PGY 2 Solve. txt

Goal:

- To allocate terms for a year to Doctors based on preferences. There are strict rules that need to be followed for this to occur.

Structure of the Year:

- 5 terms per year.

- 5 terms = 1 full year of terms and will be referred to as a "line" ongoing in this document.

Structure of the spreadsheet:

- The spreadsheet displays the name of the term, how many terms need to be allocated and the descriptors for those terms.

- This allocation needs to occur 5 times, in order to fill a "line"

Definitions of Col Names

1/ Master Jobs List - Term Name (The categorical var of term to be allocated)

2/ PGY2 Only - IGNORE (only used to filter a subset of allocations to solve)

3/ Resource Allocation - The number of the Terms able to be allocated of that specific categorical var. (i.e HNE Relief = 17 terms to allocate per allocation event)

4/ Current Term Category - IGNORE

5/ Accreditation Status - IGNORE

6/ Term Classification - How terms are described (I.e. General Medicine, Relief)

7/ Term Classification 2 - A second descriptor, not all terms have 2 descriptors

8/ Specialty and Subspecialty - These columns need to be separated. As the constraints (Only for PGY1s talk about them differently) I will l

9/ Is this a service term? - Largely redundant as used for "Relief" terms. As long as "Relief" terms are classified as "Relief" there will be no need for this category.

10/ Clinical Team Structure - Team Based, Ward Based or other. Describes in what structure the service is provided.

Constraints around the composition of a 5-term year for PGY2 doctors:

- Must be allocated at least 3 terms. (This may help as a buffer for being unable to follow all rules for all lines.)

- An allocation of 5 terms is obviously ideal.

- Maximum 25% in any "Subspeciality" in a line (Specific subspec < 2 out of 5 terms)

- No limit to the amount of similar "Specialty" terms in a line

- 5 terms must include at least 1 term from each classification A, B and C. (A >= 1, B >= 1, C >=1)

- Lines must be made up of at least 50% "Ward Based" (Clinical Team structure) terms (Ward based <= 3 out of 5 terms)

- Service Terms (i.e Relief) can only make up a maximum of 25% of the year (Relief or Service Based < 2 out of 5 terms)

A table of medical information

Description automatically generated

Data flow:

- Each Doctor will preference each UNIQUE term available from 1 - x.

- The algorithm will loop 5 times, once for each term, allocating terms for each doctor based on preferences and fitting within the constraints stated above.

- Discussed using a linear optimisation to solve for the MINIMUM across all doctors, giving the best fit of preferences.

- At the end of the algorithm ideally it would be good to generate a report for both:

>> If lines are not compliant with the above rules (ideally, we wouldn’t code it to break the rules)

>> Provide a list of terms that are not filled.

Questions:

- Is there a way to give more weighting to what peoples first preferences or higher preferences are? I guess we would want something that leans into giving people their first preference as much as possible at the expense of the 4th and 5th allocated terms which are throwaways usually. (i.e the shit term you cop because you got a good one)

- I have provided a sample CSV which will be in the exact format as will be offered to the algorithm later in the year when it comes to calculating preferences.

Sample CSV = PGY2 Solve.csv

* 53 Terms
* 110 Doctors allocated to those terms
* To simulate the preferencing system you would need 110 columns each with random numbers 1 – 53 and all numbers need to be unique within the columns.

Playing with Chat GPT





