Problem 1.

1. What security properties is this system enforcing? For each property, discuss whether it is confidentiality, integrity, or availability.

    a. **Confidentiality**

    On one hand there is some protection of sensitive information since the parking garage dont require to store any information about the vehicle or driver. This makes it impossible to lose any personal inforamtion, since it does not exist. On the other hand, it enforces very little protection since anyone can walk into the garage and steal/spy on the inforamtion about the vehicles and people that are parked.

    b. **Integrity**

    The system enforces integrity in some aspects such as it will only allow cars to get into the garage, this ensures that the vehicles inside the garage is consistent. You are also only allowed to take one ticket per vehicle, this makes sure that it is not possible to trick the system into thinking you only stayed for a short while. For example, if you buy a new ticket right before you leave and leave with the newly bought ticket the system thinks you would only stay for a short period of time.

    c. **Availability**

    Since the you are required to pay per hour during some preiod of time during the day, makes it impossible to always stay parked. This ensures that there will be avaibalble parking spots. Since the gates are not operated by humans, it makes the garage available during the whole day, which also enforces availability.

2. *A suggestion has been made to eliminate the entry gate and instead to post a sign that tells drivers to take a ticket.*

    I do not recommend this approach since it can cause some problems. Let's say someone does not see the sign or does not want to pay the ticket, they would try to go out at the normal exit and realize they are not able to. Now they will either pay the ticket or try to leave though the entance, which will cause problems. There is also no way of controlling if a person pays the ticket when they entered the garage or right before they leave, which will cause the garage to lose income.

3. *A suggestion has been made to alter the entry gate.*

    My interpretation of the alternative system is that instead of checking if a car is infornt of the entry gate as the first requirement, it will only check if a button has been pushed. This can cause some issues that have been discussed. Now it is way easier to get a new ticket right before you leave (since you can just push the button) and trick the system into thinking you

only stayed for a short period of time. This also makes it so any vehicle can enter the garage, which can be undesireable. In conclusion I would not recommend the alternative system.

4. *A suggestion has been made to have the entry and exit gates transition into the raised position between 20:00 and 09:00.*

   I do not recommend this approach since it will cause some issues. If someone enter the gate during the time they are raised and stays until they are closed again, they will not be able to leave, since they don't have a ticket. This will also cause some issues if the garage only wants cars to be parked, since any vehicle can enter when the gates are raised.

Problem 2

Given a fixed budget for performing searches, which of (1) and (2) is likely to be more effective at decreasing the chances of successful future terrorist attacks on airplanes.

Method 1 is more likley to be more efficient with a fixed budget of searches since there is most likely a single demograpic that preforms most of the terrorsist attacks and therefore will require a lot of searches. But this method also comes with some problems. If the terrorists figues out this demograpic it will be easy to avoid and trick the system. A terrorist could also trick a grandmother or other people into taking their stuff through the security and therefore won't be caught. Not to mention that a terrorist attack can be preformed by anybody, it does not necessarily need to be a specific group of people. The demograpic that are most likley to do such acts can also change over time and according to happenings in the world. Therefore, a lot of reasearch must continuesly go on to figure out which demograpic is most likley to perform terrorist attacks.

While method 2 will cause a lot of unecessary searches, it will also be unpredictable for the terrorists. This will make it difficult for anyone to know wether they will be searched or not, which solves the problem of avoiding or tricking the system to get past the security. This method is very dependent on the amount of searches the budget allows.

This question in my opinion requiers a lot of statistical reasearch to figure out the best course of action. But I would think that method 2 have a certain threshold where it would outpreform method 1. This threshold depends on the budget and how many searches it can preform. Otherwise, if the budget is low method 1 would preform better.

Problem 3

1. *Discuss ways in which the proposed law might have undesired consequences.*

   The largest concern in my opinion is that there is no protection of information about people that may not want to be mentioned in the news article. There have been many cases where an induvidual shares vital information to news articles but wish to stay anonymous to protect themself from the danegours of sharing this information. These laws will essentially make it impossible to stay anonymous. Hence, since you must share your name and address, anybody that disagree with you will easily be able to find you and in worst cases do harmful things. This can cause a fear of sharing any information that can make people upset. This will make it easier for the people that are in power and have a lot of protection to control the media and make it difficult for single induviduals to speak up.

2. *Discuss ways in which the law might be modified to eliminate undesired consequences.*

   The fact that these laws make it impossible to stay anonymous causes a lot of issues, therefore I think it should not be necessary to share name and address if not dessirable. Especially the address, which just seems unnecessary. But i think that an news article or person that posts fake news should still be heavily fined, even if it turns out in the future that they have posted fake news.