# The algorithm:

initialize R to be the set of all availabilities;

initialize ordered list A to be empty;

while (R is not yet empty):

get i∈R that ends the earliest;

remove i from R;

get availability j∈R that overlaps with i *(if there exists such a j)* and that ends earliest;

add i and j to the end of A;

endwhile

return A as set of all partners *(every two consecutive elements are partners)*

# Proof of Correctness