

Introducing the package “CollLiGen”

This package is developed as a solution to call lists generation for all departments. It concerned the peculiarities for the call lists in Hong Kong like "3-day-1-call". It allows "request-no-call", and the administrator can choose if he/she thought that a specific candidate is better not call on a specific date. "Request-to-call" is also allowed, and if more than one candidate request to call on a specific date, the program will proceed to a lottery. It allows the administrator to choose how many calls in total, and how many weekend calls a candidate should be having, which is compatible with the hierarchical call system in psychiatry (3:2:1 in some cluster for different trainee levels) and other scoring systems. Administrator can allocate candidates to specific public holidays.

All the administrator needs to do is to install the package, generate the "collagen template", fill in and load the template, and run the collagen() function. These could be all done with 3 lines of code. Of course, one will need to install R and RStudio beforehand, which were free to download online.

First, you can download the package “CollLiGen” with the following codes. You may be asked for updating some other dependencies on the way, just type in "n" will do:

```
install.packages("devtools")

library(devtools)

devtools::install_github("cheungngo/CallLiGen")
```

Second, you can generate a template for this program with collagen_template(). You will need to specify the candidate_no (number of candidates in the call list), year (the year the call list will be for), month (the month the call list will be for) and def_weekend (definition of "weekend"; "SS" for saturday and sunday, "FSS" for Fri/Sat/Sun, "FS" for Fri/Sat):

```
collagen_template(candidate_no = 13, year = 2021, month = 3, def_weekend = "SS")
```

A template would appear at your working directory (usually *\\Documents) with the name ‘collagen_template-yyyy-mm-dd.csv’. (yyyy-mm-dd is the day when the template was generated). The template could be modified in excel or other spreadsheet programs, and the guideline will be in next page. After modifying and saving the template, run the following code to load the modified template into the program. Please note that x could be in any other names:

```
x = collagen_read()
```

Then the call list could be generated with one line of code:

```
collagen(x)
```

The results and statistics file would appear at your working directory with the names ‘collagen_result-yyyy-mm-dd.csv’ and ‘collagen_stat-yyyy-mm-dd.csv’.

How to deal with the template?

index	day	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0
nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
count	nil	3	3	3	3	3	3	3	3	3	3	3	3	3	3
wecount	nil	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Above would be a template generated by the command `collagen_template(13,2021,3,"SS")`. There are two areas that could be amended by the administrator.

1. The matrix on the top of the spreadsheet were all "0" by default. Administrator can put "1" for "no-call", and "2" for "PH call" or "request-to-call" in the respective cells. There are no restrictions in how many "1" or "2" could be typed in, but too many "1" and "2" may risk generating no solution. It should also be noted that the column names (i.e. "A", "B", "C", etc.) could be amended to real names.
2. The two rows on the bottom of the spreadsheet allows the administrator to decide how many calls a candidate should be having. Administrator could adjust the number based on the call system (e.g. 3:2:1 in psychiatry) or any pre-existing award system (if someone made enough score then subtract 1 from "count")
 - a. The "count" row is responsible for the total number of calls for a candidate.
 - b. The "wecount" row is responsible for the total number of weekends calls for a candidate

After filling in the template, remember to save the template with its very own name. The program could not recognize the file if the filename has been changed.