



# HKOI 2012

## Briefing for Finalists

2011-12-03

# Today's Schedule

- HKOI Background & Goals
- About the Final Event
- Open Problem
- Useful Techniques
- Strategies
- Q & A Session
- Workshop

# HKOI Background & Goals

- Aims

- Select potential candidates for international competitions

- International Competitions

- IOI (International Olympiad in Informatics) (**ITALY**)
- NOI (China National Olympiad in Informatics)
- APIO (Asia-Pacific Informatics Olympiad)
- ACM ICPC Hong Kong Local

# HKOI Background & Goals

- Benefits of Participating in HKOI
  - Improve your problem solving skills
  - Prizes
  - Chances to represent Hong Kong in international competitions
  - Make new friends
  - Prepare for other competitions
    - e.g. ACM ICPC

The background of the slide is a blue-tinted, sketch-like illustration of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a mountainous terrain. It features several watchtowers and battlements. The overall style is artistic and somewhat ethereal, with a soft, hazy atmosphere. The text 'About the Final Event' is centered over the middle of the image.

# About the Final Event

# About the Final Event

- **Date:**

- 2011-12-10 (Sat)

- **Time:**

- 9:30 am – 12:30 noon (Senior Group)
- 2:00 pm – 5:00 pm (Junior Group)
- Please arrive 30 minutes prior to competition

# About the Final Event

- Venue:

- Rm924, Ho Sin Hang Engineering Building, The Chinese University of Hong Kong, Shatin, Hong Kong.  
香港中文大學 何善衡工程大樓 924 室

# About the Final Event

- Number of Questions: 5
  - 50-mark Question x 1 = 50 marks
  - 100-mark Question x 4 = 400 marks
  - Total 450 marks

# About the Final Event

- Equipment
  - Desktop computer
  - Your own stationery
  - **NO** other electronic device is allowed

# About the Final Event

- Equipment (Desktop Computer)
  - Intel Core 2 Duo Processor
  - You can use ANY software provided
    - e.g. IDE, compilers, mspaint, notepad, calc
  - You are **NOT** allowed to install any software

# About the Final Event

- Programming Languages
  - PASCAL, C or C++
- Programming Environment
  - FreePascal 2.4.4
  - Dev-C++ 5 Beta 9.2 w/ GCC 3.4.x

# About the Final Event

- Standard Input / Output
  - Input from keyboard
  - Output to screen
  - **DO NOT** access any files!!!
  - **DO NOT** perform system calls  
( e.g. `system("pause");` )

# About the Final Event

- Program Submission

- New submission system
- 



The screenshot shows the HHC 2012 submission interface. At the top, the logo "HHC 2012" is displayed. Below the logo, the user's group information is shown: "Group: Senior Group" and "Time: (Not yet started)". To the right of this information is a table with two columns: "Task" and "Last Submission". The table lists two tasks: "Enumeration (Tester)" and "Sum (Tester)", both with a status of "Not submitted". To the right of each task entry are buttons for "Choose File" and "Submit". Below the table, the user's name and school information are displayed: "Name: Admin (Admin)", "School: Admin", and "Seat: 999". Below this information is a section titled "Announcements & Queries" with a table containing two rows of announcements. The first row shows a time of "02:48" for the "Enumeration (Tester)" task with the status "(unanswered)". The second row shows a time of "17:00" for a "General" announcement stating that task descriptions can be downloaded [here](#). Below the table is an "Ask >>" section with a "Send" button, a dropdown menu set to "General", and a text input field.

**HHC 2012**

Group: Senior Group  
Time: (Not yet started)

Task	Last Submission	Submit
Enumeration (Tester)	Not submitted	<input type="button" value="Choose File"/> No file chosen <input type="button" value="Submit"/>
Sum (Tester)	Not submitted	<input type="button" value="Choose File"/> No file chosen <input type="button" value="Submit"/>

Name: Admin (Admin)  
School: Admin  
Seat: 999

**Announcements & Queries**

Time	Task	Question	Answer
02:48	Enumeration (Tester)		(unanswered)
17:00	General	The task descriptions can be downloaded <a href="#">here</a> .	

Ask >>

# About the Final Event

## ● Judging

- We judge programs based on the source codes submitted.
- 5-30 test cases for each question
  - Different test cases may carry different weights
- Scores will be given for each “correct” test case

# About the Final Event

- 50%-constraint
  - For each task, half of the test inputs used will focus on “testing for correctness”
  - These inputs will be based on “small” cases only.
  - What is considered “small” will be stated explicitly in the task description

# About the Final Event

- Definition of “Correct”
  - Correct Answer
  - Follow the specified Output Format
    - Doing less gets NO marks
      - e.g. Missing separator
    - Doing more gets NO marks
      - e.g. Trailing spaces, Extra line

# About the Final Event

- Ranking

- ONLY results in the Final Event will be counted
- Approximately 30 candidates from each group will be awarded prizes
- **Gold** : Silver : **Bronze**  $\approx$  1 : 2 : 3
- All prize winners will be invited to join the HKOI trainee team as trainees

# About the Final Event

- Questions in the Final Event
  - Feel free to ask for clarification in the first 30 minutes
  - All clarifications will be announced to all candidates

The background of the slide is a blue-tinted, sketch-like illustration of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a series of rolling hills and mountains. The drawing style uses fine lines and shading to create a sense of depth and texture. The overall color palette is a monochromatic blue, ranging from light sky blue to a darker, more saturated blue in the shadows of the mountains.

# Open Problem

# Open Problem

- **Purpose:**

- Provide finalists an idea on what a HKOI problem look like

The background of the slide is a blue-tinted, sketch-style illustration of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a series of rolling hills and mountains. The drawing uses fine lines and shading to create a sense of depth and texture, capturing the iconic zig-zag pattern of the wall as it follows the natural contours of the terrain. The overall aesthetic is clean and artistic, with a monochromatic blue color scheme.

# Useful Techniques

# Useful Techniques

- **Some Simple Algorithms/Skills**
  - Data Processing
    - Mainly in Junior
    - Basic in Senior
  - Simple Mathematics

# Useful Techniques

- Searching
  - Linear Search
  - Binary Search
  - Breadth First Search
  - Depth First Search

# Useful Techniques

- Optimization
  - Exhaustion
    - Brute force, search all cases and compare
  - Useful but not required
    - Dynamic Programming

The background of the slide is a blue-tinted sketch of the Great Wall of China. The wall is depicted as a long, winding stone structure that snakes across a mountainous landscape. The drawing uses fine lines to create texture and depth, showing the wall's path as it follows the ridges and valleys of the terrain. The overall aesthetic is that of a technical or architectural drawing, rendered in a monochromatic blue color scheme.

# Strategies

# Strategies

- Preparation for HKOI final
  - Open question
  - Revision on simple/basic algorithms
    - e.g. sorting, binary search, recursion
  - Try some past problems
  - Get familiar with the IDE you are going to use

# Strategies

- Before contest starts
  - Check the equipment carefully
    - e.g. mouse, keyboard
  - Check the programming environment carefully
    - e.g. compiling method, output path of executable
    - Try writing some simple programs

# Strategies

- At the beginning stage
  - Read all problem descriptions
  - Raise questions if needed
    - Remember: you can raise questions only in the first 30 minutes
  - Pick problems to solve
    - From easy ones to difficult ones
    - Most candidates cannot solve all problems

# Strategies

- During the competition
  - For easy problems
    - Make sure your program works for all input
  - For difficult problems
    - Do as much as you can
    - Test cases will cover a wide range of difficulty
    - Scores will be given for each “correct test case”

# Strategies

- During the competition
  - Try every problems
    - 50%-constraint
  - Don't do un-needed things
    - No need to validate input
    - Follow the output format strictly
    - No extra output
  - Save your programs periodically

# References

- Software Competition Reference Materials
  - <http://www.hkoi.org/hkoi/ref.php>
- Open Problem
  - <http://www.hkoi.org/>
- HKOI Newsgroup
  - <news://news.hkoi.org/hkoi>

# Q&A

- Any questions?



# Work Shop

