

1982 HIGH SCHOOL PROGRAMMING CONTEST

Sponsored by the
Computer Science Department
California State College Stanislaus
May 7, 1982

* * * * * THE RULES * * * * *

1. Programs shall be written in the BASIC language.
2. Each team shall provide their own computer(one).
3. The time limit is two hours.
4. Each problem is separate and the documentation for each program shall be submitted separately.
5. The documentation for each problem shall consist of:
 - a) A copy of the program's output from the printer.
 - b) A printed listing of the program. It shall start as follows:
 - 1 REM Title of the problem
 - 2 REM The Team Number
 - 3 REM
 - c) A list of the variables used in the program and what each represents.
ie. D = The number of dogs. Normally done by hand, not printed.
 - d) A simple flowchart outlining the logic of the program. The forms of the 'boxes' used are not important, the words inside them are.These items should be assembled in the above order, stapled and submitted.
6. No references other than the programming manual for your computer.

* * * * * THE PROBLEMS * * * * *

1. Sorting by Grade and Name
The name, grade, and sex for twenty students will be entered from the keyboard. The data will be sorted by grade and by name within that grade. The list will be printed out in four blocks: seniors, juniors, etc.
2. Palindrome
A string of characters will be entered. It will be tested to see if it is palindromic(same forwards and backwards). A message will be output indicating if the string is or is not palindromic.
The user will be asked if another string is be entered.
3. Perfect Number
A perfect number is a number that is equal to the sum of its integral divisors, not including the number itself. An example is 6 since $6=1+2+3$. Write a program that accepts a number, outputs a list of its divisors, and indicates if that number is perfect or is not perfect.
The program will continue until a non-positive number is input.