Family name: …… Given name: ……

Family name: …… Given name: ……

Family name: …… Given name: ……

Assume we ingest a stream with an event every time a ticket is sold at a theater. Precisely, the stream has the following structure:

- (movieID, theaterID, timestamp, price)

Next, we ingest the following ordered set of events:

1. (m1, t1, 12h, 10€)
2. (m2, t1, 14h, 12€)
3. (m2, t2, 13h, 18€)
4. (m1, t3, 18h, 6€)
5. (m3, t2, 19:15h, 13€)
6. (m1, t3, 19:30h, 10€)
7. (m2, t3, 19:45h, 25€)
8. (m3, t1, 20h, 17€)
9. (m1, t3, 20:30h, 10€)
10. (m2, t2, 21h, 8€)

Provide a detailed answer (i.e., describe the process) for the following questions:

a) Which theaters would be considered *heavy hitters* considering a required frequency of 50%?

b) Under the exponentially-decaying window model, using a constant and threshold of 0’5. What would be the most popular movies?