Report Format and Grading Criteria for Programming Assignment 3

Grading Criteria:
100 points total, 50 points for coding and 50 points for report.

Code (50 pts):
1. AI is able to make next move before game is over and complete a game. (10 pts)
2. Minimax is implemented correctly. (10 pts)
3. A heuristic rule is made to assign heuristic values to nodes. (10 pts)
4. AI is able to dominantly beat AI with randomness and find out winning position and loss position in next move. (10 pts)
5. No bugs, code with comments and helper class/function is created if necessary. (10 pts)

Report (50 pts):
It is recommended to use this template to finish your report for programming assignment 3.
1. Program goal (5 pts): describe what problem your code for programming assignment 3 is going to solve.
2. Method and implementation (10 pts): describe what method did you use to solve the problem and explain in brief how does it solve the problem. Furthermore, give details in how you implement the method in code (e.g. with pseudo-code). (5 pts for minimax and 5 pts for your heuristic rule)
3. Experiment and results (15 pts): run at least two different set of experiments to show your AI performance and for later analysis. Experiment sets can be: Your AI vs. randomness AI. Your AI vs Your AI (with similar settings), Your AI vs. Your AI (with different settings, such as different depth or heuristic rule for values). Each set of experiment should have at least 100 games played for reliable results. Additionally, record win rate for your AI against its opponent and time used for AI to make every next move to compute the average time used for AI "thinking". Describe the experiment design (what's your experiment sets, 5 pts) and show results in appropriate diagram or table (10 pts, at least result with win rate and efficiency).
4. Discussion (15 pts): You should make an analysis on your experiment result with certain output you made which is observed from your AI behavior (like AI's move, heuristic values assignment strategy and time used). Write down what you observe from the experiment process and explain what's the reason your result ends like that. (10 pts for observation output and 5 pts for analysis).
5. Conclusion (5 pts): make a conclusion about the programming assignment, discuss what you did in programming assignment 3 in general.