
Implement the standard and the randomized versions of quicksort using integers as input. Compare their running times for various input sizes when the input is:
   a) In random order, as generated by your random array generator
   b) Already sorted

Part 2. Backtracking.

A Hamiltonian Cycle is a cycle in a graph that visits each vertex exactly once. Determining whether a graph has a Hamiltonian Cycle is a well-known NP-Complete problem, which means that determining whether a subset of the set of edges in a graph forms a Hamiltonian Cycle is easy, but finding such set might require testing all possible subsets (of which there are $2^{|E|}$).

Write a backtracking method to determine if an undirected graph has a Hamiltonian cycle. Use as a starting point the code for subset sum that has been provided.

As usual, write a report explaining your results.