SamurAI Coding 2017-2018 Qualifying Round Rules

IPSJ Programming Context Committee

2017/12/26

Abstract

This document describes the system of the qualifying round and the advancement criteria for SamurAI Coding 2017–2018 contest.

The rules described here are provisional and subject to change.

1 Preliminary Round System

The qualifying round is conducted as a round-robin tournament, in which all the participating teams play one game (two races exchanging the start positions) against all the other teams, as long as the number of participating teams allows it. If the number of teams is too many for a single round-robin tournament, the qualification round will be organized with two rounds.

In a two-round qualifier, participating teams are divided into several groups for the first round. A round-robin tournament is conducted in each of the groups. Around 30 teams with higher ranks in the first-round groups are advanced to the final qualifier, which is conducted as a round-robin tournament again.

Due to the limited time and resource, the numbers of teams in each of the first-round qualifier are restricted to at most around 30. The number of teams for the first-round groups are averaged as far as possible. The same number of teams are advanced to the final qualifier from each group.

Below is an example of the organization of the qualifying round with different number of participating teams.

Total number	First Round				Final Qualifier	
of teams	groups	teams	advanced	games	teams	games
100	4	26	8	1300	32	496
150	10	16	3	1200	30	435
200	15	14	2	1365	30	435
300	30	10	1	1350	30	435

2 Round-Robin Tournaments

A round-robin tournament with n teams consists of $n-1$ stages, each with different opponents. When the number of teams in the tournament is odd, a player provided by the organizer is added to make it even, making each of the team play against all the other teams.

All the games in each stage use the same race course, and different courses are used in different stages.

The ranks of a round-robin tournaments are decided according to the following criteria, in this order.

1. Total points. In each stage, game winners are given two points and losers are given no points. When the game is drawn, both will be given one point.

2. Total time. The total of the goal time of all the races of all the stages. The goal time is defined in the game rules.

When two or more teams are ranked the same with the above criteria, ranks are decided by drawing lots.

3 Race Course

Race courses used in the qualifying round satisfy the following.

- The course width is between 50 and 100, inclusive.
- The course length is between 2 and 20, inclusive.
- The vision limit is greater than or equal to 5.
- The initial remaining time is 200ms times the step limit plus 1000ms.

4 Advancement to the World Finals

Twelve or more higher-ranked teams in the qualification round (in the final qualifier, when the qualification is organized with two rounds).

At most four teams are selected in addition, considering regional diversity, results in the qualifier round, etc., and sixteen teams in total are advanced to the world finals.