2011 HIGH SCHOOL PROGRAMMING CONTEST RULES

Changes to this document for 2011 are indicated by italics. The most important change is that the scoring rules now follow the collegiate scoring rules.

Programming Languages
This year's contest will support the following programming languages and environments on PC's running Windows 7: QBasic, Visual Basic .NET, Visual C/C++ .NET, Visual C# .NET, Sun Java 2 JDK 6 with Eclipse IDE. Teams may program in any or all of these languages. The request for language information on the registration form is to help us assign teams to labs.

All programs are expected to be written as console applications with all code residing in a single file. We are interested mostly in the problem-solving aspects of the contest problems and not as interested in the user interface aspects. For example, we do not expect exact adherence to formatting, though we do expect something close. It is relatively simple to do console input in all of the allowed languages. Sample programs showing how to do console I/O in Java, Visual Basic, and Visual C# are posted at the contest website.

However, at this time, we are allowing Visual Basic and Visual C# programs to be GUI applications as in previous years. We would like to encourage teams to write console applications whenever possible as this is the format of contests at the collegiate level.

Visual Basic and Visual C# programs using a GUI for input will be expected to follow the form of the console applications as much as possible. This includes labels for the prompts, input text boxes for user input, a Submit button to cause the required calculations to be performed, and a labeled textarea showing the results. GUIs not sufficiently labeled or particularly difficult to use will be judged to be incorrect (see below).

Submission Guidelines
Submissions are made electronically via a submission Web page. Detailed submission procedures will be made available and demonstrated during the initiation and practice session.

A submission is judged by running it on some test data (in addition to the sample data given in the problem). If the submission gives the correct answers for all test cases, the submission is judged solved and the team will be so informed. If the submission does not give the correct answer for all test cases, the submission is judged incorrect and an error message is returned to the team. The error messages and their meaning are as follows:
<table>
<thead>
<tr>
<th>Error Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compilation error</td>
<td>The program failed to execute due to syntax errors</td>
</tr>
<tr>
<td>Run-time error</td>
<td>The program crashed or entered an infinite loop, possibly producing one or more correct or incorrect answers before doing so</td>
</tr>
<tr>
<td>Wrong answer</td>
<td>The program produced an incorrect answer for one or more of the judges' test cases</td>
</tr>
<tr>
<td>Presentation error</td>
<td>The program fails to provide sufficient input prompts or output labeling, or requires awkward input. No effort will be made to determine if the program produces correct or incorrect answers.</td>
</tr>
</tbody>
</table>

Generally, we do not expect there to be any compilation errors or presentation errors. However, compilation errors sometimes happen when a file is submitted before it is saved. And a particular example of a presentation error from the recent past was a GUI Visual Basic program that required each character of a 2-D array of characters to be entered in a separate input text box.

Multiple submissions may be made for each problem until the problem is judged solved or the contest ends, whichever comes first.

**Scoring**

The team solving the most problems is the winner. In case of ties, a tie-breaking point system will be used. The point system is based on elapsed time and number of submissions. Lower point totals are better (when comparing teams solving the same number of problems).

*Each correct problem submission is scored as follows. The base score for any problem submission is one point for each elapsed minute from the beginning of the contest to the point of the submission. In addition, each previous incorrect problem submission adds 20 points to a problem's score when a problem is judged a correct solution. Note that incorrect problem submissions that are not followed by a correct problem submission do not add points to a team's score.*

Example: Team A completes Problem 1 30 minutes into the contest. They then complete Problem 2 90 minutes into the contest. On Problem 3, they have one incorrect submission, but submit correctly 120 minutes into the contest. Team A fails to solve any other problems, but does submit an incorrect solution to Problem 4. Team A's score is computed as follows:

- **Problem 1:** 30 30 elapsed minutes and Problem 1 total points
- **Problem 2:** 90 90 elapsed minutes and Problem 2 total points
- **Problem 3:** 120 120 elapsed minutes
  +20 1 incorrect submission
  140 Problem 3 total points
- **Problem 4:** 0 no correct submissions and Problem 4 total points

*Contest total points = 30 + 90 + 140 + 0 = 260*
Other rules
Each team will have one computer assigned to them in a lab. Depending on the size of the contest, the organizers reserve the right to limit the number of team members that may be in the lab at the same time in which case all teams will be assigned a separate work space.

All six problems will be handed out at the beginning of the contest. Teams are allowed to make written inquiries about problems via an oracle Web page that will be made available on multiple computers in the lab. Inquiries do not add any points. Answered inquiries will be posted publicly to the submission Web page, so that all teams may benefit. Detailed inquiry submission procedures will be made available during the initiation and practice session.

Teams may bring up to two computer or language reference books. Electronic media is not allowed. Program listings are not allowed (with the exception of those in the books). On-line help provided by the IDEs and the Sun Java documentation will be available. Teams also may bring non-programmable calculators. Scratch paper will be provided, but teams will need to bring pens and/or pencils.

Any team finishing all the problems must leave the programming contest area.

Any conduct deemed unsportsmanlike, improper, or disruptive by any judge or room monitor will be referred to the contest coordinator, and the involved teams may be disqualified from the contest. In particular, teams found playing computer games and/or surfing the Web will be asked to leave the contest.

Teams may not converse with anyone outside of their own team and the programming contest judges, room monitors, and officials. Teams may not converse with their coach.

A computer and projector in each lab will display the current standings. In addition, the submission Web page contains a graphic with the time remaining in the contest. When solutions are submitted, the confirmation Web page will respond with the elapsed time, giving the point potential of the submission if it judged to have solved the problem.

The scoreboard will be turned off during the last 30 minutes of the contest to provide some suspense during the awards ceremony.

Sample Problems
Problems from previous contests may be viewed at our Website: http://csserver.evansville.edu/~acm/progcont/