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Period 2

APCS

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Vocabulary 15

1. (stirling's formula - binary tree) We can calculate the height of a binary tree using stirling's formula.
2. (stirling's formula - tree set) We can calculate the worst case complexity of a sorting algorithm for a tree set using stirling's formula.
3. (stirling's formula - tree map) Stirling's formula can be used in the calculation of the number of tree maps with n edges.
4. (stirling's formula - hash function) Stirling's formula is an approximation for factorials while a hash function is any function that can be used to map data of arbitrary size to data of fixed size.
5. (stirling's formula - permutation) Stirling's formula can be used when calculating permutations because factorials are involved.
6. (stirling's formula - derangement) The stirling's formula can be applied in order to find the derangement number.
7. (binary tree - tree set) TreeSet is an implementation of a binary search tree.
8. (binary tree - tree map) In Java, the TreeMap is a sorted and navigable map that organizes elements in a self-balancing binary tree.
9. (binary tree - hash function) One advantage of binary search trees is that they are more memory-efficient than hash functions because they do not reserve more memory than they need to.
10. (binary tree - permutation) We can come up with an algorithm that gives all the possible permutations of a given binary tree.
11. (binary tree - derangement) We can use a binary tree to organize and calculate the number of derangements of a set of size n.

12. (tree set - tree map) Both TreeMap and TreeSet are data structures, which means they keep their elements in predefined sorted order.
13. (tree set - hash function) We can develop an algorithm for computing a hash function for a tree set.
14. (tree set - permutation) TreeSet provides an implementation of the Set interface that uses a tree for storage while a permutation is an arrangement of objects in specific order.
15. (tree set - derangement) TreeSet provides an implementation of the Set interface that uses a tree for storage while a derangement is a permutation of the elements of a set, such that no element appears in its original position.
16. (tree map - hash function) A hash function is any function that can be used to map data of arbitrary size to data of fixed size while a TreeMap provides an efficient means of storing key/value pairs in sorted order, and allows rapid retrieval.
17. (tree map - permutation) We can represent a certain permutation on a TreeMap.
18. (tree map - derangement) We can import TreeMap and implement it in our code to use for testing derangements for correctness.
19. (hash function - permutation) With intelligent design, a programmer can develop an efficient hash function for permutations.
20. (hash function - derangement) A hash function is any function that can be used to map data of arbitrary size to data of fixed size while derangement is a permutation of the elements of a set, such that no element appears in its original position.
21. (permutation - derangement) A derangement is a permutation of the elements of a set, such that no element appears in its original position.