To create ADT that implement the "set" concept.

Aim a. Add (new Element) -Place a value into the set

b. Remove (element) Remove the value

c. Contains (element) Return true if element is in collection

d. Size () Return number of values in collection Iterator () Return an

iterator used to loop over collection

e. Intersection of two sets

f. Union of two sets

g. Difference between two sets

h. Subset.

Objective • To understand how Create, Display and perform various operations on

set.

Outcomes • Understand the ADT/libraries to implement Set operations.

• Analyze the algorithm design techniques for set concept.

Pre-requisite• Knowledge of Python programming

• Knowledge of STL, set operations

Input Set A Elements and Set B Elements

Output Output as per set operations

Define Set ADT

A set is a container that stores a collection of unique values over a given comparable

domain in which the stored values have no particular ordering.

• Set 0: Creates a new set initialized to the empty set.

■ length 0: Returns the number of elements in the set, also known as the

cardinality. Accessed using the len () function.

■ contains ( element ): Determines if the given value is an element of the set

and returns the appropriate boolean value. Accessed using the in operator.

■ add( element ): Modifies the set by adding the given value or element to the

set if the element is not already a member. If the element is not unique, no

action is taken and the operation is skipped.

■ remove( element ): Removes the given value from the set if the value is con-

tained in the set and raises an exception otherwise.

■ isSubsetOf ( setB ): Determines if the set is a subset of another set and re-

turns a boolean value. For set A to be a subset of B. all elements in A must

also be elements in B.

■ union( seta ): Creates and returns a new set that is the union of this set and

seta. The new set created from the union of two sets, A and B, contains all

elements in A plus those elements in B that are not in A. Neither set A nor

set B is modified by this operation.

■ intersect( seta ): Creates and returns a new set that is the intersection

of this set and seta. The intersection of sets A and B contains only those

elements that are in both A and B. Neither set A noi4set B is modified by

this operation.

■ difference( setB ): Creates and returns a new set that is the difference of

this set and seta. The set difference, A— B, contains only those elements that

are in A but not in B. Neither set A nor set B is modified by this operation.

■ iterator 0: Creates and returns an iterator that can be used to iterate over

the collection of items.