

Contest Rules for SamurAI Coding 2013

Version 2013/08/23

This document defines the rules for the SamurAI Contest 2013. This document states how the contest should be carried out and how to decide the ranks of participating teams, but it does not give rules of individual games, which are defined in a separate document.

1. Overall Contest Structure

The contest consists of the following two stages.

- Preliminary Rounds

A number of preliminary round regional tournaments are held to select teams to advance to the final round. Those teams with the highest ranks in the regional tournaments advance to the final round. The number of preliminary round tournaments, their dates, region constraints of participating teams, and numbers of teams to advance to the finals from each of the preliminary round tournaments are decided by the event organizing committee. The number of participating teams in the tournaments and regional balance are taken into account in the decision. The preliminary round tournaments adopt a *Modified Swiss-System*, details of which are described below.

- Final Round

The final round also adopts a Modified Swiss-System described below.

2. Modified Swiss-System

All the tournaments in the contest are conducted in a *Modified Swiss-System* described in this section.

2.1. Overview

The Swiss-system is a commonly used type of tournament system where players or teams need to be paired to face each other for several rounds of competition. The system is used when there are too many participants to play a round-robin tournament. The ordinary Swiss-system is, however, for tournaments of two-player games. As this contest is for four-player games, the system is modified to adapt to four-player games.

The tournament consists of predetermined number of rounds. All the participating teams take part in one game in each of the round. Arrangements of games in each round are made so that teams so far showing similar performance in the tournament play against one another. If the number of participating teams is not a multiple of four, a number of dummy players are supplied by the organizer to make it a multiple of four. With every respect of the following rules in this section, organizer-supplied players are treated no differently from regular players supplied by participating teams.

2.2. Game Points

Each game in the tournament is given 12 points, which are distributed to the teams participating in the game. Participating teams are ranked according to the size, that is, the number of hexels, of the area under their occupation. The top ranked team takes 6 points, the second ranked team takes 4 points, the third team, 2 points, and the fourth, the lowest ranked team, takes none.

If two or more teams have the same number of hexels under their occupation, they are equally ranked and given the equal points. Team rank patterns and points each team obtains are shown in Table 1.

Table 1 Ranks and Points

Rank Pattern	Points
1, 2, 3, 4	6, 4, 2, 0
1, 2, 3, 3	6, 4, 1, 1
1, 2, 2, 4	6, 3, 3, 0
1, 1, 3, 4	5, 5, 2, 0
1, 1, 3, 3	5, 5, 1, 1
1, 1, 1, 4	4, 4, 4, 0
1, 1, 1, 1	3, 3, 3, 3

2.3. Deciding Teams to Match

For the first round of the tournament, sets of four teams to match against one another are decided by drawing lots. For the second and succeeding rounds, the teams with similar standing positions are to match against one other. To be more precise, teams ranked No. 1 through No.4 participate in the same game in the next round, No. 5 through No. 8 in the same game, and so on.

Detailed rules of deciding standings are described in the next section.

2.4. Standings

Game standings are decided after all the games of one round have been finished. To decide the standings, the following rules are used in this priority order, that is, rules listed later are applied only when teams are in a tie applying all rules listed earlier.

1. Teams that have acquired more points are ranked higher in the standings.
2. Teams with higher sum of *territory ratios* in the games it participated so far are ranked higher in the standings. The territory ratio of a team in a game is the number of hexels in the territory of the team divided by the total number of territory hexels of the four teams participated in the game. Note that the neutral hexels, those which are not a territory of any teams, are not included the denominator. For each game, ratios are calculated to six decimal places, and then summed up.
3. Teams that have larger total territory hexels in the games participated so far are ranked higher in the standings.

If two or more teams still are tied after applying all of the above rules, their positions in the standings are decided by drawing lots.

The final standings of a tournament are the standings after the final round of the tournament.

3. Number of Rounds

The number of rounds in a tournament, which is the number of games each team participates in the tournament, is decided by the organizer. It is guaranteed to be no less than $\log_4 n$, where n is the number of teams participating in the tournament.