Question 1

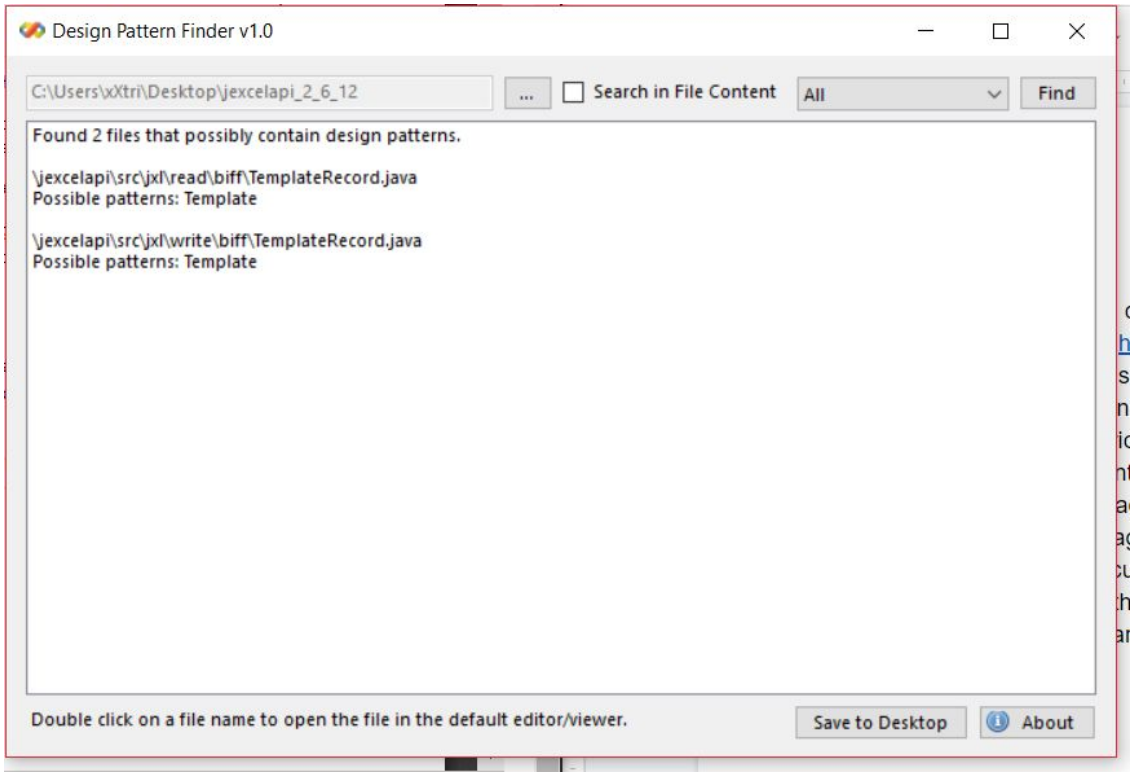
A) 1) The system we downloaded is a java library that helps you read, write, and modify Excel documents.https://sourceforge.net/projects/jexcelapi/

2) This system has a variety of functions such as:

- Reading and writing to an Excel File
- Modify various elements of Excel files including but not limited to:
  - Fonts
  - Shading and coloring of cells
  - Image creation
- Supports customizable logging.

3) We found that this library contains 88,448 lines of code. We found this by downloading another library called “cloc” that counts lines of codes in a directory. This was within 572 different files.

B) 1)



2) The way the Design Pattern Finder detects design patterns is by going through each file in a directory and seeing if the file contains any keywords that are also a design pattern. For example, if a file either has the word “adapter” in the name or somewhere in the document, including comments, the program will output that this file is possibly an adapter pattern.

3) I think the way that the Design Pattern Finder is about as simple as you can make this detection. I think this method can be correct in many cases, but is not robust enough.

One way I would improve this design is once the initial detection occurs, compare these classes against pre-built classes that are generic design patterns. It would be difficult to compare classes because the users class would likely use different names/syntax than the generic class. A way around this would be to have the most common ways to do each design pattern so that it is able to catch more cases. The detriment to this is that it would likely require a lot of space in memory.

Question 2