
Algorithm 1 Generator

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1: procedure GENERATOR
Input: days, total_pat, n_cat, time, n_mach, machj, pi, probinti, time_session, first_time,
       duei, treatmentsi, sesi, probsesi, probmachinesi, working_days, shifts
2:   for d := 1 to days do
3:     pat_day  $\leftarrow$  random(0, total_pat)
4:     for p := 1 to pat_day do
5:       r  $\leftarrow$  random(0, 1)
6:       prob  $\leftarrow$  0
7:       for i := 1 to n_cat do
8:         prob  $\leftarrow$  prob + pi
9:         if r  $\leq$  prob then
10:          type  $\leftarrow$  i
11:          release_date  $\leftarrow$  d + 1
12:          due_date  $\leftarrow$  release_date + duei
13:          treatments  $\leftarrow$  sessions_pat(treatmentsi, sesi, probsesi)
14:          interruption  $\leftarrow$  random(0, probinti * treatments)

15:          machine  $\leftarrow$  set_machine(n_mach, probmachinesi)

16:          for w := 1 to working_days do
17:            do
18:              for s := 1 to shifts do
19:                xws  $\leftarrow$  random(0 or 1)
20:              end for
21:              while sum(xws)  $\geq$  1
22:                end for
23:              end if
24:            end for

25:          new_patient  $\leftarrow$  type, release_date, due_date, treatments, interruption, machine, first_time, time_session
26:          xws
27:          list_patientsd  $\leftarrow$  new_patient
28:          order_patients_category(list_patientsd)
29:        end for
30:      return days, n_mach, list_patients, time
31: end procedure
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Parameter	Description
<i>days</i>	Number of days to simulate
<i>total_pat</i>	Maximum number of patients that can be scheduled in a single day
<i>n_cat</i>	Number of categories
<i>time</i>	Machine time available per day
<i>n_mach</i>	Number of types of machines available
<i>mach_j</i>	Number of machines for the type <i>j</i>
<i>p_i</i>	Percentage of the category <i>i</i>
<i>prob_int_i</i>	Maximum percentage of interruptions for patients categorized as <i>i</i>
<i>time_session</i>	Duration of treatment in patients
<i>first_time</i>	Additional time to treatment in the first session
<i>due_i</i>	Maximum acceptable waiting time for the category <i>i</i>
<i>treatments_i</i>	Number of types of treatments that the patient categorized <i>i</i> may have
<i>ses_i</i>	Numbers of treatments for the category <i>i</i>
<i>prob_ses_i</i>	Probabilities of the different types of treatments for the patients categorized as <i>i</i>
<i>prob_machines_i</i>	Probabilities of being assigned for a type of machine for the patients categorized as <i>i</i>
<i>working_days</i>	Number of working days
<i>shifts</i>	Number of shifts