



Lanranforces First Presentation

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Introduction

- Lanranforces (`lanran.club`) is an online judge system based on Spring Boot and Vue.
- It is designed for the DSAA course. So far, our system is interoperable with DSAA's existing OJ system (`acm.sustech.edu.cn`).
- So far, our front end has adopted the QDUOJ¹ solution.
- To maintain compatibility, we use HUSTOJ's² database design.

¹QingdaoU. *OnlineJudge*. <https://github.com/QingdaoU/OnlineJudge>. 2019.

²znblue. *hustoj*. <https://github.com/zhblue/hustoj>. 2019.

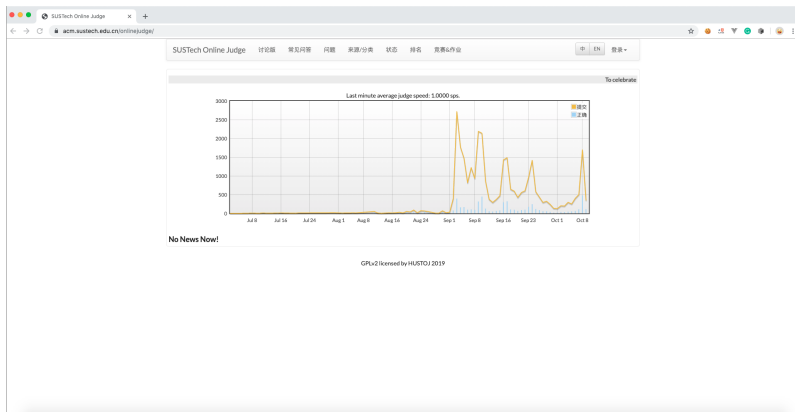


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Features

Implemented all the features of SUSTech OJ (already done).





Code Plagiarism Detection

Code plagiarism detection based on **Abstract Syntax Tree**³

- Many OJ (including SUSTech OJ) use `sim` or `moss` to detect plagiarism
- But they are easy to circumvent
- Java requires some fast input and output templates, it is easy to cause false positives.
- For example, rewrites `c++` code with `java`
- Professor Tang arranged a person to manually check plagiarism



³Deqiang Fu et al. "WASTK: A Weighted Abstract Syntax Tree Kernel Method for Source Code Plagiarism Detection". In: *Scientific Programming* 2017 (2017), pp. 11–8. DOI: 10.1155/2017/7809047.



Disable standard library

- Professor Tang asked students to implement some data structures themselves rather than directly calling the functions of the standard library
- Current solution: `update solution set ...` where code like `'%java.util.Stack%'`
- We intend to do some processing in the code compilation phase to automate it.

Interface Oriented Programming

- In DSAA, some people use a variety of techniques to speed up IO, not the algorithm itself.

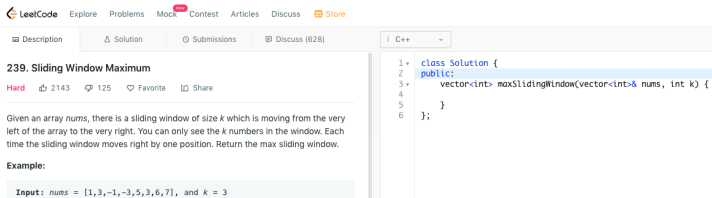


Figure: LeetCode Submit Page

Timeline

- Backend
 - ① for user (already done)
 - ② for administrator (10.20)
- Front-end
 - ① modified based on QDU OJ (10.31)
 - ② re-implement all (12.9)
- Judger
 - ① basic function (10.9)
 - ② advanced features: code completion and prohibition (10.31)
 - ③ plagiarism detection (12.9)
- Testing and Optimization

References



QingdaoU. *OnlineJudge*.

<https://github.com/QingdaoU/OnlineJudge>. 2019.



znblue. *hustoj*. <https://github.com/zhblue/hustoj>. 2019.



Deqiang Fu et al. “WASTK: A Weighted Abstract Syntax Tree Kernel Method for Source Code Plagiarism Detection”. In: *Scientific Programming* 2017 (2017), pp. 11–8. DOI: 10.1155/2017/7809047.



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