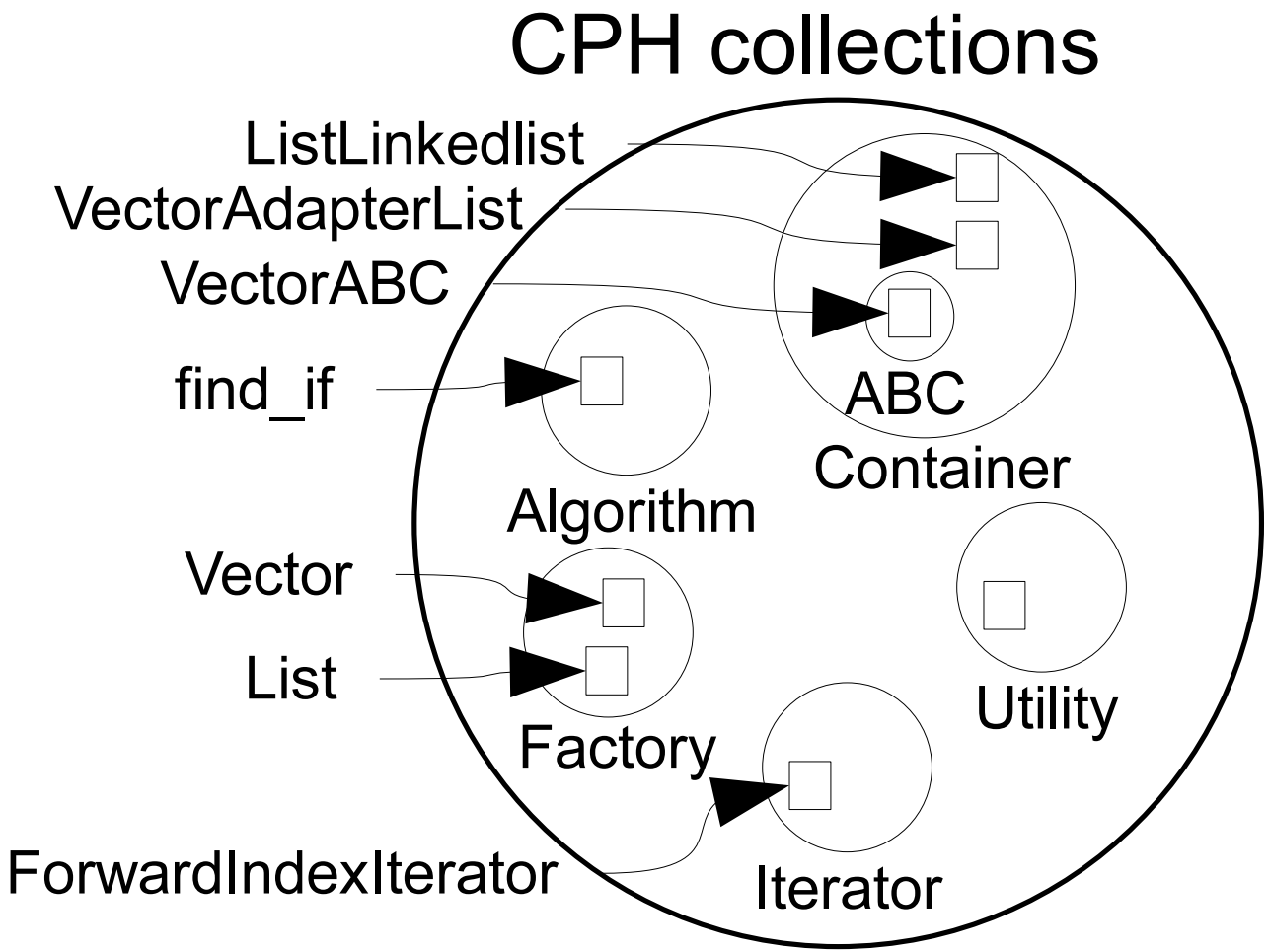
CPH collections
ListLinkedlist
VectorAdapterList
VectorABC
find_if
ABC
Container
Algorithm
Vector
List
Utility
Factory
ForwardIndexIterator
Iterator

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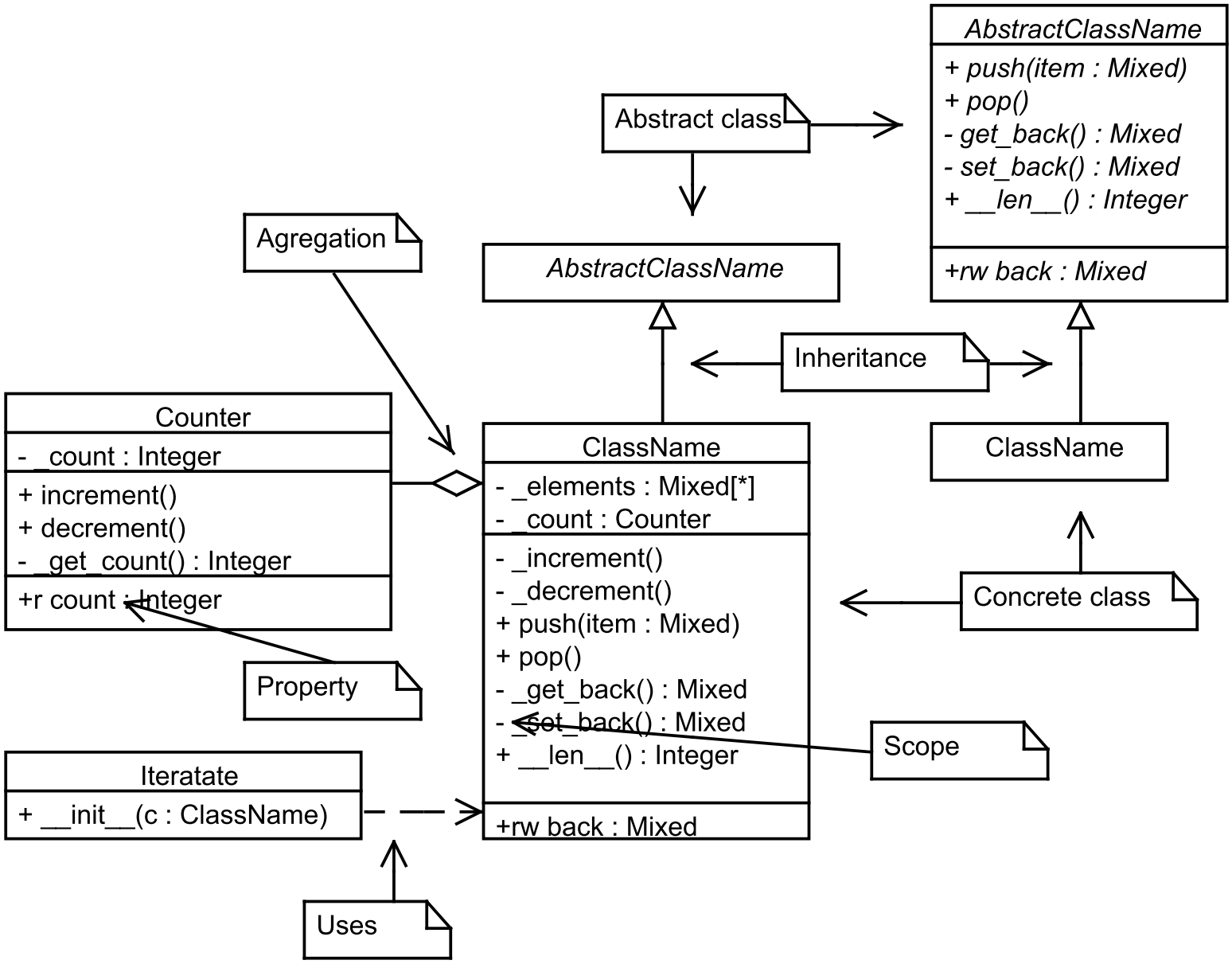
AbstractClassName
+ push(item : Mixed)
+ pop()
- get_back() : Mixed
- set_back() : Mixed
+ __len__() : Integer
+rw back : Mixed
Abstract class
Agregation
AbstractClassName
Inheritance
Counter
- _count : Integer
+ increment()
+ decrement()
- _get_count() : Integer
+r count : Integer
ClassName
- _elements : Mixed[*]
- _count : Counter
- _increment()
- _decrement()
+ push(item : Mixed)
+ pop()
- _get_back() : Mixed
- _set_back() : Mixed
+ __len__() : Integer
+rw back : Mixed
ClassName
Concrete class
Property
Scope
Iteratate
+ __init__(c : ClassName)
Uses

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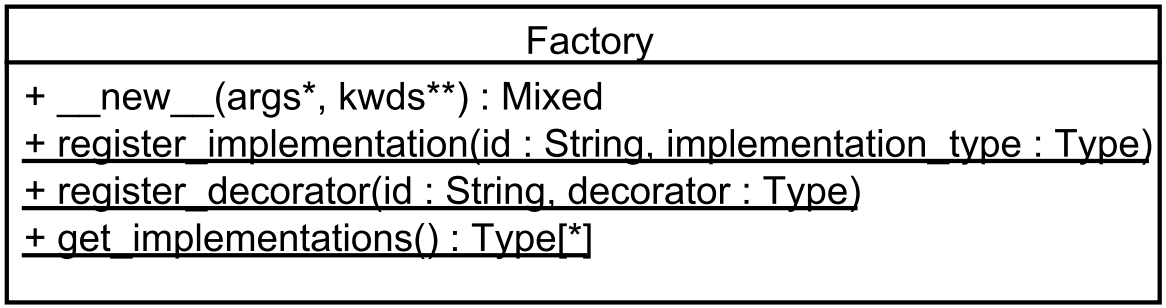
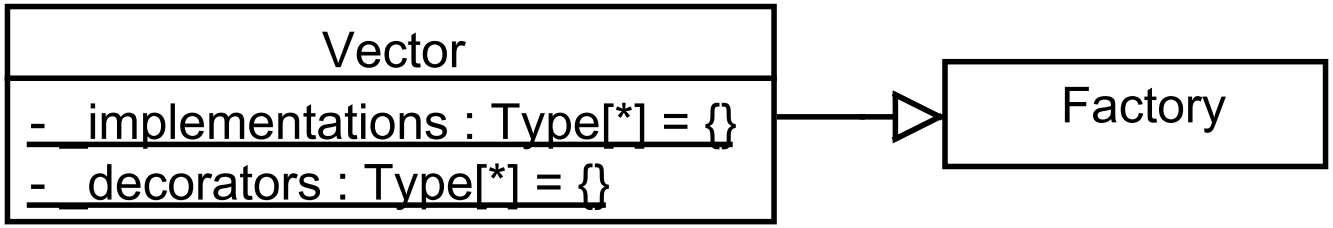
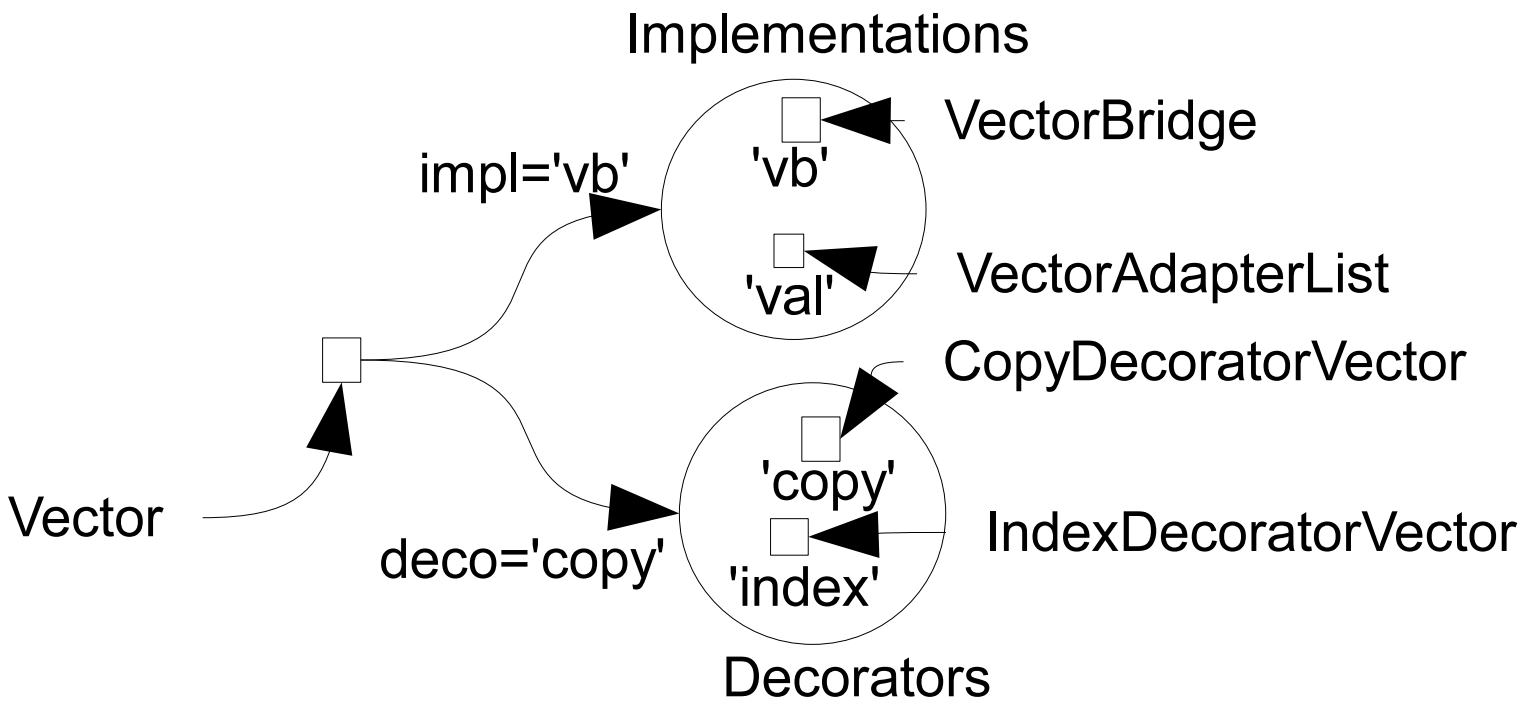

Factory
+ __new__(args*, kwds**) : Mixed
+ register_implementation(id : String, implementation_type : Type)
+ register_decorator(id : String, decorator : Type)
+ get_implementations() : Type[*]


Vector
- __implementations : Type[*] = {}
- __decorators : Type[*] = {}
Factory


Implementations
VectorBridge
impl='vb'
'vb'
'val'
VectorAdapterList
CopyDecoratorVector
'copy'
Vector
deco='copy'
IndexDecoratorVector
'index'
Decorators

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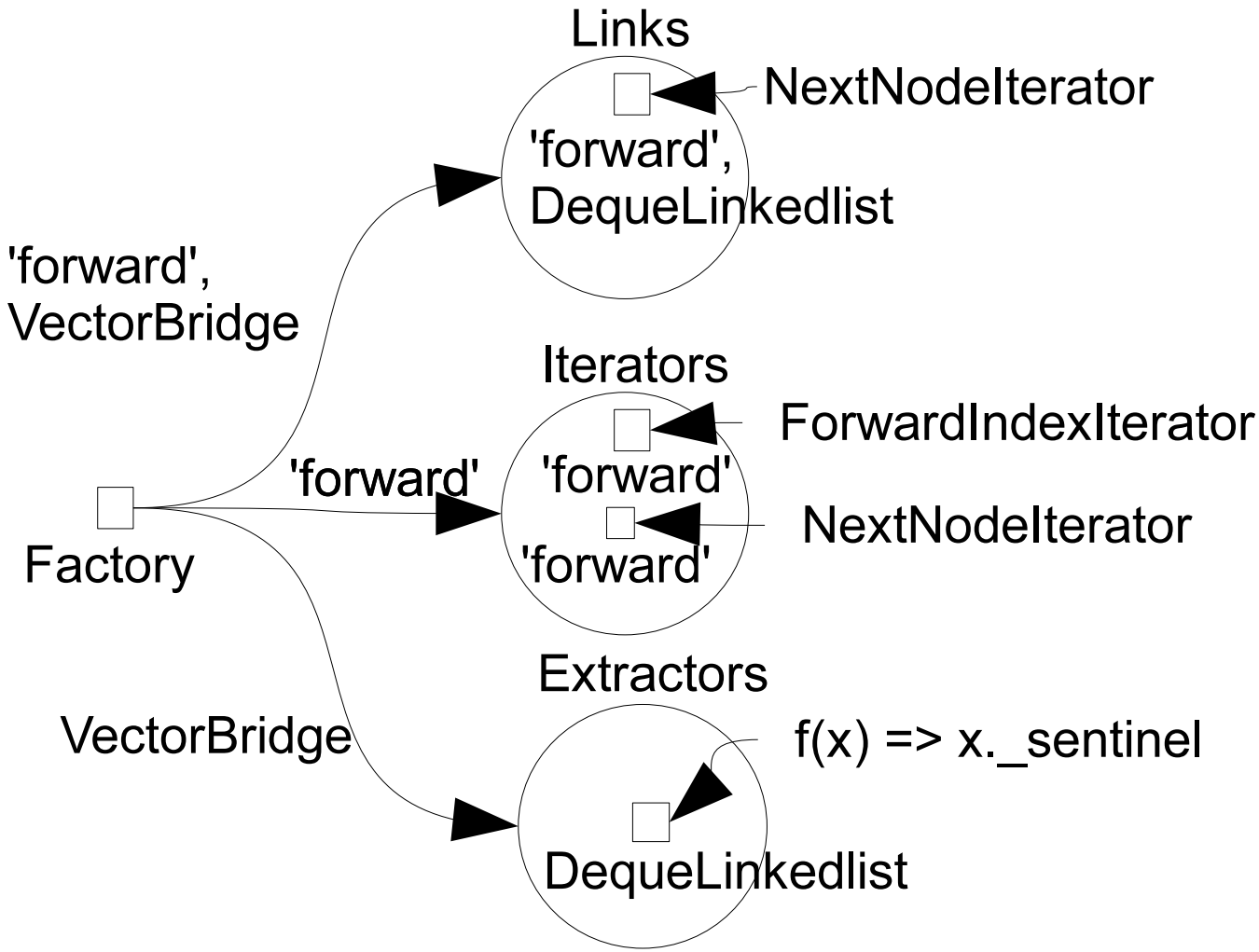
IteratorFactory
- _iterator_links = Types[*][*] - _iterator_types = Types[*] - _extractors : Functor[*]
+ __new__(args*) : Iterator + register_iterator(concept : String, iter_type : Type) + register_extractor(collection_type : Type, extractor : Functor) - _get_data(collection : Collection) - register_link(concept : String, collection_type : Type, iter_type : Type, data_type : Type = None)


Links
NextNodeIterator
'forward',
DequeLinkedlist
'forward',
VectorBridge
Iterators
ForwardIndexIterator
'forward'
'forward'
'forward'
NextNodeIterator
Factory
Extractors
VectorBridge
f(x) => x._sentinel
DequeLinkedlist

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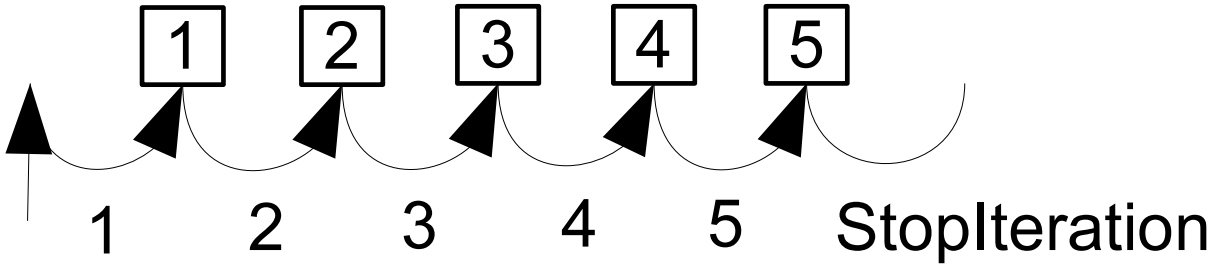
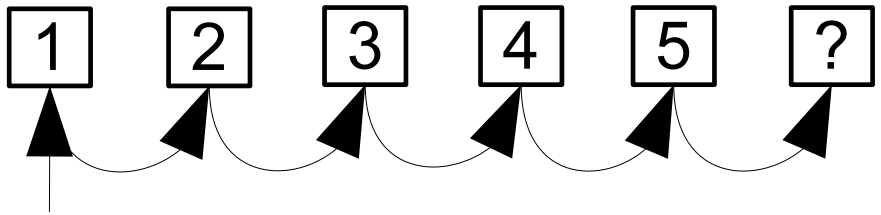
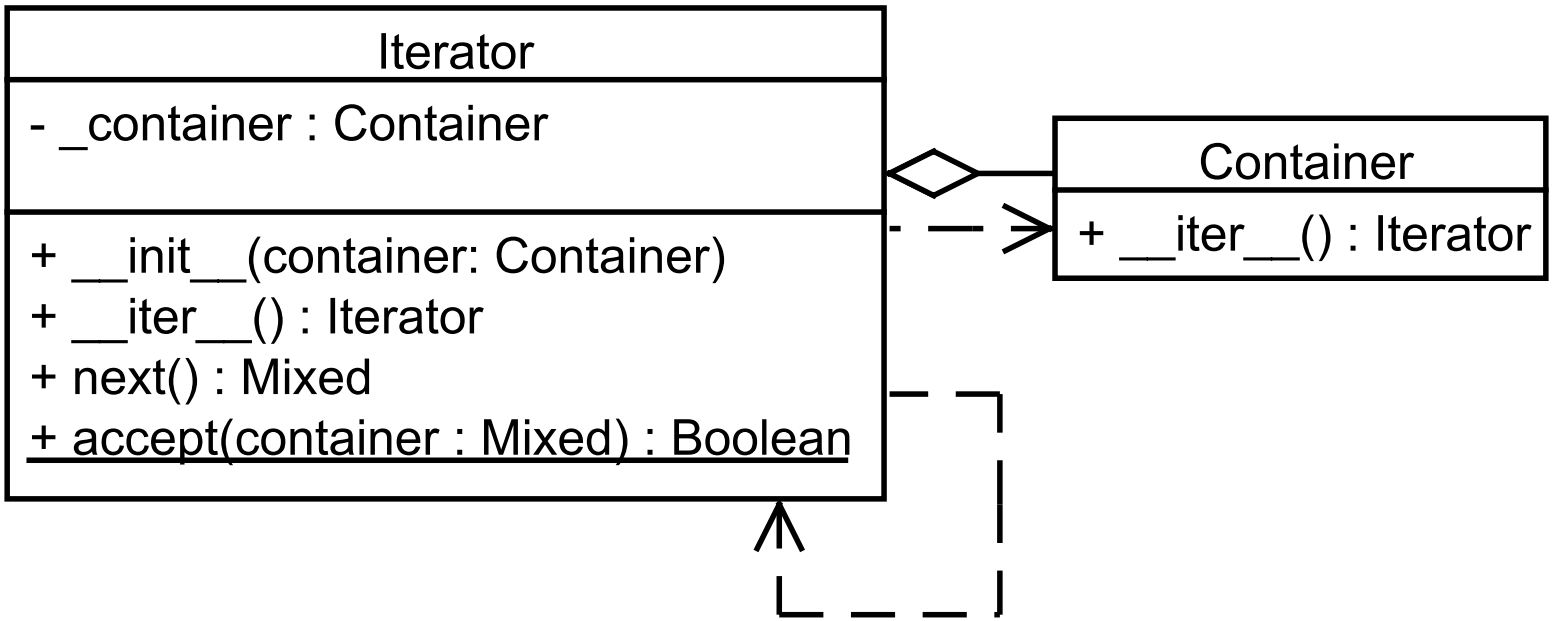
-

Python



C++




Iterator
- _container : Container
+ __init__(container: Container)
+ __iter__() : Iterator
+ next() : Mixed
+ accept(container : Mixed) : Boolean
Container
+ __iter__() : Iterator

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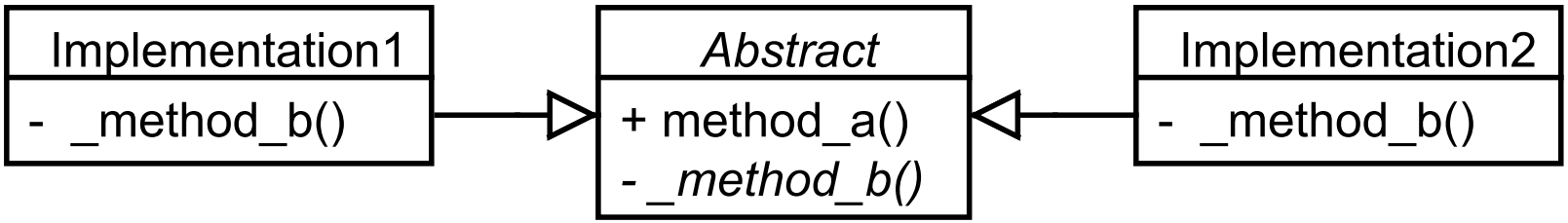
Implementation1
- _method_b()
Abstract
+ method_a()
- _method_b()
Implementation2
- _method_b()

-
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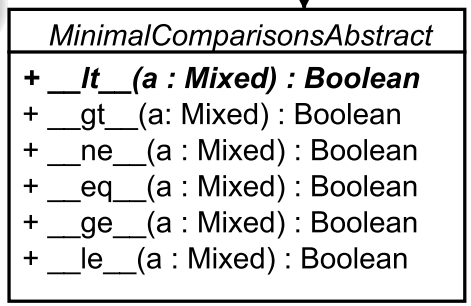
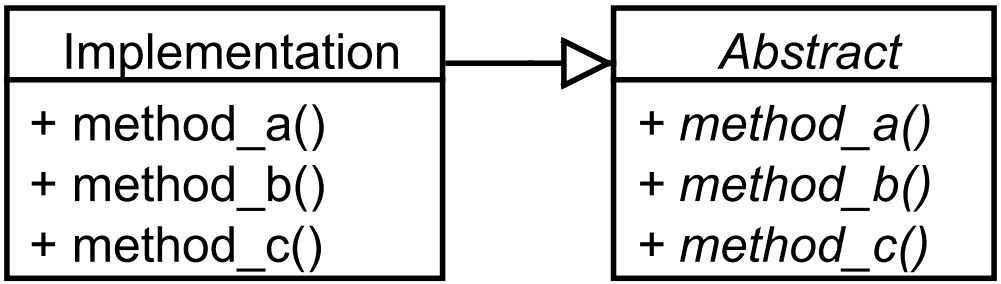
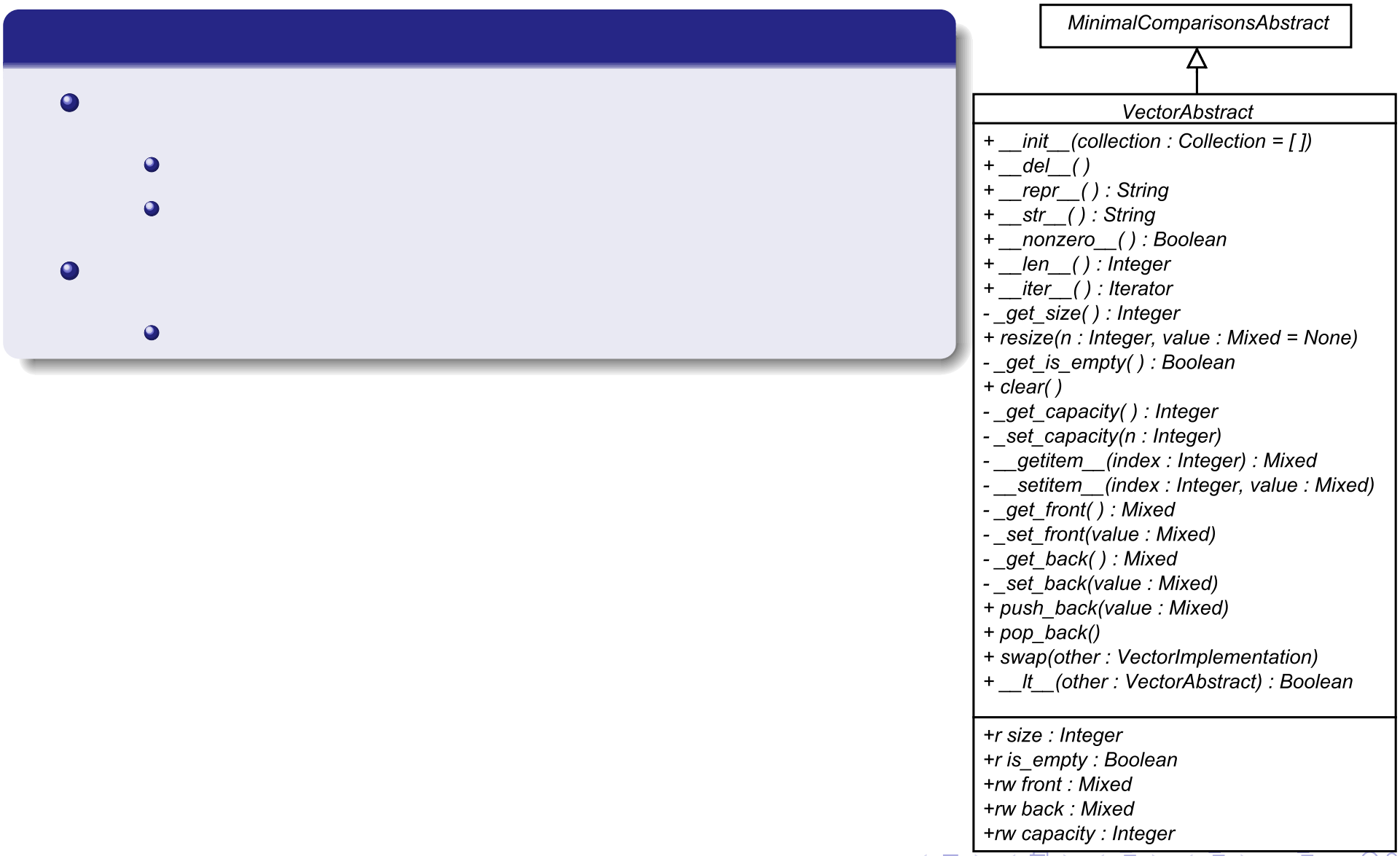
```
def __ne__(self, a):
    return self < a || a < self

def __eq__(self, a):
    return not (self < a || a < self)

def __gt__(self, a):
    return a < self

def __ge__(self, a):
    return not self <a

def __le__(self, a):
    return not a < self
```




Implementation
+ method_a()
+ method_b()
+ method_c()
Abstract
+ method_a()
+ method_b()
+ method_c()


MinimalComparisonsAbstract
VectorAbstract
+ __init__(collection : Collection = [ ])
+ __del__( )
+ __repr__( ) : String
+ __str__( ) : String
+ __nonzero__( ) : Boolean
+ __len__( ) : Integer
+ __iter__( ) : Iterator
- _get_size( ) : Integer
+ resize(n : Integer, value : Mixed = None)
- _get_is_empty( ) : Boolean
+ clear( )
- _get_capacity( ) : Integer
- _set_capacity(n : Integer)
- __getitem__(index : Integer) : Mixed
- __setitem__(index : Integer, value : Mixed)
- _get_front( ) : Mixed
- _set_front(value : Mixed)
- _get_back( ) : Mixed
- _set_back(value : Mixed)
+ push_back(value : Mixed)
+ pop_back()
+ swap(other : VectorImplementation)
+ __lt__(other : VectorAbstract) : Boolean
+r size : Integer
+r is_empty : Boolean
+rw front : Mixed
+rw back : Mixed
+rw capacity : Integer

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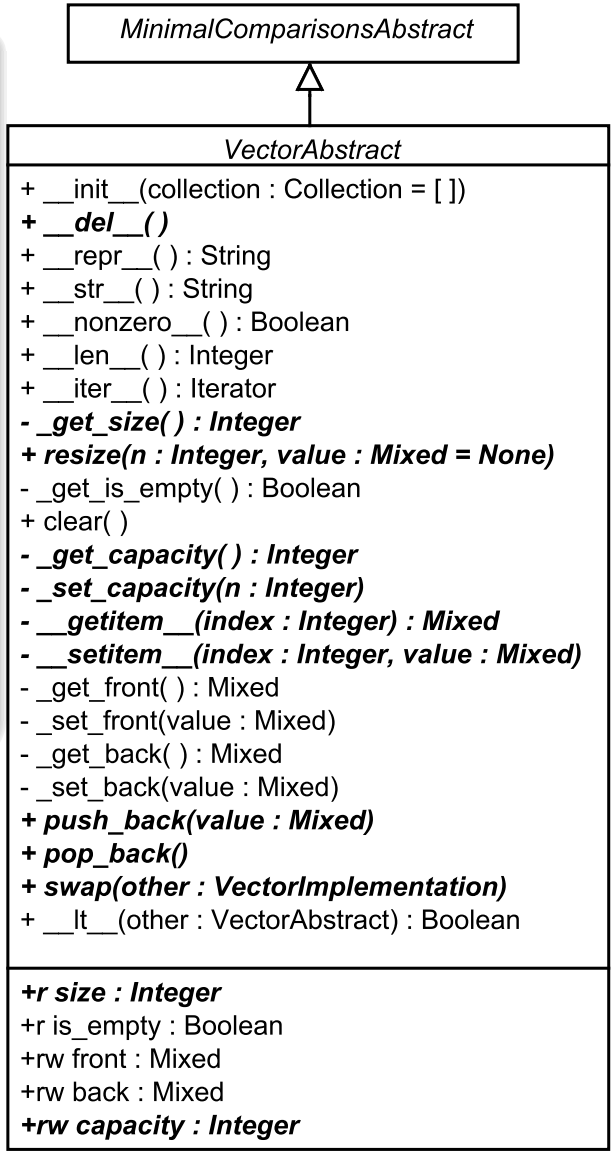
MinimalComparisonsAbstract
VectorAbstract
+ __init__(collection : Collection = [ ])
+ __del__( )
+ __repr__( ) : String
+ __str__( ) : String
+ __nonzero__( ) : Boolean
+ __len__( ) : Integer
+ __iter__( ) : Iterator
- _get_size( ) : Integer
+ resize(n : Integer, value : Mixed = None)
- _get_is_empty( ) : Boolean
+ clear( )
- _get_capacity( ) : Integer
- _set_capacity(n : Integer)
- __getitem__(index : Integer) : Mixed
- __setitem__(index : Integer, value : Mixed)
- _get_front( ) : Mixed
- _set_front(value : Mixed)
- _get_back( ) : Mixed
- _set_back(value : Mixed)
+ push_back(value : Mixed)
+ pop_back()
+ swap(other : VectorImplementation)
+ __lt__(other : VectorAbstract) : Boolean
+r size : Integer
+r is_empty : Boolean
+rw front : Mixed
+rw back : Mixed
+rw capacity : Integer

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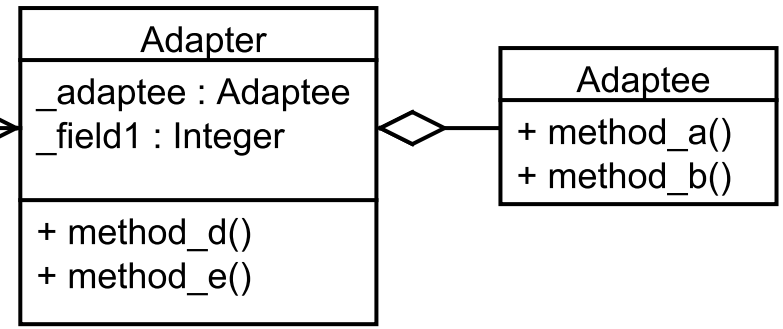
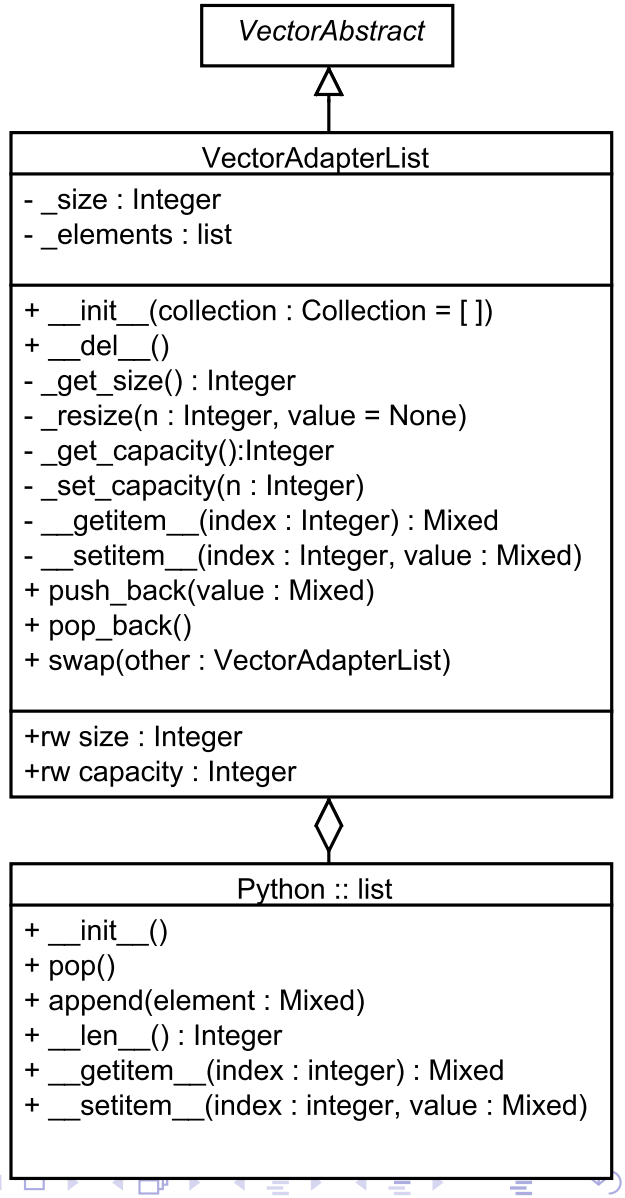
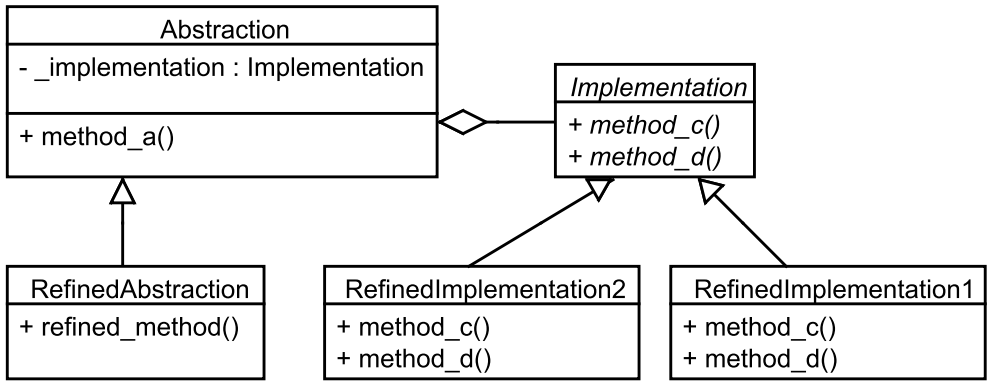
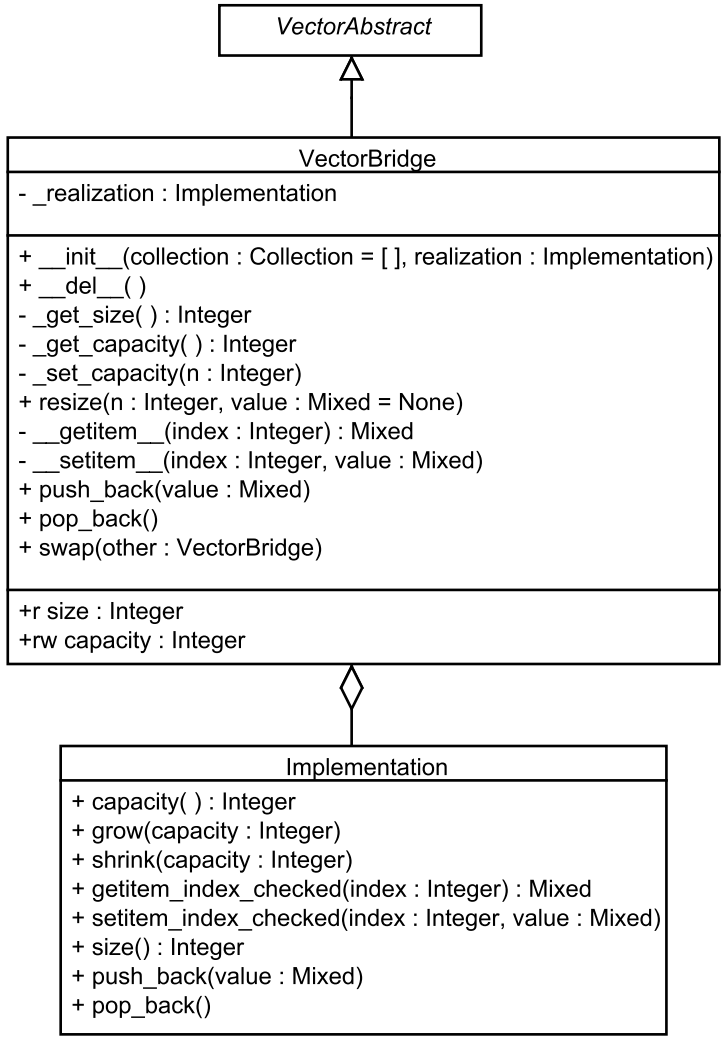
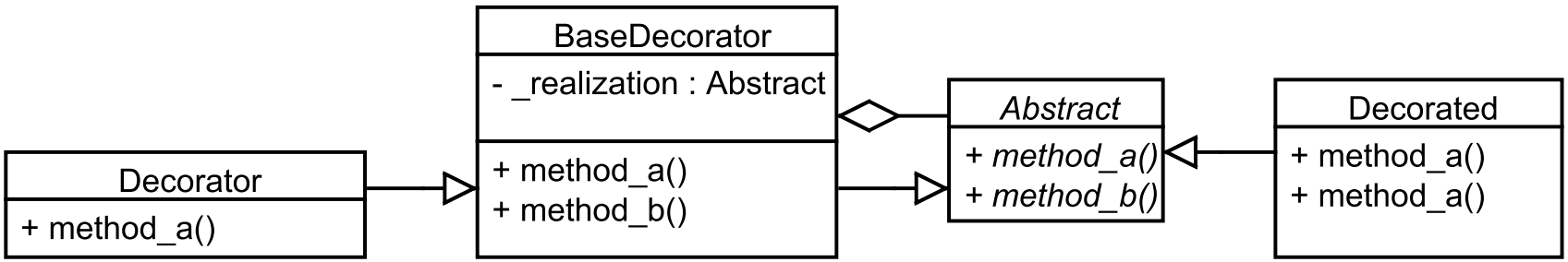
```
def method_d(self):
    if self._adaptee.method_a():
        self._adaptee.method_b():

def method_e(self):
    self._field1 += 1
```

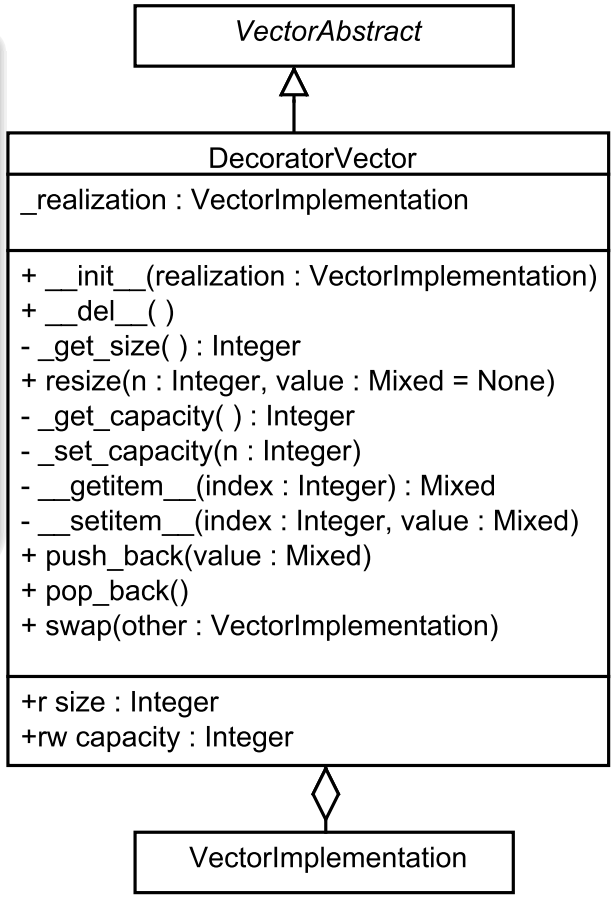


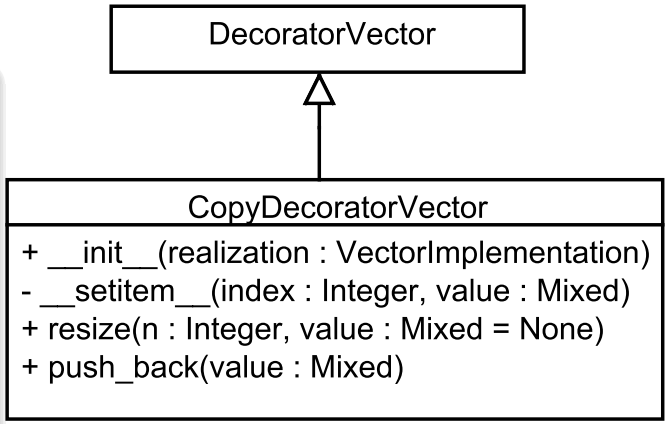

VectorAbstract
VectorAdapterList
- _size : Integer
- _elements : list
+ __init__(collection : Collection = [ ])
+ __del__()
- _get_size() : Integer
- _resize(n : Integer, value = None)
- _get_capacity():Integer
- _set_capacity(n : Integer)
- __getitem__(index : Integer) : Mixed
- __setitem__(index : Integer, value : Mixed)
+ push_back(value : Mixed)
+ pop_back()
+ swap(other : VectorAdapterList)
+rw size : Integer
+rw capacity : Integer
Python :: list
+ __init__()
+ pop()
+ append(element : Mixed)
+ __len__() : Integer
+ __getitem__(index : integer) : Mixed
+ __setitem__(index : integer, value : Mixed)

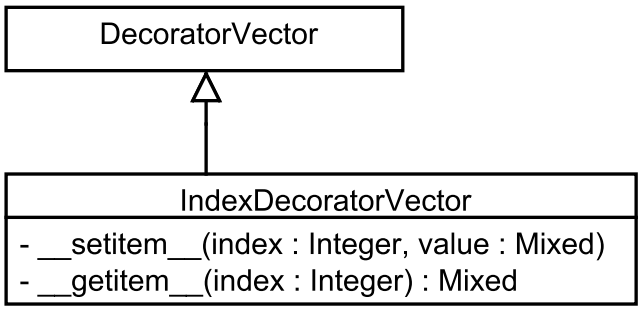

Abstraction
- _implementation : Implementation
+ method_a()
Implementation
+ method_c()
+ method_d()
RefinedAbstraction
+ refined_method()
RefinedImplementation2
+ method_c()
+ method_d()
RefinedImplementation1
+ method_c()
+ method_d()

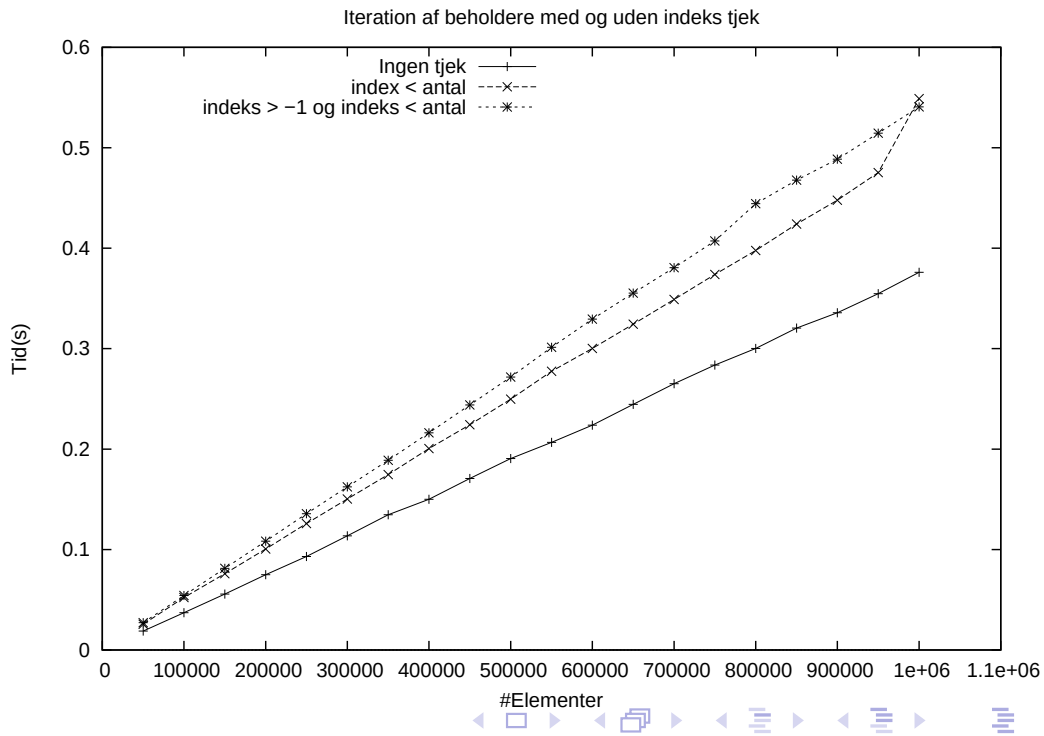

VectorAbstract
VectorBridge
- _realization : Implementation
+ __init__(collection : Collection = [ ], realization : Implementation)
+ __del__( )
- _get_size( ) : Integer
- _get_capacity( ) : Integer
- _set_capacity(n : Integer)
+ resize(n : Integer, value : Mixed = None)
- __getitem__(index : Integer) : Mixed
- __setitem__(index : Integer, value : Mixed)
+ push_back(value : Mixed)
+ pop_back()
+ swap(other : VectorBridge)
+r size : Integer
+rw capacity : Integer
Implementation
+ capacity( ) : Integer
+ grow(capacity : Integer)
+ shrink(capacity : Integer)
+ getitem_index_checked(index : Integer) : Mixed
+ setitem_index_checked(index : Integer, value : Mixed)
+ size() : Integer
+ push_back(value : Mixed)
+ pop_back()

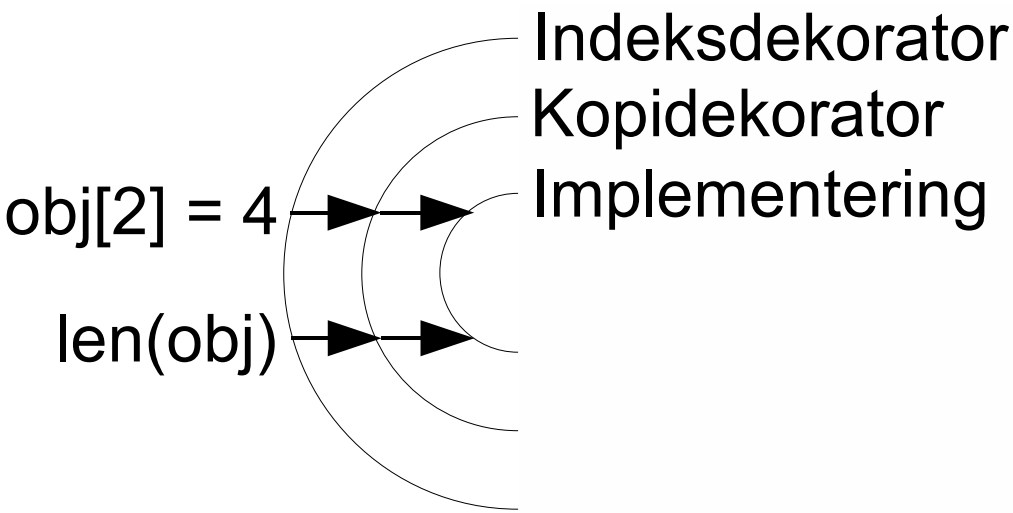

BaseDecorator
- _realization : Abstract
+ method_a()
+ method_b()
Abstract
+ method_a()
+ method_b()
Decorated
+ method_a()
+ method_a()
Decorator
+ method_a()


VectorAbstract
DecoratorVector
_realization : VectorImplementation
+ __init__(realization : VectorImplementation)
+ __del__( )
- _get_size( ) : Integer
+ resize(n : Integer, value : Mixed = None)
- _get_capacity( ) : Integer
- _set_capacity(n : Integer)
- __getitem__(index : Integer) : Mixed
- __setitem__(index : Integer, value : Mixed)
+ push_back(value : Mixed)
+ pop_back()
+ swap(other : VectorImplementation)
+r size : Integer
+rw capacity : Integer
VectorImplementation


DecoratorVector
CopyDecoratorVector
+ __init__(realization : VectorImplementation)
- __setitem__(index : Integer, value : Mixed)
+ resize(n : Integer, value : Mixed = None)
+ push_back(value : Mixed)


DecoratorVector
IndexDecoratorVector
- __setitem__(index : Integer, value : Mixed)
- __getitem__(index : Integer) : Mixed


Iteration af beholdere med og uden indeks tjek
Ingen tjek
index < antal
indeks > −1 og indeks < antal
Tid(s)
#Elementer
0
0.1
0.2
0.3
0.4
0.5
0.6
100000
200000
300000
400000
500000
600000
700000
800000
900000
1e+06
1.1e+06


Indeksdekorator
Kopidekorator
Implementering
obj[2] = 4
len(obj)

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