The National Colleges of Technology in Japan Presents:
The 27th Annual Programming Contest
First Call for Participation

"Let the PEARL of Your IDEA Shine!"

Organizer: The National Association of Colleges of Technology in Japan, General Incorporated Association

Co-Organizer: The Nourishment Association for the Programming Contest KOSEN (NAPROCK),
                       Specified Nonprofit Corporation

Supporters (working):
      The Ministry of Education, Culture, Sports, Science and Technology, The Ministry of Internal Affairs and
      Communications, The Ministry of Economy, Trade and Industry, the National Police Agency, The Mie Prefectural
      Government, The Mie Prefectural Municipal Board of Education, The City of Ise, The City of Toba, The Ise Municipal
      Board of Education, The Toba Municipal Board of Education, The Japan Educational Mutual Aid Association of Welfare
      Foundation - Mie Branch, The Ise Chamber of Commerce and Industry, The Toba Chamber of Commerce and Industry,
      The Computer Software Association of Japan (CSAJ), The Information Processing Society of Japan, The Institute of
      Electronics, Information and Communication Engineers (IEICE), The Japanese Society for Information and Systems in
      Education, The National Institute of Information and Communications Technology (NICT), The Open Data Promotion
      Consortium, BCN Inc., NHK, CBC Television Co., Ltd., Tokai Television Co., Ltd., Nagoya Broadcasting Network Co.,
      Ltd., Chukyo Television Broadcasting Co., Ltd., Mie Television Broadcasting Co., Ltd, ZTV Ise Broadcasting Station, The
      Mainichi Newspapers Co., Ltd., The Chunichi Shimbun Co., Ltd., The Asahi Shimbun Co., Ltd., The Yomiuri Shimbun
      Co., Ltd., The Sankei Shimbun Co., Ltd., The Ise Shimbun Co., Ltd., The Iseshima Keizai Shimbun, The Nikkan Kogyo
      Shimbun Ltd., The Scholarship Committee of the National Institute of Technology - Toba College, The Alumni
      Association of the National Institute of Technology - Toba College

Co-Sponsors (the special co-sponsoring companies of the 26th annual contest):
      Cygames Co., Toshiba Solutions Co., Intelligent Wave Inc., Wellnet Co., S-cubism Technology Inc., Sakura Internet Inc.,
      Computer Applications Co., Ltd., Space-Time Engineering Japan, Inc., Seiko Epson Co., Densan Co., Toyota
      Communication Systems Co., DreamArts Co., Nextware Ltd., FIXER Co., Fujitsu Ltd., Broadleaf Co., Lucre Inc. (the total
      of 17 companies).
       For this year, more than 20 co-sponsorships are expected including the continuous co-sponsorship by Intelligent
      Wave Inc., Computer Applications Co., Ltd., Space-Time Engineering Japan, Inc., Densan Co., Lucre Inc., and the
      following new co-sponsors: iFORCOM Co., M-SOLUTIONS Inc., Fujitsu Computer Technologies Ltd., and Mamezou
      Holdings Co.

Supervising College: The National Institute of Technology, Toba College

Secretariat: The Student Affairs Office of the National Institute of Technology, Toba College

Kosen-Procon Official Site:
                       http://www.procon.gr.jp/

Judging Committee (working):
                       The judging committee consists of about 10 committee members including the committee chair Yasuko
                       Kaminuma (a fellow member of the Information Processing Society of Japan)

Introduction

   We are pleased to hold the 27th Annual Programming Contest which aims to provide an exciting venue of competition for

the students in the field of technology. In this contest, the participants are challenged to utilize their insights and practical skills in information processing technology. The accumulation of their hard work in their study will come to fruition on the stage during the competition. Just like last year, we will call for participants in the following three categories: a Themed Section, an Original Section and a Competition Section. This is a great opportunity to check their ability in the international setting and we look forward to being inspired by a fresh approach with purely original ideas which only students can come up with. Also, we hope to witness many entries full of ingenuities, which take advantage of the cutting-edge information technologies introduced in recent years. The contest begins with the Qualifying Round followed by the Final Round. For the selection of qualifiers, we focus on the concept and the approach. In other words, the entry which is still a work in progress, can be submitted for the Qualifying Round, as long as it shows the feasibility for completion.

Because of the flexibility of ideas and advanced skill level of the participants, the NAPROCK programming contest has been gaining lots of media attention as well as acclaims by the leaders in the industry. In this welcoming background, we have started the NAPROCK international programming contest since 2009. Since the start, the NAPROCK international programming contest has grown into an active venue of international communication for those who share the same passion for information technology throughout the world. We hope this great annual event will attract many applicants again this year.

In the end, the NAPROCK programming contests are supported by various associations and corporations starting with the Japanese Ministry of Education, Culture, Sports, Science and Technology. The team of the excellence in the Final Round are to be awarded with the Ministry of Education Award and the Information Processing Society of Japan Excellent Student Award.

Important Dates and Venue

1. Application Period
    May 20 (Fri.), – May 27 (Fri.), 2016

2. Qualifying Round (Document screening)
    Date: June 25 (Sat.), 2016
    Venue: On the Shinagawa campus of the Tokyo Metropolitan College of Industrial Technology (Address:1-10-40
                 Higashioi, Shinagawa-ku, Tokyo)

3. Qualifier Result
    The qualified teams are to be announced on the Procon official website by June 27 (Mon.), 2016. They are also notified by mail (mailed to the school address).

4. Final Round (further details are communicated to the qualified teams separately)
    Dates: Oct 8 (Sat.), – Oct 9 (Sun.), 2016
    Venue: The Ise Tourism and Cultural Hall (Address: 1-13-15 Iwaki, Ise-city, Mie Pref.)

Application Qualification

The applicants must be a registered student of a college of technology (public or private) at the time of application submission (including those who are in the advanced courses).

Application Categories (see the Procon official website for the details of each category)

Each applicant school (per campus) can apply for each category in the following manner: we call for a set of applications for the following categories per school (per campus).

    Themed Section: up to two teams, 2 to 5 students per team.
    Original Section: up to two teams, 2 to 5 students per team.
    Competition Section: 1 team made up of 2 to 3 students.

For the Participation to the NAPROCK International Programming Contest:
    The 7th Annual NAPROCK International Programming Contest (hereafter "the International Procon") is held in tandem with the original programming contest. The qualified teams of the original programming contest are automatically entered into the Final Round of the International Procon.

The number of entries are restricted to one entry per team. <u>A double registration by the same member/student is strictly prohibited</u>. In other words, a participant can only belong to one team. <u>Moreover, we do not allow a team composed of students from different schools (campuses).</u>

For the applications submitted to the Themed Section and the Original Section, <u>NO modification shall be made once the applications are received.</u>

For the Competition Section, the qualified teams can rearrange the team composition. <u>But the instructor must be the same instructor that originally registered.</u>

Software and System for Entry

Please submit a software/system which is executable on PCs or tablets. The submitted software/system must be demonstrated and presented or executed for competition on the Final Round. For the Qualifying Round, the assessment is made on the submitted documents only. In other words, the applicants may submit an entry with a concept only, and complete the software/system after being qualified.

Application Method

The application method is going to be released at the Procon official website. http://www.procon.gr.jp/

Examination Method

This contest consists of the two phases—the Qualifying Round and the Final Round. Through each round, the focus of evaluation is placed on the level of creativity which each participant would come up with in their works.

The Examination Method of the Qualifying Round

1. For the Qualifying Round, the evaluation is made on the entry pieces that participants had submitted in accordance with the application instruction in the PDF format.
2. For the Themed Section and the Original Section, 20 teams are selected from each Section to move on to the Final Round. The selection is made based on the scores of the submitted pieces. Remember, the evaluators of the Qualifying Round are particularly interested in the originality of each entry. At the same time, we will also focus on the applicability and feasibility of the entry pieces in a real life setting.
3. For the Themed Section, the focus of evaluation is placed on how well the entry pieces have captured and represented the essence of this year's theme.
4. For the Competition Section, the evaluation is made on the solution algorithms submitted by each team. The evaluators will assess the presented steps to solve the problem, the approach and the application feasibility of the submitted algorithms respectively. If we find that the submitted solution contains an inappropriate content or it is incomplete, <u>the teams may not pass the Qualifying Round; and are not able to proceed to the Final Round</u> (three teams failed to move on to the Final Round at the 26th annual contest).

The Examination Method of the Final Round

The select teams who passed the Qualifying Round will proceed to the Final Round.

1. Themed Section and Original Section
   At the Final Round, the teams will be judged for its overall performance from their presentation skill to the demonstration quality. The focus is placed on originality, applicability, operation performance, system development skill, manual development skill and presentation skills (the quality of both the stage presentation and presentation material), and other aspects are to be considered.
   Both the operation manual and the sources list of the program are subject to be examined. Thus, the qualifying teams must submit the operation manual and the sources list of the program in advance before the Final Round. The qualifying teams will be informed about the submission procedure of these materials after the Qualifying Round.

2. Competition Section

The qualifying teams will compete in a progressive tournament for victory.

The winners of the special awards are selected based on the overall performance of the developed software/system including the system overview, the sources list of the program, the user interface of the program and the detailed version of the system manual. Please submit the following supporting documents before the Final Round for judgment: the system overview, the sources list of the program, and the detailed version of the system manual. The submission procedure of these materials will be provided to the qualified teams after the Qualifying Round.

Awards

The following awards are presented for the Themed Section and the Original Section:

Grand Prize*	1 team (A Certificate of Merit and an extra prize)
Second Prize	1 team (A Certificate of Merit and an extra prize)
Special Prize	A few teams (A Certificate of Merit and an extra prize)

* The Grand Prize winner will receive the Ministry of Education Award and the Information Processing Society of Japan Excellent Student Award.

The following awards are presented for the Competition Section:

Champion*	1 team (A Certificate of Merit and an extra prize)
1st Runner-Up	1 team (A Certificate of Merit and an extra prize)
2nd Runner-Up	1 team (A Certificate of Merit and an extra prize)
Special Prize	A few teams (A Certificate of Merit and an extra prize)

* The champion will receive the Ministry of Education Award and the Information Processing Society of Japan Excellent Student Award. The sophomores or younger participants of the champion team, are invited to the final round of the "Japanese Olympiad in Informatics" which is held for the high school students and younger students.

Other Important Notes

1. Finalizing the Submitted System
   The qualifying teams are expected to finish off the submitted idea for qualification at the Final Round, as proposed. Note: if the final idea differs greatly from the original idea proposed for the Qualifying Round, the team may lose the qualification.

2. Travel Costs
   All participants of the Final round, regardless of Section, are responsible for the transportation and accommodation costs.
   For the Final Round participants, the contest organizer will provide a list of recommended accommodations and the instructions for lodging. Please refer to the list and follow the instructions.

3. Logistics
   Each team of the Final Round is responsible for any cost incurred to transport the system and other devices to be used for the demonstration of the Themed Section, Original Section and competition. The detail instruction and schedule for loading will be provided to the qualifying teams after the Qualifying Round.
   Please note that the contest organizer does not provide computers or other devices for the participants.

4. Demonstration Spaces and Internet Connections for the Themed and Original Sections
   Due to the size of the event venue for the Final Round, each demonstration space for the system, is limited within 180cm (W) x 180cm (D) x 180cm (H), including the presenters. Please check the details about the demonstration space which will be posted on our official site, and make sure that everything fits in the given space.
   For the internet connection, a wired LAN connection (at its best available performance) will be provided to each booth. For the demonstration hall, we will provide a wireless connection (at its best available performance).
   The participating team may set up a wireless LAN access point in the booth. Depending on the volume of usage, however, the connection may become unstable. Therefore, we would like to encourage you to use the main access point of the venue, for the general connection needed from your device such as a tablet, instead of setting up an additional wireless LAN access point. Thank you in advance for your cooperation in our effort of providing a stable connection in the contest venue.
   Finally, in either case (with or without a separate wireless LAN access point in your booth), please make sure to set up your system to operate without an internet connection so that the demonstration shall not be affected by the connection status.

5. Intellectual Property Rights and Other

Please pay special attention not to have any infringement of intellectual property rights. Any rights shall not be violated by the presented software, documents and presentations. At the same time, please make sure to protect the intellectual property rights of your software, documents and presentations. All rights on the developed software, are reserved by each participant. However, the contest organizer may use the following materials for video recording, website, brochure, and educational purposes:

(1) Any documents and files (the introduction file, the summary file of your entry) submitted to enter into the contest.

(2) Any documents and files (the brochure file, the operation manual, the system configuration, the detailed version of system manual, etc.) submitted for the Final Round.

(3) The photos, video clips and presentation slides that are recorded during the Final Round.

(4) Submitted data during the competition matches in the Final Round.

6. Application to a Similar Contest

Any entry piece shall be original. Please do not submit software or an idea which has been already submitted for other similar contests or competitions. However, it is O.K. to submit the same software or idea submitted for this contest for other contests, as long as further revision is made to the original.

7. Patent Examination

The patent examination is available for the submitted pieces of the qualifying teams. The patent examination is conducted to assess the novelty of the invented systems and ideas for a possible commercialization and the protection of rights. For the applicants of the Themed and Original sections, please refer to the separate material "Patent Examination (Notice)" and submit a set of required documents.

8. Contact

Please send your inquiries to the designated contact available on the Procon official website. Note that we will post the contents of your inquiries and the answers on our website as we receive them.

Deadline to contact: 5:00 p.m. (Japan time), May 6th, 2016 (Fri.)
Email: jimu27@procon.gr.jp

※ Please make all contacts to us, through your instructor who represents your team. Provide your name and where you belong (name of your school and the department). If this information is not provided, an answer may not be provided.

※ No answer will be made for those contacted after the deadline.

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Themed Section

"Light UP the Society with a Torch of Sportsmanship!"

Overview of the Themed Section

We selected the theme for the Themed Section on this year's contest as "Light UP the Society with a Torch of Sportsmanship".

Tokyo has been selected to be an official hosting city for the 2020 Olympics and Paralympic Games. Since the accouchement, people all over the country are working together to make this memorable event successful. As we witnessed after the last Tokyo Olympics in 1964, it opened up a great path in our future; the Japanese economy has grown steadily, the Japanese society has prospered, and Japan has expanded its presence in the international society. We all hope to make the coming 2020 Tokyo Olympics and Paralympic Games to be another great accomplishment for us and make our country grow more positive, confident and proud.

In the same trend, in October, 2015, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) added a Sports Agency under its wing. According to the preamble of the Basic Act on Sports, the aim of the Agency is set to realize "a society in which people are healthy both in body and mind, and lead a cultural lifestyle throughout their lives" through sports. Besides the conventional sports promotion activities, such as further enhancement of Japan's competitiveness in sports and more sports activities for all, it is aiming to apply the power of sports to benefit the country even further. The Agency also thrives to achieve the further longevity of its people, the containment of growing medical expenses, revitalization of the communities, more active international exchange and support, and the further growth of the overall national economy; all through the power of sports.

As we can see from our government's efforts, sports can energize not only us individually but also the society as a whole. In the 27ᵗʰ Annual Programming Contest, therefore, we selected "sports" for the theme of this section. Please propose a system which will influence a wide range of users through sports, such as a program which can revitalize a community(s), promote an active international communication or cultural exchange through sports, while helping to maximize "the joy of (playing) sports" or "the excitement of viewing sports" via ICT. We look forward to seeing an exciting program that can thrill the world.

Important Notes

1. The participating teams can use their original peripheral devices. However, the usage of the devices will be also judged. Please make sure to set up your devices within your display booth. Also, make sure you can finish setting up your devices in a given time (approx. 40 mins.) on the contest date.
2. In the Themed Section, the proposed system is also assessed for its fitness to the provided theme.
3. The highest priority is set on the originality of the proposed system for the judgment. At the same time, we will also evaluate the level of programming skill based on its applicability, completeness and other factors.
4. The patent examination is available for the submitted pieces of the qualifying teams. The patent examination is conducted to assess the novelty of the invented systems and ideas for a possible commercialization and the protection of the right. For the applicants of the Themed and Original section, please refer to the separate material "Patent Examination (Notice)" and submit a set of required documents.

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Original Section

<u>Overview of the Original Section</u>

In the Original Section, we call for the original software that was developed from the original concept and idea of each team.

There has been a great increase in the users of new technologies, such as smartphones and tablets in the recent years, and now another cutting-edge device, such as wearable computers are attracting the consumers worldwide. At the same time, the internet technology has evolved dramatically as seen in the cloud computing and open data. These are a tangible result of how the IoT (Internet of Things) can impact our lives. And in the midst of the changing world, we wonder how the new technologies such as open data and ICT, could take off the restrictions of space and time and connect us further regardless of our physical locations (e.g., work, home or relaxation) as well as time zones (e.g., day or night, seasons or era). The potential of IoT application is limitless and it may hold a key to bring a breakthrough in our current issues in the field of education, ecology, food supplies, telemedicine and more.

For the applicants of the Original Section, we would like you to take a moment to understand the ever changing world we live in today, and develop a truly original system, a creation of an out-of-the-box thinking. We look forward to being inspired by the many creative and fresh approaches of yours.

<u>Important Notes</u>

1. The participating teams can use their original peripheral devices. However, the usage of the devices will be also judged. Please make sure to set up your devices within your display booth. Also, make sure you can finish setting up your devices in a given time (approx. 40 mins.) on the contest date.

2. The highest priority is set on the originality of the proposed system for the judgment. At the same time, we will also evaluate the level of programming skill based on its applicability, completeness and other factors.

3. The patent examination is available for the developed software of the qualifying teams. The patent examination is conducted to assess the novelty of the invented systems for a possible commercialization and the protection of the right. For the applicants of the Themed and Original section, please refer to the separate material "Patent Examination (Notice)" and submit a set of required documents.

The National Colleges of Technology in Japan Presents
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Competition Section
"Find MANY Beauties withIN Mie"

Outline of the Competition Section

Mie Prefecture offers many beautiful tourist sites such as the Kumano Kodo pilgrimage trails and the Ise Shrine. It is also famous for its rich food products only found in Mie. For instance, the famous Ise-ebi spiny lobster and the Matsuzaka beef are indigenous foods from the Mie prefecture. However, in reality, not many people know these facts. To share its abundant culture and history with more people, it has been promoting a series of tourism campaigns since 2009, focusing on the delicacies and famous dishes, or the proud components of Mie. This year, the G7 Ise-Shima summit 2016 is held here in Mie.

For the Competition Section this year, we designed a game in which the beauty and charms of Mie are packed together. It is a puzzle game in which frame and pieces are made to complete a delicious plate, a breathtaking site, and other famous aspects of the Ise-shima and Toba regions in Mie. The contestants compete for the "speed" and the "accuracy" of their answers. Puzzle "pieces" are a polygon wooden piece with straight sides. The competing teams will fill the provided "frame" with "pieces". A team which completes the puzzle first wins the game.

Overview of the Competition

(1) A set of a "frame" and "pieces" that are cut out from a figure.
(2) It is a puzzle game to fill the "frame" with "pieces" quickly. All the "pieces" need to be filled in; there are no excess "pieces".
(3) If there is an overlapping "piece(s)" or a "piece(s)" is out of the "frame", the "piece" will be removed by the judge. The removed "piece" is not counted for the score.

A team which completes the puzzle with all the "pieces" the fastest wins the game. If all the "pieces" are not used, a team which used more "pieces" to complete the puzzle wins the game.
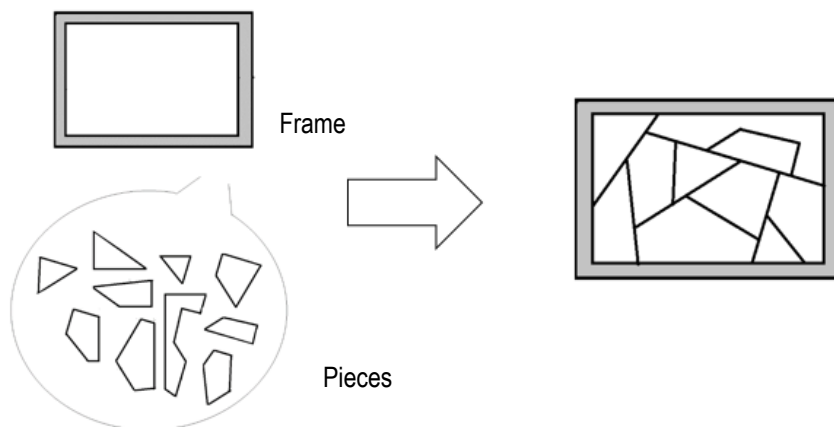

Image1.　　Competition overview

Piece

"Pieces" are a set of polygonal-shaped cut-outs from a sheet of medium density fiberboard (MDF). All "pieces" are a polygon in various shapes with straight sides (includes a dented polygon with a small angle inside (凵)). We do not place any constraints with a gild line. The size of a "piece" is a 1cm x 1 cm square or more. The maximum number of "pieces" for a puzzle is 50 pieces. The front side and the back side of a "piece" has the same appearance; no distinction is made. You may mark a "frame" or "pieces" with a symbol or a label during the match. However, please do so carefully; if the "frame" or the "pieces" are damaged due to the act of marking, the team will be disqualified from the competition.

Frame

A "frame" and "pieces" are made of the same material. The "frame" is a 30cm x 30cm rectangular which is the left-over of the original board after "pieces" are cut out. Not all inner sides of the "frame" are rectangular. The width is 2 cm or more even at the narrowest point.

Both "frame" and "pieces" may come with some minor surface discoloration due to the fabrication process of these on our end. Please check the official web site for the images of the "frame" and "pieces" or refer to the sample "frame" and "pieces" which will be found in your package.

Competition Booth

We will provide a table for each team (a minimum 45cm (D) x 180cm (W). The table comes with a white cloth cover, and the frame is preset on one side. The participants are not allowed to take a "frame" or "pieces" outside the booth. In other words, all activities to fill the puzzle: assembling the "pieces" together, labeling of "pieces", taking pictures and other, must be done in the booth.

The personal computer and other devices that each team brought with them, may be placed either on or under the table (on the floor). Please make sure everything is set up inside the booth.

Tournament Format

The maximum of 12 teams will compete in a match. 1 set of assignments are given per match.

Time Limit

The time limit is set per assignment. It is going to be anything between 10 to 20 minutes. The time limit will be announced before the match starts.

Methods of Distributing the Assignments and Answering

A set of actual "frame" and "pieces" of the puzzle are distributed to the competing teams as an assignment. The answer is the final condition in which the "frame" is filled with the "pieces". Each team is responsible to inform us when they are ready to submit an answer once their puzzle is complete. You may submit your answer without filling up all the spaces.

Method of Team Ranking

A winner is determined based on the following factors in order:
1. The number of "pieces" put in place (a team with the greater number of "pieces" precedes)
2. If teams used the same number of "pieces" and both teams tie, the team that answered in a shorter amount of time precedes.
3. If teams used the same number of "pieces" and the response time of each team are the same, the winner is decided by rolling the dice (a team with the higher sum of dots on the dice precedes).

Other Rules and Notes

・ Computer

There is no limit on the number of computers and other devices that each team can bring for the competition.

・ Allowed Device and the Set-up

There will be NO power outlet provided in the booth (a power outlet is provided in the waiting area). If you plan to use a networking cable, switching HUB and other external devices, please make sure to bring your own power source for your team. Also please make sure that all the devices fit in the given booth (either on the table or under the table; do not go over the depth or width of the table).

There is no restriction on the type of device used for competition as long as they won't disturb and interfere with other participating teams. However, it is not allowed to communicate with anyone outside with any of your devices including a personal computer. This includes exchanging information with other participating teams. If we detect any unauthorized communication, the teams will be disqualified from the competition. Depending on the layout of the booths, the status of the devices such as the computer screens, may be exposed to the other teams.

・Act of Interference

Any act of interference shall be prohibited during the contest.
　　If the organizer judges that a team interrupted the progress of a competition, judgment or other activities of other teams, or if they performed other prohibited acts in the competition, the team will be disqualified to compete. A disqualified team shall receive the lowest rank in the tournament.

・Rematch

In case any trouble is experienced on the organizer's side, teams may compete again with another assignment.

・Judgment

During the competition, members of the judgment committee may come to view the participants and their working status in the booth for judgment purposes.

・Display of the Booth Status

During the competition, the response status, the results, the participants, the booths of the teams, and other conditions, will be filmed, recorded and projected on the screen or other media by a video camera or another device.
　　The data used for competition and transmitted to the server by each team, may be released to the public after the competition, such as on our website.

Release of the Tournament Sample

We are planning to provide a sample "frame" and "pieces" by the middle of April. For the system details of the samples, we will post any updates on our official website as the information becomes available.

Contact

Please send your inquiries to the designated contact available on our official website. Note that your inquiries as well as the answers are to be released on our website (any inquiries which might affect the result of the contest are also released on our website).

Deadline to contact: 17:00 (Japan Time), May 6th, 2016 (Fri)
Email: jimu27@procon.gr.jp

※　Please make all contacts to us, through your instructor who represents your team. Provide your name and where you belong (name of your school and the department). If this information is not provided, an answer may not be provided.
※　No answer will be made for those contacted after the deadline.