1. **What wikiHow article did you pick and why?**

   For Homework 4 I chose to do the WikiHow article on lock picking because I thought it was interesting as a subject on it's own. After reading the article I also thought that it would be a good fit for this assignment since it contained various different problems (i.e. various different types of locks) with differing required tools/objects and different sequential steps to pick each one. Since it had multiple parts that required different tools it was easy to create a domain with the variety of functions required for this assignment and I thought the subject matter was interesting to read about so it made the project more interesting to build.

2. **What portions of the article did you select to translate to PDDL?**

   For this assignment I decided to translate three parts of the WikiHow article into PDDL. First I converted the portion that discussed picking locks using credit cards into a single action since it was relatively uncomplicated. Then I translated two other parts of picking more complex locks using a makeshift lockpicking set and jimmying a car lock. Both of these were much more interesting to implement as they required more sequential actions and had more dependencies.

3. **Give some example of the actions, types, and predicates you used in your domain.**

   An example of some of the actions I included in my domain were inserting a wrench and inserting a pick into a lock. These were sequential steps that needed to be done in that specific order in order to pick the lock and doing those actions allowed the player to then wiggle the lock open as specified in the wikiHow article. Prior to those steps the player also had to make the wrench and pick as those were steps that were also described in the wikiHow article.

4. **Explain what goal you selected for your problem, and give the initial state and solution that you created.**

   For my 'picking a hard lock' problem the initial state began with a house filled with random household objects and a bedroom with a lock on it. The goal was to unlock the bedroom using the objects available so the player had to collect things like an allen key and a file to create a lock picking wrench and then bend a paperclip for a pick before going to the bedroom and using those household tools to pick the lock as described by the article.

5. **What limitations of PDDL did you encounter that makes it difficult to precisely convert a wikiHow description into PDDL?**

   One thing that I found most difficult in translating the wikiHow descriptions into PDDL was figuring out how exactly to split the steps that were written into actions. Although

wikiHow is split into parts, methods, and steps I found that this splitting is very variable and certain steps contain no actual actions, merely background information, and other steps contained multiple dependent actions together. Moreover sometimes you had to infer which objects were being manipulated through the pictures if the writing was not specific. For example the article stated you could fashion a lock pick and wrench out of a list of household items and then detailed exactly how to create a wrench but the only indication of how the pick was created was through the accompanying visual. This would make it difficult to convert automatically as it requires a more human understanding of the wikiHow articles.

6. **Could your PDDL be used as an interesting challenge for a text-adventure-style game? If so, how? If not, what would needed to create an interesting challenge?**

   While it has interesting problem solving elements that would be fun to incorporate into a text adventure style game I think a key part of what is missing would be the actual story. I think that lock picking and the variety of lock picking related actions that were created in this domain could definitely be a part of a larger text adventure game since lock picking is a common occurrence in adventure/mystery/thriller stories so it could easily be a part of a variety of plots or challenges. However on it's own it's not a very thrilling story but more of a means to an end so there would need to be a more interesting end goal that it was a step towards for it to be a strong text adventure game.

7. **Discuss how you might use GPT-3 to automatically or semi-automatically convert a wikiHow article to PDDL?**

   I think it would be possible to use GPT-3 to convert WikiHow articles into PDDL if it were given a large enough training set of articles and their respective PDDL files. Since GPT3 can generate code in other languages I don't think the process for generating PDDL files would be too much of a stretch although it might require human correction to debug until the PDDL is truly functional as even in languages that GPT3 has been trained on it can sometimes provide inaccurate results. The annotations that we did for this assignment could be used to create a preprocessing algorithm that extracts key parts of wikihow articles and passes them to GPT3 in a more structured way in order for it to create more reliable PDDL.