BOIJ Belgrade 1st 2007

18-23.JULY 2007. - BELGRADE, SERBIA

1st Junior Balkan Olympiad in Informatics

Junior Balkan Olympiad in Informatics is a whole new competition, which will be started this year in July, in Belgrade, Serbia. The competition is open for students aged 15,5 and younger, residents of Balkan countries. The competition consists of two 2,5-hour rounds. All problems are algorithmic in nature. Available programming languages for the competition are C, C++, C# and Pascal.

This competition is a result of a joint effort of the Mathematical society of Serbia and High school for computing. The primary motive and goal of this competition is identifying computing talent among young students. That kind of talent was always a matter of our concern and attention. We have invested much effort and resources to support young programmers in their education, personal development, work and on their road to success. Apart from popularization of informatics and programming among students, the goal of this event is to create friendly environment in which students can make new friends and exchange information. This should induce a better relation between Balkan countries on a cultural and educational basis.

Each competing team consist of two teachers and four students – competitors. At this moment teams from Bosnia and Herzegovina, Bulgaria, FYR Macedonia, Greece, Romania and Serbia have confirmed their arrival .

The host of the competition is **High school for computing in Belgrade.**

∴ Ministry of science
∴ Ministry of education
∴ Mathematical society of Serbia
∴ High school for computing
∴ Union university Faculty of computing

∴ **Microsoft d.o.o.**
∴ CET - Computer Equipment and Trade
∴ Serbian Chamber of Commerce
∴ Hermes SoftLab d.o.o.
∴ E-Smart systems
∴ ICT servis
∴ Internet Ogledalo

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Organizers

The Olympiad is organized annually by the Ministry of Education or a similar state institution and conducted by an appropriate institution and/or organization of one of the following countries: Albania, Bosnia and Herzegovina, Bulgaria, Cyprus, Former Yugoslav Republic of Macedonia, Greece, Moldova, Montenegro, Romania, Serbia, and Turkey. According to the rules accepted by the initiators of the JBOI, teams of these countries are invited as regular participants. Enlarging or decreasing the set of JBOI countries can only be adopted by consensus at General Assembly.

Goals

The JBOI aims at motivating elementary school students of the South East Europe to:

- get more interested in informatics and information technology in general,
- test and prove their competence in solving problems with the help of computers,
- exchange knowledge and experience with other students of similar interest and qualification,
- establish personal contacts with young people of the South East European region.

General regulations

All local expenses, provided for by general regulation are covered by the organizers. Only the costs of travel to and from the place of the competition should be paid by teams. Accompanying persons and observers are welcome, but they should pay for hospitality. Interested people are advised to contact local organizers.

The host country may invite guest participants as well. The scores of guest participants are not used to decide distribution of medals

The official language is English. Students may use their mother tongue. Programming problems will be formulated in English and then translated by the team leaders to the mother tongue of their team. Both versions will be given to students. Team leaders must be able to speak and write in English, as well as the language of their team.

The computers will be IBM PCs compatible with selected software packages. Only the computers and software with built-in help facilities provided by the organizers may be used in the competition. The use of digital, printed, sound and other materials will be forbidden.

The programming languages of the contest are Basic (QBasic, Visual Studio), Pascal (Free Pascal), C/C++ (Visual Studio), C# (Visual Studio). The precise versions of these languages will be updated each year. The compilers and programming environments for the above mentioned programming languages will be installed on the hard disk.

On the day before first competition day competitors are entitled to try the equipment for up to one hour.

Problems

All problems are algorithmically oriented. No special hardware requirement or software packages and libraries (e.g. graphic packages) will be needed to solve the problems. Program reads input data from standard input (keyboard) and writes results to standard output (console) or from files.

The problems must be formulated so that they can be solved with standard set of statements of the used programming language, standard primitive data types, strings, one-dimensional and/or two-dimensional arrays and elementary type constructions. It is supposed that general knowledge of elementary mathematics and programming is known by competitors:

- elementary properties of integers (prime and composite numbers, odd and even numbers and divisibility), properties of sequences (arithmetic, geometric, recurrent), and elementary combinatorial principles (sum and product rules, pigeon hole and inclusion – exclusion principle),
- elementary properties of geometrical figures (triangles including Pythagorean theorem, squares, rectangles, and polygons. Coordinate system of integer and real rectangular coordinates in the plane including calculating distance of two points, straight line equations and their intersections),
- elementary algorithms (exhaustive search, elementary sorting and searching algorithms, case by case analysis, trading time complexity for space complexity).

Team Composition

Each team is composed of up to four elementary school students, team leader and deputy team leader. Students have to be in school during the year when the contest is held and born after January 1st, 1992. The team leader will be members of the General Assembly, and each team leader has one vote.

General Assembly

General Assembly is composed of the team leaders of the participating teams and the president, nominated by the host country. General Assembly selects problems to be solved in the competition from a set of problems prepared and proposed by the Scientific Committee.

Selection procedure

1. The chairman of the Scientific Committee distributes the proposals. Their number equals the number of problems to be solved by the contestants.
2. The GA members may either accept or, in case of a major ambiguity of formulation or other serious reasons, deny the proposals by voting. When and if a proposal is denied, another prepared proposal will be offered to the GA. For such cases, the Scientific Committee should prepare at least two extra proposals for each round. The text of the accepted proposals must not be changed by the GA, except for minor rephrasing that is needed to avoid smaller ambiguities.
3. The selected problems will be translated by the team leaders into the national languages of the teams.

Scientific Committee

The Scientific Committee (SC) consists of a chairman and a number of experts (SC members) from the host country. It becomes active well before the beginning of the Olympiad and has the task of selecting and preparing problems proposals.

Another task of the Scientific Committee is to test and evaluate the solutions of the contestants.

Competition

The competition consists of two rounds in two different days. In every round the contestants will have to solve two problems in three hours. Within the first half an hour contestants may submit written questions (either in English or in their national language) to the Scientific Committee concerning the formulation and interpretation of the problems. Only questions that can be answered with 'Yes', 'No' or 'No comment' may be accepted. The answers will be produced by the members of the Scientific Committee and approved by the chairman of the SC as soon as possible. When the competition ends, each contestant should prepare his/her solution for the evaluation, according to regulations issued by the organizers. The whole communication between the JBOI authorities and contestants will be in a written form.

Evaluation

When the time allowed for problem solving is over, the solutions of each of the contestant will be checked by an evaluator, using previously unpublished test data. The evaluation is based on the test data and the responses of the programs only. The evaluation procedure concludes with the report of the Scientific Committee. If a team leader is dissatisfied with the report of the evaluation, he/she may appeal to the General Assembly whose decision is final.

Results and Prizes

The General Assembly will determine the minimum scores for the gold, silver and bronze medals using anonymous score table of regular competitors which is presented to GA on the special meeting by the president of SC. The proportion of gold, silver and bronze medals should be approximately 1:2:3. About 50% of the contestants should receive medals. Each contestant will receive a certificate of participation. The medals, certificates and other prizes will be given to the contestants at the official closing ceremony.

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Contestants

Bulgaria

- Yasen Zdravkov
- Georgi Gyurchev
- Dimiter Hristov
- Rumen Hristov
- Aleksandar Parvanov

Greece

- Arsenis Gerasimos
- Gaitanidis Apostolos
- Ioannidis Eleutherios

FRY Macedonia

- Gjorgji Janceski
- Kostovski Boban
- Trajkovski Meto
- Bozinovski Dejan

Bosnia and Herzegovina

- Avdičević Asmir
- Antić Radan
- Dautbegović Amra

Romania

- Radu Zernoveanu
- Vlad-Bogdan Tataranu
- Cezar Mocan
- Victor-Cristian Ionescu

Serbia

- Tomić Dejan
- Vasić Nenad
- Stanojević Stefan
- Milošević Milena

- Spasić Milan
- Miličić Stevan
- Milanović Marko
- Andrejević Aleksandar

Daily programe

Day 1: Wednesday, July 18

Hours	Contestants	Guests	Team Leaders
08:00 - 20:00	Arrival and transfer to Hotel	Arrival and transfer to Hotel	Arrival and transfer to Hotel
13:00 - 15:00	Lunch	Lunch	Lunch
20:00 - 21:00	Dinner	Dinner	Dinner

Day 2: Thursday, July 19

Hours	Contestants	Guests	Team Leaders
08:00 - 09:00	Breakfast	Breakfast	Breakfast
09:00 - 10:30	Practice Session - High School for Computing	Free time	C# - new trends in teaching programming. Overview of all programming teacher trainings in Serbia. Opening Ceremony
1:00 - 12:30	Opening Ceremony	Opening Ceremony	
14:00 - 15:00	Lunch	Lunch	Lunch
16:00 - 20:00	Ada Ciganlija-sports leisure	Ada Ciganlija-sports leisure	Ada Ciganlija-sports leisure
20:00 - 21:00	Dinner	Dinner	Dinner
21:00 - 24:00			Jury meeting problem translation

Day 3: Friday, July 20

Hours	Contestants	Guests	Team Leaders
08:00-09:00	Breakfast	Breakfast	Breakfast
10:00-13:00	Competition High School for Computing	Free time	Answering questions (10:00-10:30)
14:00-15:00	Lunch	Lunch	Lunch
15:00-17:00	Kalemegdan Belgrade fortress	Kalemegdan Belgrade fortress	Kalemegdan Belgrade fortress
18:00-20:00	Belgrade from the rivers	Belgrade from the rivers	Belgrade from the rivers
21:00-22:00	Dinner	Dinner	Dinner

Daily programe

Day 4: Saturday, July 21

Hours	Contestants	Guests	Team Leaders
07:00 - 08:00	Breakfast	Breakfast	Breakfast
9:00 – 19:00	Excursion Novi Sad and Petrovaradin, Beška Sremski Karlovci	Excursion Novi Sad and Petrovaradin, Beška Sremski Karlovci	Excursion Novi Sad and Petrovaradin, Beška Sremski Karlovci
20:00 - 22:00	Dinner	Dinner	- Dinner - Jury meeting Problem translation

Day 5: Sunday, July 22

Hours	Contestants	Guests	Team Leaders
08:00-09:00	Breakfast	Breakfast	Breakfast
10:00-13:00	Competition High School for Computing	Free time	Answering questions (10:00-10:30) Marko Panic, Microsoft. Presentation: "Microsoft development team - one year of development"
14:00-15:00	Lunch	Lunch	Lunch
15:00-18:00	Zoo park	Zoo park	Final Jury meeting (15:00-15:30)
19:00-20:00	Closing Ceremony	Closing Ceremony	Closing Ceremony
21:00-24:00	Official Dinner	Official Dinner	Official Dinner

Day 6: Monday, July 23

Hours	Contestants	Guests	Team Leaders
07:00-08:00	Breakfast	Breakfast	Breakfast
09:00-	Departures	Departures	Departures

Organization

1. Each competition team has four student members, team leader and coordinator;
2. Students born in 1992 or later are authorized to participate;
3. So far, teams from Bulgaria, FYR Macedonia, Greece, Romania, Bosnia and Herzegovina and Serbia have confirmed their arrival;

The Olympiad is organized by:
- Serbian Ministry of Education
- Serbian Ministry of Science
- Mathematical society of Serbia

Host of the competition is High school for computing from Belgrade.

Organizational board

- Branko Popovic Ph.D. Assistant professor, president, Mathematical society of Serbia,
- Nebojsa Lazovic Director for informatics, Serbian Ministry of education,
- Ljubomir Protić Ph.D. Professor, Institute for development of education ,
- Miloljub Albijanić Vice-president, National assembly of the Republic of Serbia,
- Branislav Đurđevac Director, High school for computers,
- Dejan Cvetković General manager, Microsoft Serbia d.o.o.,
- Aca Aleksić Master, Director, Center for informatics and e-commerce of Serbian chamber of commerce,
- Vladan Atanasijević General manager, Hermes SofLab d.o.o. Serbia,
- Goran Veljović Marketing and sales director, E-Smart systems,
- Nikola Marković President of Serbian Society of Informatics,
- Zoran Kovačević Director and chief responsible editor of "Internet Ogledalo" magazine,
- Stevan Milinković Ph.D. Professor, Dean, Union University School of Computing.

Competition Commission

President:
- Dragan Urošević Ph.D. Science associate - Mathematical Institute of the Serbian Academy of Sciences and Arts

Members:
- Tanja Stojanović Master Assistant, Faculty of Natural Sciences and Mathematics, University of Kragujevac,
- Milan Čabarkapa Professor, Mathematical High School, Belgrade,
- Marko Savić,
- Aleksandar Ilić.

President of jury:
- Đura Paunić Ph.D. Professor, Faculty of Natural Sciences and Mathematics, University of Novi Sad

Sponsors:

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