Student

* View problems
* Send message to teacher
* Submit problem to a grader

Teacher

* CRUD a series/contest/problem/testcase
* Generate a testcase
* Send chat message to contestants (via XMPP channel)
* Contact system admins
* Create a tutorial

Admin

* Update with a new grader package
* Manage cluster instances
* Manage mongoDB replica sets
* Monitor system utilization (CPU/memory)

[] Testing of Programs with Random Generated Test Cases, K. Manev, B. Yocheva, M. Yankov, P. Petrov  
<http://www.mii.lt/olympiads_in_informatics/pdf/INFOL055.pdf>

[] Generation of Tests for Programming Challenge Tasks on Graph Theory using Evolution Strategy, M. Buzdalov  
<http://is.ifmo.ru/articles_en/2012/ICMLA12-buzdalov-tests-graphs.pdf>

Reconstruction of Trees Using Metric Properties, K. Manev, N. Nikolov, M. Markov  
<http://www.mii.lt/olympiads_in_informatics/htm/INFOL068.htm>

Tasks on Graphs, K. Manev  
<http://www.mii.lt/olympiads_in_informatics/htm/INFOL029.htm>

(research more on those using

<https://www.google.bg/#fp=963ef0b7bc622e71&q=Testing+of+Programs+with+Random+Generated+Test+Cases>

<http://hci.stanford.edu/cstr/reports/2005-04.pdf>

<http://ijcsi.org/papers/7-4-8-27-31.pdf>)