Project Explanation

In the bus problem in the Minimum Network flow (Min-flow) problem, we construct a network representing the bus route, and, when minimized, the flow x_{ij} on arch i-j represents the number of tickets sold under the demand for passenger onboarding the bus from place i heading to destination j.

The arches at the bottom of the network ensures the bus is not overloaded with an upper bound P. Also, by the nature of the Min-flow problem, fares for bus rides are multiplied by -1 to minimized the value that originally should have been maximized.

The graph below represents the minimized min-flow problem after the conversion, where fares (non-zero values) are represented in green, the finite upper bonds on arches are coloured in blue, and the differences between inflow and outflow for vertices are presented in black. Without specification, all other parameters are unrestricted (free).

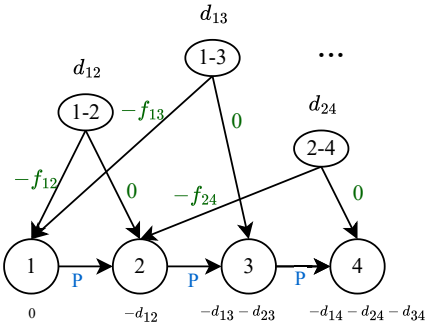

Fig 1: Bus problem

Also, we spotted out that a meeting schedule is similar to a bus service with only one seat ($P = 1$), where the attendee is selecting between meetings that resembles selecting a passenger that "rides" on a one-seater "bus." Hence, we modify the original problem in suit of the meeting scheduler.

In the modified problem, we define bottom vertices as the start and end of meetings. We define f_{ij} as the values of the meeting from time i to time j. Here is the illustration.

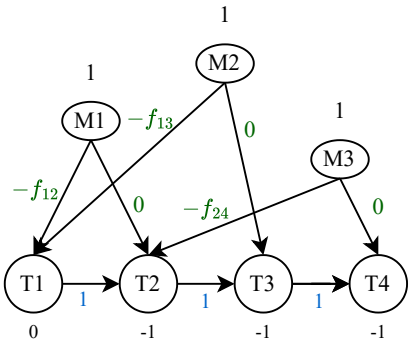

Fig 2: Schedule problem