Problem of the Week #15
3/27/2023 to 4/9/2023

You and your friend play the following game: your friend chooses any 2000 of the integers from 1 to 3000, and challenges you to find a subsequence of 1000 of their numbers, written in increasing order, that alternates odd, even, odd, even, ... You win if you can find such a subsequence, and your friend wins otherwise. Determine who, if anyone, has a winning strategy in this game.

Solutions for this problem can be submitted to Dr. Brian Miceli at bmiceli@trinity.edu. People who submit solutions will be acknowledged on the next problem. If you like these problems, you may be interested in the Putnam Exam, and more information on the Putnam Exam may be found [HERE].

Solutions to the previous problem were submitted by Colin Bown (Austin, TX), M.V. Channakeshava (India), Ritwik Chaudhuri (India), Evan Fu (Beaverton, OR), Rob Hill (Gambrills, MD), Kipp Johnson (Beaverton, OR), Hari Kishan (India), Lukas Klawuhn (Germany), Tengiz Kutchava (Georgia, the country), Yann Michel (Paris, France), François Seguin (Amiens, France), and Zurab Zakaradze (Georgia, the country).