Introduction to Senior Computer Team

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Welcome (back) to the TJHSST Senior Computer Team, widely regarded as one of the best high school computer teams in the nation. The purpose of this pamphlet is give you relevant information about all Senior Computer Team activities. We (the officers) hope to get to know every one of you, but should the need arise for you to ask us questions, we are: Ms. Drobnis (sponsor), Andre Kessler (captain), Andrew Cheong (co-captain), Saketh Are (co-captain), and Arjun Srinivasan (statistician). If you have any questions, the website for SCT is **http://tjhsst.edu/sct** – check here first, then email one of the SCT officers.

1   USA Computing Olympiad

The main competition that the SCT competes in is the USA Computing Olympiad, or USACO. The US-ACO holds six internet contests during the academic year, and in the late spring conducts the US Open, a proctored exam. Based on the results of these contests, 15 USA students are invited to the USA Invitational Computing Olympiad, or USAICO. The USAICO results are used to determine the four-member USA team to the International Olympiad in Informatics, which is the premier computer science competition for high school students and is held annually at exotic locations around the world. Regular internet contests are three to four hours each and occur once per month starting in October; additionally, the time window for the internet contests runs from Friday morning to Tuesday morning on a specified weekend, so you should be able to find three hours in there. All but the first contest count for internal USACO standings used to determine USAICO camp selections; the first contest (October) is a qualifying round for people trying to move into the next division. After the internet contests are done, the US Open is held at TJ during school in late April and is usually four hours long. This is the most important contest of the year, as it is more heavily weighted when determining USAICO selections.

Who should participate? Everyone in SCT should participate! There are three divisions: bronze for beginning programmers, silver for experienced programmers, and gold for the very top high school programmers in the country. Gold and Silver are "invitation only" - you can be invited to silver by scoring above about 800/1000 on a bronze competition or to gold with above about 700/1000 on a silver competition. Freshmen and sophomores should be trying especially hard to get into the Gold division, as they are generally favored over equally ranked upperclassmen. To sign up for USACO, register at **http://ace.delos.com/contestgate**. The US-ACO schedule for the year should be released soon – when we get it, we'll post it on our website. NOTE: Languages allowed in the USACO are C, C++, Java, and Pascal, so you should brush up on your favorite one of these!

2   TopCoder

TopCoder (**http://topcoder.com/tc**) is an organization which runs tri-monthly algorithmic programming contests. We strongly encourage you to look at their schedule, as they are valuable coding practice for USACO and programming competition in general. The format is different from USACO - the contests are shorter, only about an hour and fifteen minutes as opposed to USACO's three hours, and anyone from

high school students to professional programmers can compete. Additionally, if you're 18 or older, you can actually win money for doing well! The schedule for the rest of 2010 is up on our website; unfortunately a number are during the school day, but there still some at 9 PM or around noon on weekends. We have arranged for a lab at TJ to be open from 7-8:30 AM for the really early ones, which occur once per month.

3 Other Competitions

Some other competitions which we encourage you to participate in are the Croatian Open Competition in Informatics (COCI, at **http://www.hsin.hr/coci**), CodeForces (at **http://codeforces.com/contests**), and CodeCup (a fun "game contest", at **http://www.codecup.nl**). We will provide you with information about upcoming contests when we get the schedules.

Additionally, the SCT sends a team to the VCU High School Programming Competition and a team to UMD High School Programming Contest each year to compete against regional schools. Generally, the top four SCT members on the USACO rankings are selected as our UMD team and the next four as our VCU team. Last year, we won first place in both of these competitions.

4 SCT Grader

The best way to get better is to practice! To that end, we have the SCT Grader, which can be found at **http://tjhsst.edu/sct/grader**. This is a website similar to the USACO training pages in that you can submit a solutions to problems and have them run in a contest environment. All SCT members should register an account on the grader, as we will use it frequently for practice throughout the school year. There is a set of practice problems without a time limit and two contests with time limits set up. One is five hours long and the other is three hours long; both are targeted at silver/gold competitors so it may be more or less time that you need to complete the problems.

5 After School

Most Fridays, we will hold an extended practice after school as a continuation of the 8th period meeting. You are strongly encouraged to come! In this time, we will teach beyond what was done in 8th period, explain anything that was unclear, and help you with coding problems from the lecture. Besides, it's just plain fun. There will also be a couple of three hour in-house contests throughout the school year to give you more contest practice, and these will extend after school. In past years, this hasn't been all that regular, but we're hoping to make these more frequent. The sessions will be from 4:00 PM to about 6:00 PM.

6 Practice

However, we obviously can't provide you with enough problems to seriously practice on your own. To truly improve, you need to put in work on your own time – and these following sites will help you with that.

1. USACO Training Pages - go here first! About 100 problems in the initial set, followed by a huge selection of 400 for further training. **http://ace.delos.com/usacogate**

2. Saratov Online Contester (SGU) - about 400 problems, good for code massing. **http://acm.sgu.ru**

3. Sphere Online Judge: **http://www.spoj.pl**

4. TJ SCT Wiki: lots of helpful learning materials. **http://tjsct.wikidot.com**

5. SACO Lectures: **http://olympiad.cs.uct.ac.za/presentations**