COMPUTER PROGRAMMING IN JAVA

COLUMBIA UNIVERSITY HIGH SCHOOL SCIENCE HONORS PROGRAM

Basic Java, Part 3
Assignment
2007 Feb 23 Sat

Removing duplicates from an array

Ask the user for how many numbers they want to enter, and then let them enter that many numbers. Then return a list of only the unique numbers.

Count the number of times parallel arrays are different

Ask the user for how many numbers they want to enter, and then let them enter that many numbers into one another, and another set of number into a second array. Then, count the number of times the array differ in each position, and how many times they are the same.

Modify the guessing game

This is a number guessing game. The computer randomly picks a number between 1 and 10 (inclusive), and the player has to guess the number. Each time the player gets it wrong, they are told whether their guess was too high or too low.

The code has already been written for you, implementing the rules as described above. The source file is called "GuessingGame.java".

Modify the guessing game to only allow 10 guesses before the player loses and the computer reveals the answer.

The over-under dice game (Extra Credit)

- Description
  - Consider the following dice game played between a human player and a computer player. Each player simultaneously rolls two dice and observes only their own roll. The computer player then declares an over-under value (an integer between 4 and 24) based on an estimate of the sum of the face values over all four dice. The player then guesses whether the actual sum is over or under the computer's stated value. If the sum of the four dice is exactly the number the computer picks, then the round is a tie. Otherwise if the player chooses correctly, s/he is awarded a point. If the player chooses incorrectly, the computer is awarded a point. The first player to 10 points wins.
  - For example:
    - The dice (all four) are rolled.
      The computer observes it has rolled 4 and 5 (but the human player doesn't know this).
      The computer estimates the line at 16 (without knowing what the human

player has).
The human player observes s/he has rolled 5 and a 6.
The human declares over.
Since 11 + 9 > 16, the human player earns a point.
The game continues.

In your program, the computer will estimate the over-under line by randomly choosing a number between 6 and 8 and adding it to its own total.

- Task
  - Implement the over-under game as described above. An empty template has been provided for you: OverUnder.java