TEST 2

Samuel Escalera Herrera

Q1 Why do we need to do a formal proof for a greedy algorithm?

Is necessary to ensure its correctness. Greedy algorithms make local optimal choices at each step in the hope that these local choices will lead to a global optimum. However this is not always the case. Therefore, its crucial to prove that the greedy choice is always part of some optimal solution to ensure that the algorithm will do theoptimal result

Q2 When can the Rabin-Karp time complexity can be worse or the same as the same as the naive algorithm?

Depending on the hashes, for example if there are many hash collisions because several hashes are the same, the second check will have to be done many times. Another reason would be the way in which the hashes are calculated, if it is not done in an optimal way this could increase the complexity of the algorithm.

Q3 Consider the following deterministic finite automaton(DFA) with the 5-tuple

- Identify if there is any sequence(s) that are NOT accepted, if not, Canyou conclude that the DFA is accepted?

  I conclude that DFA is acceptable, for all sequences formed with the alphabet a,b.

Q4 b

- I did choose greedy to solve the problem, because in this case greedy could give me the most general optimal solution, the solution would be to choose the gift that is repacked in the shortest possible time and that this gift is also delivered in the shortest possible time, with this we could have the general optimal solution.