

The existing iterator of your **ADS_set** needs to be expanded to include an additional “mode”. In the previous implementation, the iterator returns all n elements of the **ADS_set** in any order, whereby the order must always be the same as long as the **ADS_set** is not changed (“normal” mode). In “special” mode, the iterator returns the elements in the same order, but only every third element is returned, the remaining elements are

skipped. The iterator in “special” mode thus returns the elements at positions 3, 6,

9, ... etc., generally all elements at positions $3i$ with $i = 1..$ — . In both modes the

iterator after the last returned element **end()**.

Details: Extend your implementation to include the **ADS_set** method

const_iterator w() const;

w() creates an iterator in special mode. If there are no elements to be delivered in the **ADS_set**, then **w()== end()** applies.

The time complexity and memory complexity of the operator functions must remain unchanged.

So are e.g. B. additional fields with a non-constant size are not permitted.

Examples:

Suppose the iterator returned by begin() returns all n stored elements in the order (1,2,3,4,5,6,7) (1,2,3,4,5,6) (1,2,3,4,5) (4,3,6,1) (9,7,8)	Then the iterator returned by w() returns the following elements in the following order
(7,9) (7) ()	(3,6)
	(3,6)
	(3)
	(6)
	(8)
	() () ()

Instructions: Do **not** write a new iterator class! Extend the existing iterator class as follows (this is just one of the possible solutions, different correct solutions are of course permitted):

- It must be possible to create an iterator in “special” mode. There is a new constructor for this to write and/or extend existing ones in order to initialize the instance variables accordingly. You may need additional constructor parameters and/or instance variables. It can be helpful if the iterator knows how many elements are in the **ADS_set** and what position the iterator is currently in.
- Adjust the increment operations (only!) for “special” mode: each only
Third element is delivered, the others are skipped. After the last element returned, the iterator is set to **end()** (as always) .

The **ADS_set::w()** method creates an iterator in “special” mode and returns it.

As before, the **ADS_set::begin()** method returns an iterator in “normal” mode.