item or a slice from a list
- clear() method removes all the items from the list
- count() method returns the count of the item that is passed as argument. If the given item is not in the list, it returns 0.
- reverse() method reverses the items of the list

List functions and methods

- sort() method sorts the item of the list, by default in ascending order.
- sorted() function takes a list as an argument and returns a new sorted list with sorted elements in it.
- min(),max and sum functions takes a list as argument and returns the minimum element, maximum element and sum of the elements of the list respectively

Two Dimensional Lists

- A two dimensional list is a list having all its elements as lists.
- Regular 2-dimensional list
  - All elements of a 2D list have same shape
  - The length of a 2D list gives the number of rows- len(list)
  - The length of single row gives the number of columns – len(list[n])
- Ragged list – A list that has lists with different shapes as its elements .

Thank you