

Modeling Discrete Optimization Workshop: Team Selection Again

1 Introduction

The aim of this workshop is to recognize where a global constraint may be used to model a problem.

Team Selection Again - teamagain.mzn

Given n people and m team captains we need to create m teams so that the size of the teams differ by at most 1. Each person can be assigned to only one team. We want to split the teams to maximize the total value of teams as given by the captains. The data for the problem is given as

```
n = <number of people>;
m = <number of captains>;
array[1..m,1..n] of int: value; %value[c,p] is value captain c places on
person p
```

You should output the objective value of the solution and the list of teams for each player.

For example given data

```
n = 10;
m = 3;
value = [| 4, 5, 6, 7, 2, 1, 0, 4, 5, 6
          | 0, 5, 8, 7, 3, 2, 1, 5, 4, 7
          | 5, 4, 5, 6, 3, 1, 0, 4, 6, 4 |];
```

the output should be

```
obj = 48;
teams = [3, 1, 2, 1, 3, 2, 2, 2, 3, 1];
```

indicating that team 1 is {2,4,10}, team 2 is {3,6,7,8} and team 3 is {1,5,9}.

Try your model on the data files: teamagain1.dzn, teamagain2.dzn, teamagain3.dzn, teamagain4.dzn.

2 Extension

Make the output list the teams as the sets of players in the team, rather than for each player which team they are assigned to. For our example the expected output is

```
obj = 48;
teams = [{2,4,10},{3,6,7,8},{1,5,9}];
```

3 Technical Requirements

For completing the workshop you will need MINIZINC 2.0 (<http://www.minizinc.org/2.0/>).