

## CHAPTER VI

### Conclusion

#### 6.1 Conclusion

From this research, we can conclude that :

- Intelligent system built based on infer knowledge and consistency test can help in solving Minesweeper problem.
- Infer knowledge can be used to solve the Minesweeper game but there are several cases which are not solvable only using infer knowledge process. Infer knowledge process will be done after four edges exploration are successfully. If infer knowledge process can not open all squares so do consistency test to get possible bomb position. Hence, consistency test is needed to finish the game. Although, the consistency process can not always finish the game with win condition.
- Infer knowledge can finish Minesweeper game until more than 50 percent or even reach 100 percent, it means infer knowledge is sufficient to end the game. However, when the infer knowledge process can not deduce more informations, the other intelligent process will be used. Consistency test is one of the intelligent process, because in the consistency test will check the consistency between guessed bomb with the value surrounding of the guessing square. It will not guaranteed that the solution will be 100 correct. However, intelligent guessing will be better compare to random guessing.
- In few cases, there will be no more technique can be used to solve the game as no more information can be used to predict that a certain square contains a bomb.. In this situation, user interaction is needed to decide which square will be explored.
- Simple Genetic Algorithm can be used to do the consistency test.
- Four point at edges is believed to be the best points to choose in the first random steps.

## 6.2 Further Research

This program can be expanded with adding some coding to make a Minesweeper game where the user can play the game from the beginning until the end. So the user can practice their logic to finish the game and win the game after they look at this system run. From there, the user can know how to finish this game based on step by step which is shown by this system.

Besides that, this program can be continued to find a better approach to decide if a cell is safe, so the prediction will be more accurate.

