ACM International Collegiate Programming Contest (abbreviated as **ACM-ICPC** or just **ICPC**) is an annual multi-tiered competitive programming competition among the universities of the world. The contest is sponsored by IBM. Headquartered at Baylor University, with autonomous regions on six continents, the ICPC is directed by Baylor Professor William B. Poucher, Executive Director, and operates under the auspices of the Association for Computing Machinery (ACM).

History

The ACM International Collegiate Programming Contest, ICPC, traces its roots to a competition held at Texas A&M University in 1970 hosted by the Alpha Chapter of the Upsilon Pi Epsilon Computer Science Honor Society (UPE). This initial programming competition was titled First Annual Texas Collegiate Programming Championship and each University was represented by a team of up to 4 members. The computer used was a 360 model 65 which was one of the first machines with a DAT (Dynamic Address Translator aka "paging") system for accessing memory. The start of the competition was delayed for about 90 minutes because 2 of the 4 "memory bank" amplifiers were down. Teams that participated included, Texas A&M, Texas Tech, University of Houston, and 5 or 6 other Texas University / Colleges. There were 3 problems that had to be completed and the cumulative time from "start" to "successful completion" determined 1st, 2nd, and 3rd-place winners. The programming language used was Fortran. The programs were written on coding sheets, keypunched on Hollerith cards, and submitted for execution. The University of Houston team won the competition completing all three problems successfully with time. The second and third place teams did not successfully complete all 3 three problems.[1] The contest evolved into its present form as a multi-tier competition in 1977, with the first finals held in conjunction with the ACM Computer Science Conference.

From 1977 to 1989, the contest included mainly teams from United States and Canada. Headquartered at Baylor University since 1989, with regionals established within the world's university community, operating under the auspices of ACM, and with substantial industry support, the ICPC has grown into a worldwide competition with teams from 84 countries in 2005.

Since the beginning of IBM's sponsorship in 1997, contest participation has grown enormously. In 1997, 840 teams from 560 universities participated. In 2007, 6,700 teams from 1,821 universities participated. The number of teams has increased by 10-20% every year.

The World Finals of the ACM International Collegiate Programming Contest World Finals, ACM-ICPC World Finals, is the final round of competition. Over its history it has become a 4-day event held in the finest venues worldwide. UPE recognizes all of the regional champions at the event. Recent World Champion teams have been recognized by their country's head of state and at the annual ACM Awards Ceremony.

Contest rules

The ICPC is a team competition. Current rules stipulate that each team consist of three students. Participants must be university students, who have had less than five years of university education

before the contest. Students who have previously competed in two World Finals or five regional competitions are ineligible to compete again.[2][3]

During contest, the teams are given 5 hours to solve between 8 and 12 programming problems (with 8 typical for regionals and 10 for finals). They must submit solutions as programs in C, C++, Java or Python[4][5] (although it is not guaranteed every problem is solvable in Python). Programs are then run on test data. If a program fails to give a correct answer, the team is notified and can submit another program.

The winner is the team which correctly solves most problems. If necessary to rank teams for medals or prizes among tying teams, the placement of teams is determined by the sum of the elapsed times at each point that they submitted correct solutions plus 20 minutes for each rejected submission of a problem ultimately solved.

For example, consider a situation when two teams, Red and Blue, tie by solving two problems each. The team Red submitted their solutions to A and B at 1:00 and 2:45 after the beginning of the contest. They had a rejected run on C, but it was ignored since they didn't solve C. The team Blue submitted solutions to problems A and C at 1:20 and 2:00 after the beginning. They had one rejected run on C. Then, the total time is 1:00+2:45=3:45 for team Red and 1:20+2:00+0:20=3:40 for team Blue. The tie is broken in favor of Team Blue.

Compared to other programming contests (for example, International Olympiad in Informatics), the ICPC is characterized by a large number of problems (8 or more problems in just 5 hours). Another feature is that each team can use only one computer, although teams have three students. This makes the time pressure even greater. Good teamwork and ability to withstand pressure is needed to win.