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Using combinatorial algorithms to search for golf schedules

Imagine 12 golfers play one round per day, in foursomes, for five days. How can the groups be arranged so that every two players are in the same group approximately the same number of times? In general there are n golfers arranged in g groups for d days. For “small” n one can search through all possible schedules by exploiting a 1-1 correspondence with certain k -ary sequences. For “large” n one can generate possible schedules at random using an unranking algorithm for such sequences. We will describe simple combinatorial algorithms for generating, ranking and unranking the sequences, and computational results.