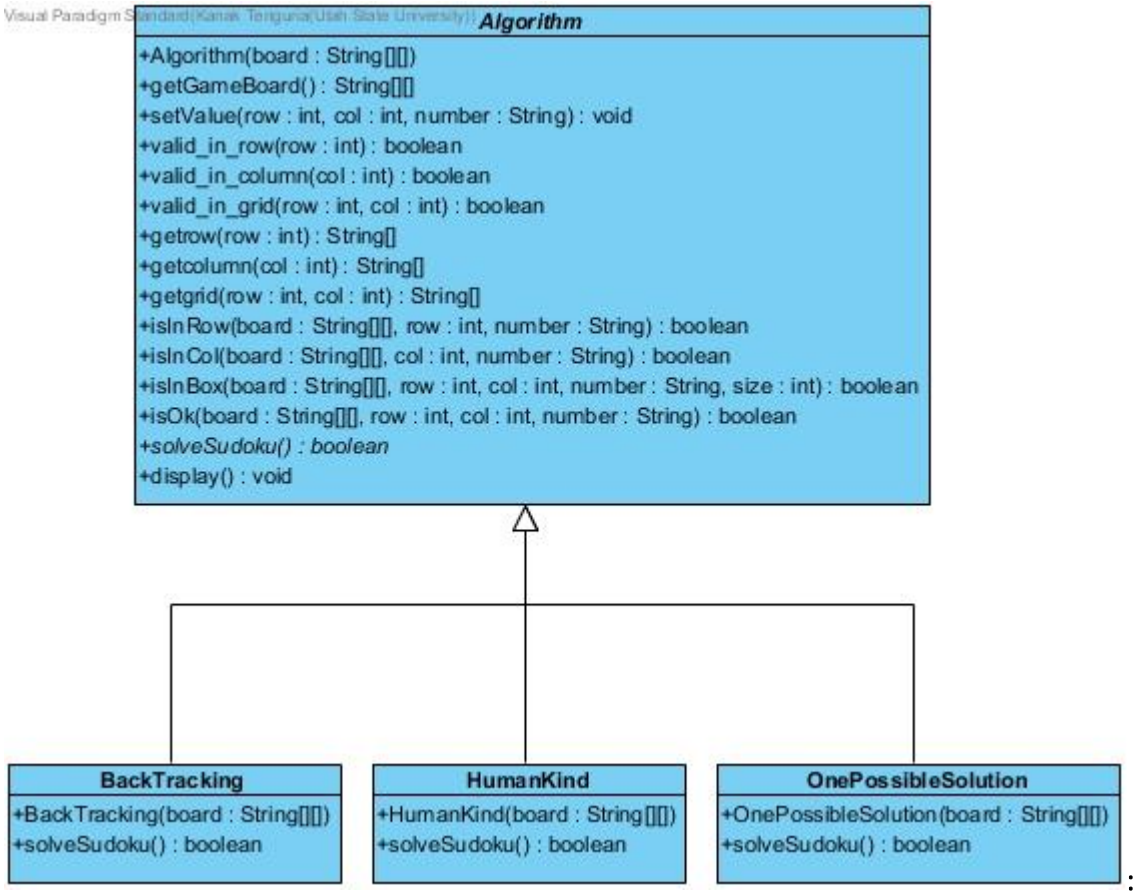
HW4 Report
Submitted on: 20 November 2019

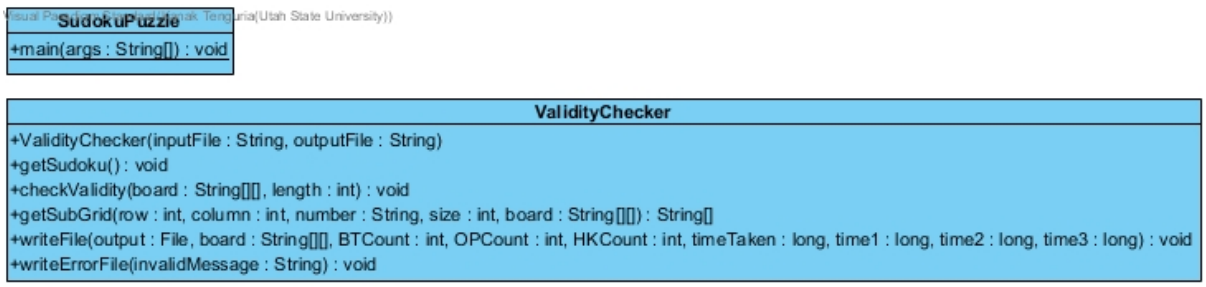
UML Diagrams

1. Class diagram of Algorithm Template method:

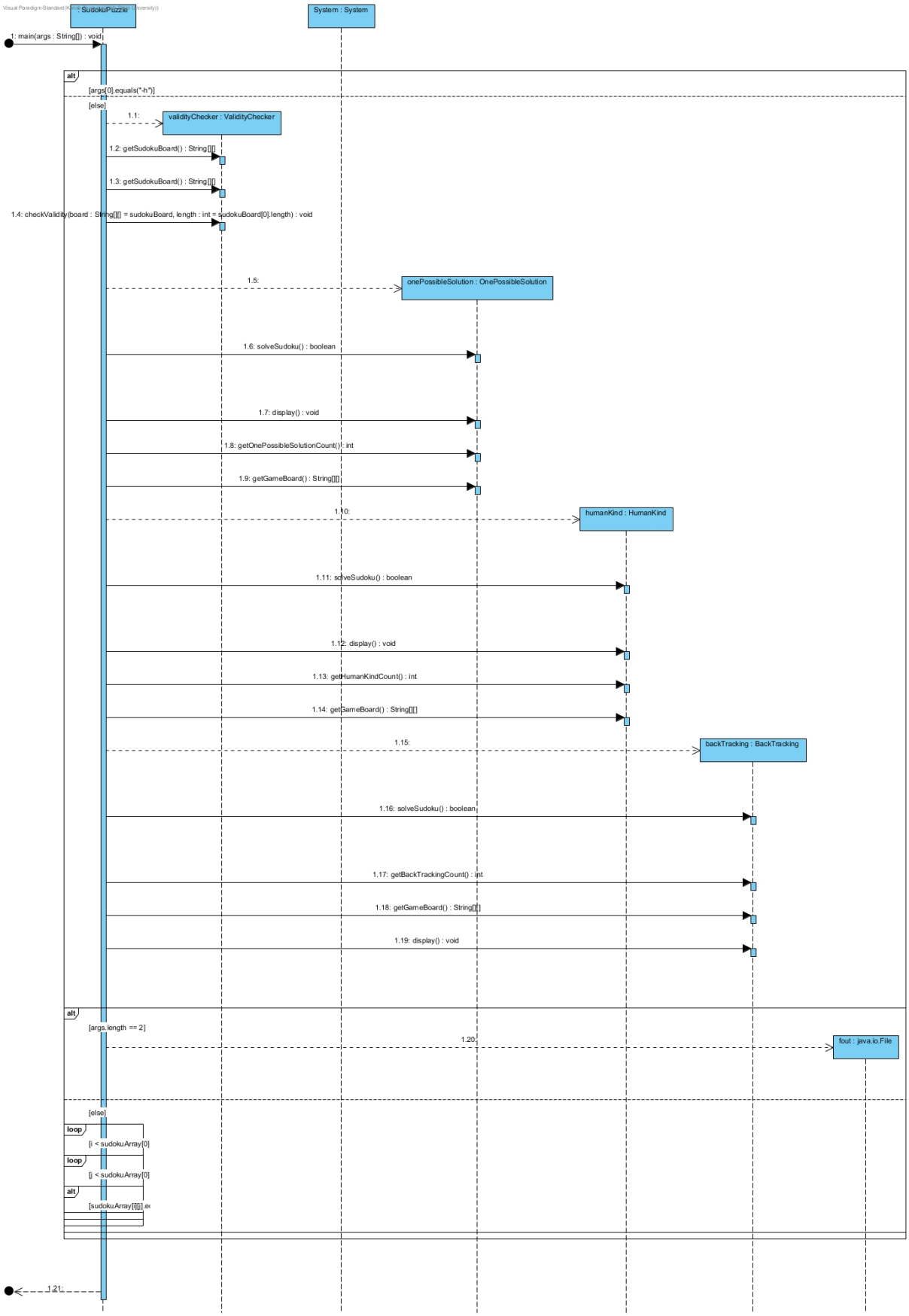


:

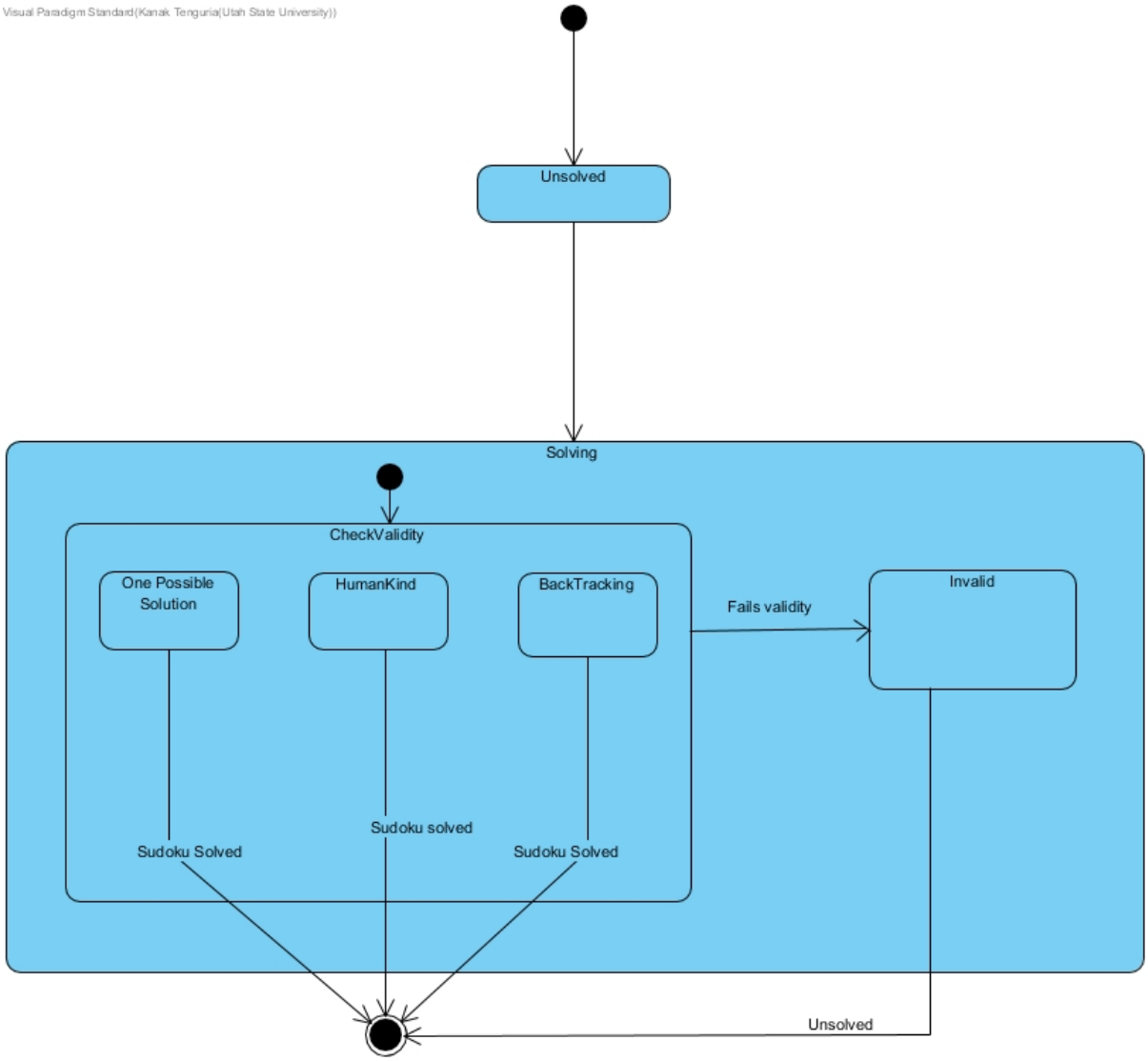
2. Class diagram of Validity Checker:



3. Interaction diagram:



4. State Diagram:



Insights uncovered during the project

This project helped me a lot in understanding importance of modularity, abstraction and encapsulation. This assignment majorly helped in improving my testing abilities and UML designing abilities. I got to dive deeper and leverage use with template method.

This project focused on developing a sudoku solver which can be used for solving sudoku of size 4x4, 9x9, 16x16, 25x25, 36x36. While developing this project, I kept in mind that I have to develop it in such a way that I can modify it later so it can be easily extended but also there are not many security holes. I tried to keep it closed to modification. Also, I kept it modular so that I can design its GUI in next assignment.

More importantly, I learned how to use template method in the project. The difference between public and private and also the significance of keeping high cohesion and low coupling was something I got more deep knowledge on. I had no practical exposure so that is something very important I learned from this project. I also learned different aspects of using different pattern.

Talking about the template method, it was fun to study and implement. It is very powerful when you want a skeleton for many classes to follow. With template method, you can design a skeleton in which some components can be personalized.

After creating the class diagram, the flow was very clear to me and it was easy to understand everything going on in the project. Also, creating a state chart was useful as well. It gives insight to how things change in transition.

Overall, this project and applying design pattern in this assignment gave me good exposure for developing industry class software. I realized the value of template method and learned many new things in the process as well.