This handout includes space for every question that requires a written response. Please feel free to use it to handwrite your solutions (legibly, please). If you choose to typeset your solutions, the `README.md` for this assignment includes instructions to regenerate this handout with your typeset LaTeX solutions.

1.a "Nutrious breakfast is important" => "Nutriousbreakfastisimportant"

cost function: {nut: 3, nutr: 100, rious: 100, break: 3, nutrious: 5}

For this example, the greedy algorithm would select "nut rious" instead of "nutrious" becaus "nut" has the lowest cost

2.a "Doge coin make money" ⇒ "dg cn mk mny"

In this example, {"dog can": 3, "doge coin": 6, "coin can": 6, ~~"can can"~~ "can make": 3, "make money": 3}

the greedy algorithm would choose "dog can" instead of "doge coin"

So the result would be "dog can make money"

instead of "doge coin make money"

3.a States: (index of current character, previous word)

actions: word picked after inserting space and vowels starting from index

costs: bigram cost of previous word and word picked by action

end test: index is at the end of query

initial state: (0, SENTENCE_BEGIN)

3.c ~~$f_b(w) = \min_i (b(w_i, w))$~~

$$f_b(w) = \min_i (b(w_i, w))$$

states: index of current character

actions: word picked after inserting space and vowels

cost: $f_b(w)$

initial state: 0

end state: index is at the end of query

the heuristic is the minimum cost of choosing subsequent word so it is less or equal to the original cost, thus it is consistent.

3.d Yes. UCS is A* with the heuristic function equals to 0.

Yes. BFS is UCS with the cost always being a non-negative constant.