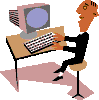
# **Match Game**

(Computer programming II or III)

**Program Description:** A game begins with two players and a pile of 21 matches. The players alternate turns and at each turn each player may remove from one to four matches from the pile. The player to pick up the last match loses the game.

The winning strategy for player 2 is to pick up just enough matches to obtain a sum of five by adding the number of matches picked up by player 1 to the number of matches player 2 plans to remove. Thus, no matter what player 1 does, he or she will be faced with a pile of 21, 16, 11, 6 and 1 matches and will eventually be forced to remove the last match.

Construct a program in which the computer always plays second and apply the winning strategy to that program. The program must be able to detect any cheating attempted by the first player.

**Required Statements:** Input, output, decision making, loop control

**Sample Output:** *(your output will all be in one column)*

We have 21 matches in front of us.

The object of this game is to make the

player draw the last match. Either

player may take from 1-4 matches on each

Play. You go first

Player Computer Pile

How many (1-4) 3

2 16

How many (1-4) 5

Invalid -- Try Again

How many (1-4) 0

Invalid -- Try Again

How many (1-4) 4

1 11

How many (1-4) 1

4 6

How many (1-4) 2

3 1

How many (1-4) 1

0 0

I win

Play again (y/n) y

Player Computer Pile

How many (1-4) 3

2 16

How many (1-4) 4

1 11

How many (1-4) 4

1 6

How many (1-4) 4

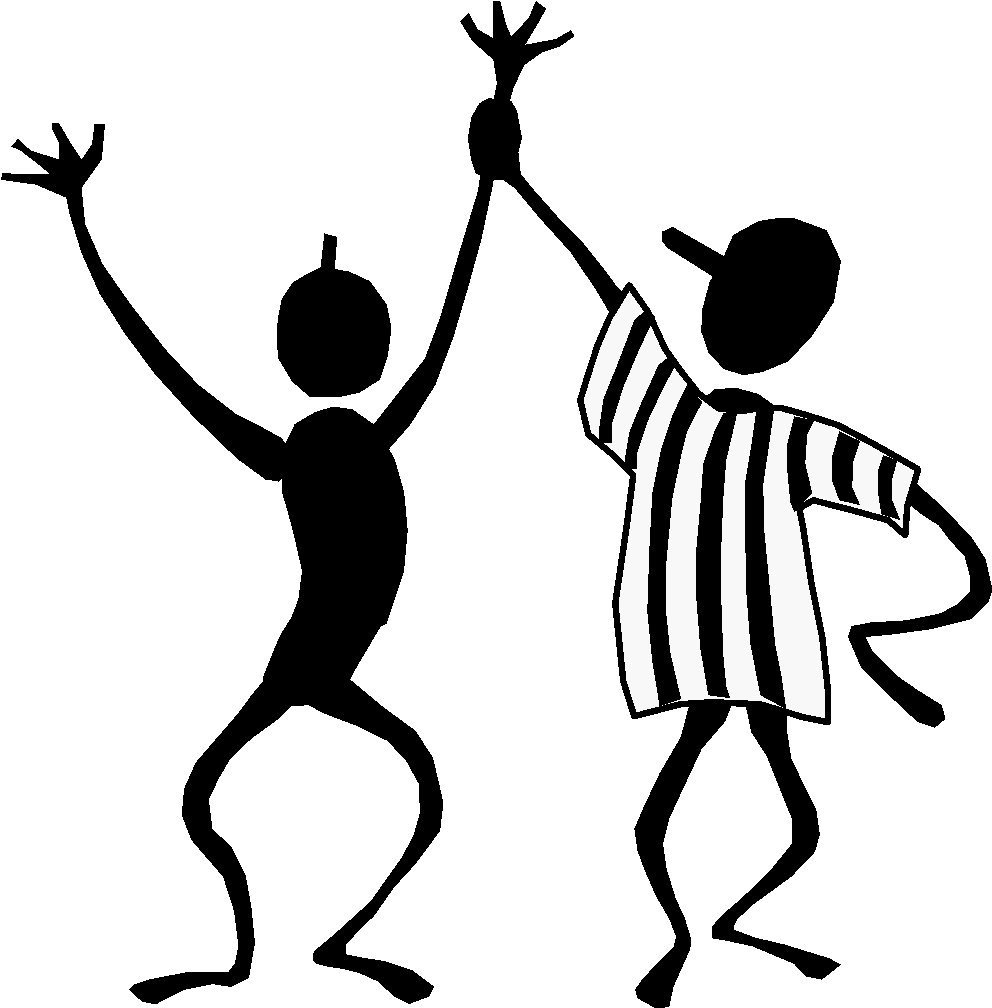
1 1

How many (1-4) 0

Invalid -- Try Again

How many (1-4) 1

0 0

I win

Play again (y/n)