
Algorithm 1 User Model

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1: procedure LISTEN_PLAYLIST(nym, user, device)
2:   start_time  $\leftarrow$  time.now
3:   prev_session  $\leftarrow$  0
4:   this_session_len  $\leftarrow$  get_session_len(start_time, device, prev_session)
5:   while this_session_len > 0 do
6:     state  $\leftarrow$  Spotifystartstate
7:     while time.now < this_session_len + start_time do
8:       next_song  $\leftarrow$  get_next_song(state, nym)
9:       state  $\leftarrow$  get_next_state(state)
10:      if state == trackdone then
11:        update_play_count(state, nym, song)
12:        play_song(song)
13:        update_ratings()
14:        send_ratings()
15:      end
16:      if state == fwdbutton then
17:        play_song_partially(song)
18:      end
19:    end
20:    prev_session  $\leftarrow$  this_session_len
21:    this_session_len  $\leftarrow$  get_session_len(current_time, device, prev_session)
22:    start_time  $\leftarrow$  time.now
23:  end
24: end
25: procedure SIMULATE_USER
26:   nym  $\leftarrow$  Nym that user belongs to
27:   user  $\leftarrow$  User's number
28:   device  $\leftarrow$  User's device
29:   simulation_len  $\leftarrow$  How long the simulation should run
30:   current_time  $\leftarrow$  time.now
31:   prev_session  $\leftarrow$  0
32:   while current_time < simulation_len do
33:     if have_session(current_time) then
34:       listen_playlist(nym, user)
35:     end
36:     current_time  $\leftarrow$  time.now
37:   end
38: end
```
