

Challenge: HiTec Registry

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Team Assignment Problems

Teams with only national students

Teams with only international students

Great difference between team sizes

Constraint Satisfaction Problem

Must satisfy a number of constraints or limitations.

- Team size: `ceildiv(expected, (5 * team_per_color))`
- Mix of nationalities
- Mix of different genders

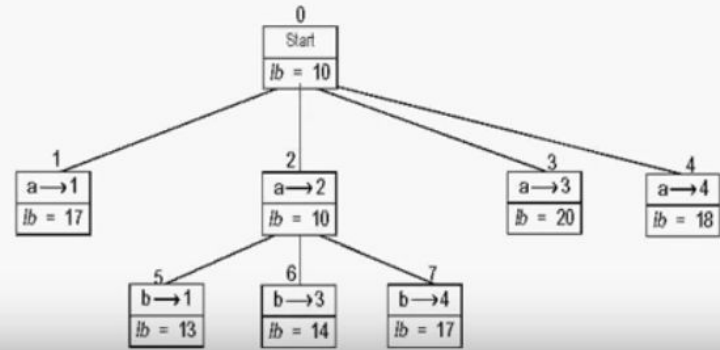
Breadth-first Search with Branch and Bound: Assignment

Get **cost** to assign student to each team

Tree levels from lowest to highest

Team not full? assign student

	Job1	Job2	Job3	Job4
Person a	9	2	7	8
Person b	6	4	3	7
Person c	5	8	1	8
Person d	7	6	9	4



How it works

Expected students (>1)

Teams per color (1-9, 5 colors)

Cost = # of students with the same nationality or gender

Examples

Empty teams

```
Number of expected students (1+): 450
Number of teams per color (1-9): 8
1. Print teams
2. New student
0. End
1
Team Naranja 1 has 0 of None possible members
Members:
-----
Team Naranja 2 has 0 of None possible members
Members:
-----
```

First Insert

```
Enter the new student data
ID: A01202727
Name: Francisco
Last name: Nunez
Gender (Male/Female): Male
Nationality (airport code): MEX
1. Print teams
2. New student
0. End
1
Team Naranja 1 has 1 of None possible members
Members:
Francisco Nunez with student ID: A01202727 is Male and comes from MEX
-----
Team Naranja 2 has 0 of None possible members
Members:
-----
```

Examples

Cost = 2

```
Enter the new student data
ID: A01202743
Name: Antonio
Last name: Esper
Gender (Male/Female): Male
Nationality (airport code): MEX
1. Print teams
2. New student
0. End
1
Team Naranja 1 has 1 of None possible members
Members:
Francisco Nunez with student ID: A01202727 is Male and comes from MEX
-----
Team Naranja 2 has 1 of None possible members
Members:
Antonio Esper with student ID: A01202743 is Male and comes from MEX
-----
```

Cost = 0

```
Enter the new student data
ID: A01205555
Name: Diana
Last name: Sanabria
Gender (Male/Female): Female
Nationality (airport code): USA
1. Print teams
2. New student
0. End
1
Team Naranja 1 has 2 of None possible members
Members:
Francisco Nunez with student ID: A01202727 is Male and comes from MEX
Diana Sanabria with student ID: A01205555 is Female and comes from USA
-----
Team Naranja 2 has 1 of None possible members
Members:
Antonio Esper with student ID: A01202743 is Male and comes from MEX
-----
```

Examples

Cost = 1

```
Enter the new student data
ID: A01206666
Name: Anita
Last name: Gonzalez
Gender (Male/Female): Female
Nationality (airport code): MEX
1. Print teams
2. New student
0. End
1
Team Naranja 1 has 2 of None possible members
Members:
Francisco Nunez with student ID: A01202727 is Male and comes from MEX
Diana Sanabria with student ID: A01205555 is Female and comes from USA
-----
Team Naranja 2 has 1 of None possible members
Members:
Antonio Esper with student ID: A01202743 is Male and comes from MEX
-----
Team Naranja 3 has 1 of None possible members
Members:
Anita Gonzalez with student ID: A01206666 is Female and comes from MEX
-----
```


Any Question?

Thank You!