

Playlist

Author and developer problem: Ekaterina Vedernikova

To solve the problem, it is necessary to simulate the process of playing the player with support for the song queue.

It is necessary to keep track of the current moment in time *curTime* and the queue of songs. To store the queue of songs, it is convenient to use a deque structure, as this structure allows for quick addition of elements to both the front and the back.

To correctly handle additions at the moment in time $t = 0$, before starting the simulation process, all events with $t_j = 0$ should be placed at the front of the queue.

At each step, one of two events occurs:

- if a song is currently playing, all events with $t_j \leq \text{curTime} + \text{curLen}$ should be processed, adding new songs to the front of the queue, then increase *curTime* by the duration of the current song;
- if the player is not playing music (the queue is empty), *curTime* should be moved to the moment of the next song's addition, and all songs starting at that same time should be added to the queue.

After that, the next song from the front of the queue should be selected and started playing. At this point, the start time of this song and its name should be recorded in the answer.

Each song will be added to the queue once and removed once, and each operation is performed in $O(1)$. The overall time complexity is $O(n + m)$.