

Final Project Documentation

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Due 11:59 pm, Monday, May 25

1 Recurrence Relations/Dynamic Programming

1.1 Bell numbers

The Bell numbers represent the number of ways to count partitions of (or equivalently equivalence relations on) an n element set. The n -th bell number is given by the recurrence

$$B_n = \sum_{k=1}^n \binom{n-1}{k-1} B_{n-k}$$

- 1.2 Catalan numbers
- 1.3 Fibonacci numbers
- 1.4 Stirling numbers of the first kind
- 1.5 Stirling numbers of the second kind
- 2 Permutations and Combinations
 - 2.1 n choose k
 - 2.2 n pick k
 - 2.3 n choose k , repetition allowed
 - 2.4 n pick k , repetition allowed
 - 2.5 Generate permutations of a string
 - 2.6 Generate all bit strings of length n
- 3 Relations
 - 3.1 # of relations
 - 3.2 # of transitive relations
 - 3.3 # of (ir)reflexive relations
 - 3.4 # of symmetric relations
 - 3.5 # of antisymmetric relations
 - 3.6 # of equivalence relations
- 4 Sets
 - 4.1 Generate power set
 - 4.2 Generate cartesian product
- 5 Default

No documentation provided.