Program Booklet

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FOREWORD CHAIRWOMAN

Congratulations! The fact you are reading this means you have survived the preliminaries and that you are now participating in the Benelux Algorithmic Programming Contest. I am delighted the contest takes place in Utrecht. It is not only a beautiful city, the central location makes it a lot easier for teams to join us at this contest.

Some of you consider this a hobby, others are more ambitious and hope to secure a place at the NWERC. No matter how you look at it, you are all going to attack algorithmic exercises. Which team will solve the exercises first and who will collect the most balloons and will go home with a considerable amount of money? We will know after five hours of thinking, time-limits, wrong answers and programming. You might want to shoot the judges (please don't, they are very kind!) after the 5th time your answer has been disapproved.

We have been busy with the organisation of the BAPC for a while now. We are very proud to have set up this contest and hope you will enjoy it. My special thanks goes to the judges and the technical committee who have made the problems and set up the system, without them there wouldn't be a contest.

Good luck!

Cindy Berghuizen Chairwoman of the BAPC 2012

PROGRAM

9:00	Welcome
10:00	Welcoming speech by the committee
10:30	Test session
	A testing round for the participating teams, to get familiarized with
	the computers and systems used during the contest.
11:15	Lunch with company market
	During the lunch you can talk with all the interesting sponsors.
12:40	Question and Answer
13:00	Contest
18:00	Drinks and Award Ceremony
	The organisation will present the results, explain the problems,
	and hand out prizes.
19:30	Diner



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n uitstraling. Wij doen er alles aan om ervoor te zorgen dat onze medwerkers de oen er ook alles aan om ervoor te zorgen dat die lat bereikt wordt. Dat dit werkt heb os verloop, heeft een gezele instroom van jong talent en een organisatie die met de jaren trekt dat talent aan. Talent werkt immers graag met talent en kersbeleid bestaat vooral uit het willen laten groeien van werknemers, zowel n zo hoort dat o l in kennis als in ef chzelf hoog leggen. merkt: Topicus kent ssioneler wordt.

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RULES

Definitions 1

BAPC: The Benelux Algorithm Programming Contest 2012, organized by A-Eskwadraat. It will take place on October 27th, 2012.

A-Eskwadraat: Study association for Mathematics, Computer Sciences, Information Sciences, and/or Physics & Astronomy at Utrecht University.

Organisation: The members of the organizing committee of A-Eskwadraat.

Website: The website, maintained by the organisation and available at http://www.bapc.eu.

Jury: The group of people responsible for making the problems and checking the solutions submitted by the participants.

Tech: The group of people responsible for the system.

Runners: Those responsible for delivering print-outs, answering questions and various other tasks.

Crew: Organisation, members of the jury, tech and runners.

Participant: Member of a participating team that competes in BAPC.

Submission: The submission of a solution by a team.

Organisation 2

2.1

The organisation consists of members of deny the participation of teams before the A-Eskwadraat.

2.2

The organisation has formed a jury which consists of students and staff of different universities.

2.3

The organisation has formed the Tech, a group which consists of students of University Utrecht.

2.4

The organisation will appoint runners who will watch over the competition areas during the contest, hand out the print-outs and balloons and will be available for practical questions during the day.

2.5

All crew members will be recognizable by their shirt and/or badge.

Participation 3

3.1 Introduction

3.1.1 Participation is only possible in teams of up to 3 persons.

3.1.2 There are two group stages: one for student teams and one for business teams.

3.1.3 Changing the composition of a team is only possible with the permission of the organisation.

3.1.4 The organisation decides how many teams from each institution are allowed to compete. The organisation will consider the number of interested contestants from each institution.

3.1.5 The organisation has the right to start of the contest.

3.2 Student teams

A student team:

3.2.1 may participate for free.

3.2.2 exists of students from the same institution and who are not participating in another team.

3.2.3 has a coach, which is the contact person of a team. This can be a team member or a student or staff member of the institution.

3.2.4 participates in the student teams pool for the title 'Winner of the Benelux Algorithm Programming 2012' with the cup and the prize money of 1024,-512,- and 256,- euros for first, second, and third places respectively.

3.2.5 consists of students who are eligible for the North Western European Programming Contest 2012.

3.3 Business teams

A business team:

3.3.1 pays the registration fee of 500,euros, before the start of the contest.

3.3.2 consists of persons who are employed by the same company or institution.

3.3.3 participates in the business teams pool for the title 'Winner of the Benelux Algorithm Programming Contest 2012' and the prize money of 512,- euros.

4 The Contest

4.1 Introduction

4.1.1 The language used during the contest is English.

4.1.2 The contest lasts for 5 hours.

4.1.3 From the beginning until one hour before the end of the BAPC, the scores are displayed.

4.2 Problems

4.2.1 The jury will provide at least 6 and at most 10 problems.

4.2.2 When a problem is unclear a 'clarification request' can be sent to the jury. The jury will respond to this request. If the response is relevant to all teams, the jury will send the response to all teams.

4.2.3 The jury has the right to change or withdraw problems during the contest. When this happens the jury will inform all teams.

4.3 System

4.3.1 A workplace will be available for each team and all workplaces will be equal in equipment.

4.3.2 A solution has to be written in C, C++, C#, Haskell or Java (unless the problem statement explicitly states otherwise). Note that C# and Haskell are not allowed during the NWERC.

4.3.3 The jury decides per programming language which libraries and function calls are allowed to be used in the solutions.

4.3.4 All prints made by the teams will be brought by a runner. Participants are not allowed near the printers.

4.3.5 A team is allowed to bring up to 25 A4-sized pages, printed one-sided, of documentation. Each team member is allowed one identical copy.

4.3.6 A team is allowed to bring a dictionary; English to their native language.

4.3.7 A team is not allowed to bring software.

4.4 Department rules

4.4.1 The house rules apply to everybody inside the building.

4.4.2 Inside computer rooms eating, drinking, smoking and talking in a loud voice is not allowed.

4.4.3 The use of hardware, including all calculators, which is not approved by the organisation is forbidden, with exceptions of simple watches and medical equipment.

4.4.4 Changing of hardware or operating software is strictly forbidden.

4.4.5 During the contest, communication within the team and crew is allowed. Communication with everyone else is forbidden during the contest.

4.4.6 Participants will follow orders given by the crew.

4.4.7 Participants will wear the shirt and badge provided by the organisation (company members are allowed to wear a shirt with a clear company logo on it).

Judgement 4.5

4.5.1 Each submission is acknowledged.

4.5.2 For each problem, the jury has a correct solution and test data.

4.5.3 A submission is correct when it has a solution to the input in a time limit decided by the jury and the output is the same as the output of the jury (unless the problem statement explicitly states otherwise). This time limit is not announced to the teams.

4.5.4 The winner of a pool is decided by (in order):

- 1. The team with the most correctly solved problems.
- time. This is the sum of the time organisation decides.

needed for every solved problem (defined as the time between the beginning of the contest and the submission of the first correct solution), plus a 20-minute penalty for each wrong submission until the first correct submission. (Incorrect solutions for which a team has not submitted a correct solution or incorrect solutions submitted after a correct solution was accepted do not add to the solving time.)

3. The team that first submitted its last accepted problem is ranked higher. In case a tie still remains, the team that first submitted its second-last accepted problem is ranked higher, and so on. In the event that this does not resolve the tie, the ranks will be determined by chance.

4.5.5 The jury is responsible for everything that has to do with the problem set and can be contacted for this through the 'clarification requests'.

5 **Special rules**

5.1

The organisation has the right to disqualify teams for misbehavior or breaking the rules.

5.2

The organisation have the right to stop the contest, extend the contest time, temporarily block submissions for all teams or change the scores in exceptional conditions.

5.3

2. The team with the least solving In situations to which no rule applies, the

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DIRECTIONS

Location

The BAPC 2012 will take place in the 'Buys Ballot Gebouw' on the university campus 'De Uithof', in Utrecht. Located at the A on the map.

Adress: Buys Ballowgebouw Princetonplein 5 3584 CC Utrecht The Netherlands

Public transport

Travel to Utrecht Centraal by train. There you can take bus 11 from bus platform North and get off at the bus stop 'Botanische tuinen'. You can also take bus 12 from bus platform South, you then have to get off at bus stop 'Padualaan'. Both busses take about 20 minutes to reach campus. From there signs will direct you to your destination. Travelling with an OV-Chipkaart (digital public transport card) is required. Day cards can be bought at Utrecht Central station.

Car

From Amsterdam

- on the A2 take the exit 'Utrecht Noord'
- follow the N230 until A27
- at the A27 intersection Rijnsweerd follow the direction 'De Uithof'
- on the A28 take the first exit towards 'De Uithof'

From Den Haag/Rotterdam/Arnhem

- at the A12 intersection Lunetten follow the direction Amersfoort
- at the A27 intersection Rijnsweerd follow the direction 'De Uithof'
- on the A28 take the first exit towards 'De Uithof'

From Hilversum/Breda

- at the A27 intersection Rijnsweerd follow the direction 'De Uithof'
- on the A28 take the first exit towards 'De Uithof'

From Amersfoort

- on the A28 take the exit 'De Uithof' (after the exit Zeist/Den Dolder)

From Den Bosch/Eindhoven

- at the A2 intersection Oudenrijn follow the direction Amersfoort
- at the A27 intersection Lunetten follow the direction Amersfoort
- on the A28 take the first exit towards 'De Uithof'

Parking is free on Saturdays at the Enny Vredelaan.



ORGANIZATION

Committee

This year's Benelux Algorithm Programming Contest was organised by a committee of the study association A-Eskwadraat:

Chairwoman	Cindy Berghuizen
Secretary	Tom Rijnbeek
Treasurer	Max van Boxel
Commissioner sponsorship	Rick Barneveld
Commissioner promotion	Judith Stoef
Commissioner facility support	Casper van Schuppen

Jury

The problems of the preliminaries and today's contest where made by the jury, consisting of the following students, PHD students and professors:

Jeroen Bransen (Chairman) Doaitse Swierstra Thomas Beuman Maks Verver Alexander Melchior Ruud Koot Koen Rutten Bas den Heijer

Tech

These people made sure the system worked perfectly. The Tech consists of the follow students from Utrecht University:

Rob Franken Rob van der Werken Leon Oostrum Gordian Zomer Jitse Klomp

SPECIAL THANKS TO

The organization would very much like to thank the following people:

- The organizers of all the local preliminaries
- The judges
- The Tech
- Thijs Kinkhorst
- The hard working runners
- And all the participants!

The Jury would like to thank:

Jan Kuipers Thomas van Dijk Nicolas Wu



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