

Copying Algorithms

Solutions

copy()

- What does copy() do?
 - copy() copies the elements in an iterator range into a destination
- What arguments does copy() take?
 - The iterator range to be copied and an iterator into the destination
- Write a simple program that uses copy()
- Write the equivalent code without using copy()

- What does `copy_if()` do?
 - `copy_if()` copies the elements in an iterator range for which a predicate is true into a destination
- What arguments does `copy_if()` take?
 - The iterator range to be copied, an iterator into the destination and the predicate function
- Write a simple program that uses `copy_if()`
- Write the equivalent code without using `copy_if()`

- What does copy_n() do?
 - copy_n() copies a fixed number of elements only
- What arguments does copy_n() take?
 - An iterator to the first element to be copied, the number of elements to be copied and an iterator to the destination
- Write a simple program that uses copy_n()
- Write the equivalent code without using copy_n()

transform()

- What does transform() do?
 - transform() calls a function on every element in an iterator range and stores the result in a destination
- What arguments does transform() take?
 - The iterator range to be processed, an iterator into the destination and the predicate function
- Write a simple program that uses transform()
- Write the equivalent code without using transform()

Overload of transform()

- What does the overloaded version of transform() do?
 - In the overload of transform(), the function is called on pairs of elements from two iterator ranges
- What arguments does this version of transform() take?
 - The first iterator range, the start of the second iterator range, an iterator into the destination and the function to be called
- Write a simple program that uses the overloaded version of transform()
- Write the equivalent code without using transform()

- What do `replace_copy()` and `replace_copy_if()` do?
 - The same as `copy()` and `copy_if()`, but the results are copied to a destination instead of overwriting the original elements
- What arguments do they take?
 - Iterator range, iterator into destination, old and new values
- Write a simple program that uses these functions. Print out the original vector and check whether it has changed
- Write the equivalent code without using `replace_copy()` and `replace_copy_if()`

- What kind of algorithms have `_copy()` versions?
 - Algorithms which perform in-place processing have `_copy` versions
- What does the `_copy()` version of an algorithm do?
 - The results of the processing are stored in a destination
- Why is this useful?
 - It prevents important data from being overwritten