

UIL Computer Science District Programming Contest Director's Guide

District Meet and Computer Science Contest Directors

- The Computer Science Contest Director (CSCD) is a designated UIL official, and as such has the authority to make decisions regarding the management of the contest to ensure that it is conducted according to UIL rules.
- The Computer Science Contest Director also has the authority to settle any disputes that might arise in accordance with UIL rules.
- If a situation should arise that you are not sure how to resolve, or if you have any questions regarding rules, procedures, etc., please feel free to contact Shyamal Mitra at mitra@cs.utexas.edu or (512) 471-9708 if a more immediate response is required

Introduction: Thank you for hosting the first UIL Computer Science Programming competition at the district level. The Programming contest is now an official part of the district level contest and the winning team will advance to the regional competition and score points in the district sweepstakes competition. If you have any questions about these instructions please contact **Shyamal Mitra at mitra@cs.utexas.edu, or 512-471-9708 (Work), 512-261-1411 (Home), 512-496-8096 (Cell).**

The rest of this guide consists of two parts. The first details the District Meet Director duties. The second details duties of the Computer Science Contest Director, who is appointed by the District Meet Director. Included with the duties of the Computer Science Contest Director are the instructions for and the duties of other personnel needed to run the Computer Science Programming contest.

Fundamental Contest Rules

- **Teams:** In a Programming contest, teams consist of three members. If a team has four members the coach decides which three members participate in the Programming competition. There must be at least 3 members on the team to compete in the Programming competition.
- **Hardware:** Each team has one computer consisting of a single monitor, keyboard, and system. If laptops with external keyboards are used, the laptop keyboard must be covered in some way. Teams may use one printer, but a printer is not required.
- **Software:** The computer may be loaded with normal software (such as word processors, etc.), the Java SDK, a development environment (such as JCreator, Eclipse, NetBeans, or whatever IDE the team chooses),
- **Allowed resources:** The documentation for the Java API's, and the API's themselves may be installed on a team's computer. Teams may also have two textbooks or references that are reasonably free of written notes.
- **Non-allowed resources:** It is important that the computer system be free of any code written by the contestants prior to the contest such as solutions to practice problems, solutions to prior contest problems, or programs written in class. A book on a CD or on a team's hard drive is not an acceptable reference and should be removed from the computer system.

Contest Materials from UIL – Make copies and keep secure until given to the CSCD on the day of the contest

- Original documents to be copied for precontest team packets – make one packet for each team
- Problem Set packet (the tests) – distribute one copy to each team at beginning of contest
- Judges packet – contains CD with judging software and contestant sample data files, plus printed instructions

District Meet Director Duties

- Appoint a Computer Science Contest Director (a Computer Science coach is good)
 - The Computer Science contest director in charge of the contest and has final say on issues involving judging solutions.
- Meet with the CS Contest Director (CSCD) early.
 - Schedule the contest time slot. (Check conflict pattern for a 2 hour slot for the Programming contest).
 - Assign a room for the contest.
 - Each team should have at least 5 feet of table space, 3 chairs, and a power source.
 - There should be a clock visible for all contestants.
 - The judging area should be separated from the contestants' area but close by to allow a timely flow of solutions and results.
 - Determine where the contest results and Queries will be posted.
 - Determine if the host school will provide a computer system for each team or require each team to provide their own system (EXACTLY ONE computer system per school - each team usually provides their own).
 - Determine what computer system will be used for the judging room (1 or 2 systems for 8 teams) and who will install Java 6.0.
 - Determine what judging platform you will use:
 - Compile and run the program and manually check the results against the Judges packet.
 - Use the program provided by the UIL.
 - Use PC².

District Meet Director Duties (On the contest date before the competition)

- Have the following ready for the contest director:
 - signs with team number and school name.
 - scratch paper and pencils.
 - timer or stopwatch.
 - signs for judging, archive and scorekeeper stations.
 - name tags for contest personnel.
 - Precontest team packets – One 10x13 brown envelope per team, each clearly marked "Precontest Materials" containing:
 - One copy of the dry run problem (dry run is problem number 0).
 - 3 manila run envelopes (9x12).
 - 13 run sheets.
 - 4 Clarification Request sheets. (colored paper).
 - One Verification sheet (a different colored paper).
 - One disk with the student data for the dry run problem. (This is on the Contest CD – the contest director must make one copy per team).
 - Problem Set packet – contains 10 copies of the problem set. The packet will be opened and one copy given to each team immediately prior to beginning the contest. Remaining copies are to be used by judges.
 - Judges packets – contains the contest CD, instructions, plus printed copies of the judges' output to be used for reference during judging.
- Record individual and team results and return to UIL.

UIL Computer Science

District Programming Contest

Computer Science Contest Director's Guide

The following is a chronological list of duties for the Computer Science Contest Director.

Computer Science Contest Director (CSCD) Duties - before the contest day

- Appoint additional personnel to assist in running the district Programming contest. For a 6-8 team district the CSCD will need:
 - 1 or 2 assistant judges - The CSCD along with the additional judges will judge solutions submitted by the contestants. Coaches from district schools are encouraged to act as judges.
 - Appoint a scorekeeper and archivist - These may be separate or combined positions or the CSCD and the assistant may do this depending on the number of competing teams.
 - The archivist backs up solutions submitted by teams prior to them being judged
 - The scorekeeper records results of contestant's solutions using the provided scoring program
 - Appoint 1-2 room monitors (Coaches or willing teachers are good room monitors)
 - The room monitor will assist with checking teams in and then seat them.
 - The room monitor will circulate in the room to see that all teams are adhering to contest rules both before and during the contest.
 - The room monitor will supervise the runners when they are in the contest area.
 - Appoint 1-2 runners (adults) to work under the supervision of the room monitor
 - The runners pick up solutions from the contestants and take them to the judging area to be archived, judged, and scored
 - The runners also return judged submissions to the teams
- See that the judging software is installed on the judging stations (Java JDK 6.0 required)
It is strongly recommended you install and verify the judging environment works several days prior to the day of the contest. This will allow you enough time to resolve any problems you may encounter due to your school's computer systems and / or security measures.
 - Install the scoring program for the Scorekeeper.
 - Set up archiving directories for the Archivist.
 - Install the judge's data on the judging stations. If you use the provided judging environment, the judging data should be installed automatically.
 - Test the judging environment by running the solution to the dry run. This will test the judging software. A solution to the dry run is provided on the judging disk or can be downloaded from the UIL web site at www.cs.utexas.edu/~scottm/uil
 - Test the Scorekeeper's software, and the Archivist's station.
 - If you wish to use the provided scoring program install that software on the computers that will be used by the archivist / scorekeeper. Instructions for the scoring program are on a separate sheet.

CS Contest Director Duties (contest day)

- Obtain signs from the Meet Contest Director and post them to identify each station and team area.
- Ensure judging, archivist and scorekeeper stations are set up.
- Ensure Precontest Material packets are ready for distribution as students check in.
- Ensure Official Contest Materials packets are ready for distribution at the beginning of the contest.
- Train judges, archivist, and scorekeeper on the software and their duties.
- Train runners on their duties.
- Ensure Judges materials are ready for distribution after the contest begins.
- Give name tags to contest personnel.

CS Contest Director Duties (60 minutes prior to the start of contest)

- Check-in: CSCD or an assistant will check teams in and confirm the members' names.
- Team Members: In a Programming contest, teams consist of three members. If a team has four members the coach decides which three members participate in the Programming competition. There must be at least 3 members on the team to compete in the Programming competition.
- Precontest Packets: Give the teams their Precontest Materials packet as they check-in.
- Dry run: At check-in, explain to each team the process for submitting their dry run solutions.
 - The dry run problem is a simple problem to insure understanding of the contest operations and to be sure the contestants, the runners, archivist, judge and recorder are all working together..
 - The dry run problem is in the Team Precontest Materials packet and is also posted on the UIL Computer Science site. Teams should have a working version of the solution prior to coming to the contest. If not, they should write the solution as soon as they have their system set up.
 - After the teams have their computer system set up, they are to place the source code for their solution to on a floppy disk and place the disk and their completed dry run run sheet into the dry run run envelope and give it to a runner when told by the CSCD.
 - The runner will take the run envelope to the archivist, who will archive it and give it to the judge to be judged.
 - The judge will compile and run the contestant's solution using the judging data. Expected results are compared to the actual results from the contestant's solution.
 - The judges will then record on the run sheet if solution is accepted or rejected and complete an Acceptance sheet if the solution is correct. Then place the disk, run sheet, and Acceptance sheet, if earned, into the run envelope. Give the run envelope to the scorekeeper.
 - The scorekeeper will record the results and give the run envelope to the runner who will return it to the contestants.
 - Teams may continue to submit solutions to the dry run problem until they get it correct or until the time for submitting the dry run is over.
 - Contestants may confer with their coach in the contest room during the dry run process.
- Monitoring: The CSCD or an assistant will monitor the contest room as teams set up their computer systems and complete their dry run.

CS Contest Director Duties (30 minutes prior to the start of contest)

- Ensure teams have a single computer system.
 - Each team is allowed one computer consisting of a single monitor, keyboard, and system. If laptops with external keyboards are used, the laptop keyboard must be covered in some way (for example, a piece of paper may be taped over the keyboard). Teams may use one printer, but a printer is not required. The team may have a back-up computer system provided it is stored in a near-by area (e.g. front of room).
- Ensure all previously written programs have been removed from the contestants' computer systems.
 - Allowed Software: The computer may be loaded with normal software (such as word processors, etc.), the Java SDK, a development environment (such as JCreator, Eclipse, NetBeans, or whatever IDE the team chooses),
 - Allowed resources: The documentation for the Java API's, and the API's themselves may be installed on a team's computer. Teams may also have two printed textbooks or reference books that are reasonably free of written notes.
 - Non-allowed resources: It is important that the computer system be free of any code written by the contestants prior to the contest such as solutions to practice problems, solutions to prior contest problems, or programs written in class. A book on a CD or on a team's hard drive is not an acceptable reference and should be removed from the computer system.

CS Contest Director Duties (15 minutes prior to the start of contest)

- Assemble contestants and coaches for instructions. Go over contest rules on the front cover of the contest problems and go over any pertinent procedures from the Computer Science section of the UIL C & CR.
 - There are 12 problems on the test.
 - Explain the scoring.
 - Each correct solution will score 60 points.
 - Each incorrect solution will score -5 points **only if** a correct solution is eventually submitted.
 - The contest will last for 120 minutes.
 - Teams may work on the problems in any order.
 - Go over the contest mechanics. When they have a solution:
 - Complete a run sheet with their team number and problem number on it
 - Save the source code (.java file) to a disk
 - Label the disk with the team number and problem number.
 - Place both the run sheet and the disk in the run envelope for that problem.
 - Hold the envelope HIGH in the air for a runner to collect.
 - The runner will return the problem as soon as it is judged and recorded.
 - Clarification Request form - The Clarification Request form is used to pass information between a team and the judges. The Clarification Request form is filled out by a team and given to a runner to take to the contest director. The purpose of the form is to resolve ambiguities or misstatements in a problem. They are not to be used to give teams an advantage, extra information, or hints on how to solve a problem. The contest director must decide on the appropriate response in consultation with the other judges. It may well be that the appropriate response is for the team to read the problem statement more carefully and look at the given examples. If a clarification is in fact required due to ambiguity or a problem misstatement, all teams should be made aware of the resolution.
 - The judging data will include test cases not shown on the problem statement sheet.
 - When the 120 minutes is over, you will say "Stop". At this time, you will only accept solutions that are already in a run envelope and the run envelope is in the air.
 - When the contest is over, teams will assemble their Run sheets and complete their Verification sheet. Each team will then give their Verification sheet to a runner who will take it to the judging room.
 - Students may not disassemble their computers until all judging is complete and all protests have been resolved. Once a team disassembles their computer system, they forfeit their right to protest.
- Instruct the teams to delete their dry run solution from their computers.
- Answer any final questions.
- Ask the coaches that are not helping to run the contest to leave or be room monitors.
- Distribute Official Contest Materials (Problem Sets and contestant sample data disks). Instruct students not to open them or insert the disks until they are told to "Start".

CS Contest Director Duties (Conducting the Contest)

- Pass out the Official Contest packets.
- Set the timer to 120 minutes.
- Announce "Start" and start the stopwatch. This is the official start of the contest and contestants may open their contest envelope and have two hours to submit solutions.
- When a team has a possible solution to a problem, they place the source code on a disk, place the disk in a run envelope with a run slip and give it to runner.
- The runner takes envelope to archivist.

- **Archivist Duties: The archivist:**
 - Records the team number and problem number for the submission.
 - Records the time the problem was submitted.
 - Backs up the solution submitted.
 - Gives the run envelope to a judge.
- **Judges Duties:** Submissions should be maintained in a first in first out order. As judges become available they should judge the oldest submission.
 - If using the judging environment provided, follow the instructions on the "How to Use the Judging Environment" instruction sheet.
 - If not using the judging environment:
 - Create a folder for each team.
 - Copy the file to the team's folder.
 - Remove the disk from your floppy drive.
 - Compile and run the program submitted.
 - **IN EITHER CASE, USE THESE JUDGING GUIDELINES:**
 - White space differences at the end of lines or after the last line of output are never significant and should never cause a solution to be judged as incorrect
 - If the differences do not seem material to the problem being solved, err on the side of accepting the solution. For instance, if a problem is about performing a complex calculation, be flexible with output formatting. On the other hand, if the problem is all about formatting, then be a stickler.
 - Above all, be consistent with your judging.
 - If a submission is correct, mark accept on the run sheet.
 - If a submission is incorrect, mark reject on the run sheet and mark one of the comments on the run sheet. At the state meet we generally only use a small number of the available comments:
 - "Does Not Compile" is used for submission that suffer compile errors.
 - "Run-time Error" is used for submissions that suffer a runtime error or exception.
 - "Failed Judges' Test Data" is used for any cases where the submission compiles and runs but whose output does not match the expected answers.
 - "Time-Limit Exceeded" is used when a submission results in an infinite loop or the program does not end. None of the problems in the district problem set require a large amount of computation. A guideline for when to halt a team's program is 2 minutes.
 - After judging the solution and marking the run sheet, the submission disk and run sheet go back into the run envelope which is given to the Scorekeeper.
- **Scorekeeper Duties:** The scorekeeper records successes and failures of the contestant's solution using the provided scoring program and then returns the run envelope to the runner.
 - Correct solutions are awarded 60 points less any penalty points.
 - Incorrect solutions are penalized 5 points for EACH time an incorrect solution is submitted ONLY WHEN the correct solution is finally submitted. For example:
 - Team A submits two incorrect solutions for problem 3 and never submits a correct solution. Team A will receive no points and will be assessed no penalty points for problem 3.
 - If Team B submits two incorrect solutions for problem 4 and then submits a correct solution, Team B will receive 50 points for problem 4. This is 60 points for submitting the correct solution minus 5 points for EACH incorrect submission (a total of 10 penalty points).
- The runner returns the run envelope to the team.
- If a team's solution is judged incorrect, the team may rework their solution and resubmit their new solution. Teams may make as many submissions for a given problem as they wish.
- All teams should be notified when 15 minutes are remaining in the contest.

Note: Coaches may fill any of these positions and one person may serve in more than one of these positions.

CS Contest Director Duties (Ending the Contest)

- At the 120 minute mark, teams shall be told to stop.
- Accept any solutions that are in a run envelope and being held up in the air when the signal to stop was given.
- No more submissions are to be accepted.
- Tell students to leave their computers set up until judging is complete. Failure to do this will cause a team to forfeit their right of appeal.
- Have teams complete their Team Verification forms and turn them in to the room monitor.
- Complete judging.
- Complete scoring. The maximum possible score is 720. Ties are not broken. (Overall team ties are broken when both written exam and programming results are entered in the Spring Meet Online System).
- Verify grading with contestant's Verification forms and resolve any discrepancies.
- Collect all official contest materials. These may be returned to teams when other official district materials are returned.
- Assemble coaches and contestants again and announce results.

Other Issues:

- **Acceptable Media:** A few words on what media to use for submission of material: The suggested media is floppy disks but alternatives to floppy disks for Programming may be used. Contest rules do not require that contestants use floppy disks, but we continue to recommend a floppy disk as the best media for the contest -- copy times are faster than for burning CD's and they are more readily reusable, and they are still much cheaper than flash drives. We do realize that many new computers do not include floppy drives. We recommend that teams bring an external floppy drive, but you may have some teams show up who do not have one and want to use other media. There is nothing in the rules that would prohibit the use of other types of media, but they need to be aware of the potential disadvantages. For example, you may have prepared your sample data for distribution to contestants on floppy disk, and it may not be feasible for you to make copies in other formats. In that case, contestants without floppy drives would need to create their own sample input data using what's printed in the problem set. (What they get on disk is identical to the sample data printed in the problem set.) For flash drives, they need to understand that they're not going to get their drives back immediately, so if they only have one or two flash drives it may make it difficult for them to submit multiple solutions. Judging should always be "first in, first out" regardless of media type, so a team with a flash drive should not receive priority over a team using floppies. In terms of judging with different types of media, the only consideration is being sure that you're reading from the correct drive. The judging script is set up to read from a single drive, normally the A drive. If there is a mix of submission media one solution is to change the location for the judging program to a directory on the judging computer and copy all submissions to that local directory.
- **Feedback:** Finally, we would like your feedback. Please complete the UIL Computer Science District Programming Evaluation Form. You may mail, email, or fax your comments. If you want to mail your comments please mail the completed form to:

Shyamal Mitra
Department of Computer Sciences
1 University Station C0500
Austin, TX 78712-0233

Or, fax it to Shyamal Mitra at (512) 471-8885.

Or, email mitra@cs.utexas.edu (there is an electronic version of the form on the materials CD.)

Thank you for your willingness to host the UIL Computer Science Programming contest at the district level and for all of your hard work.