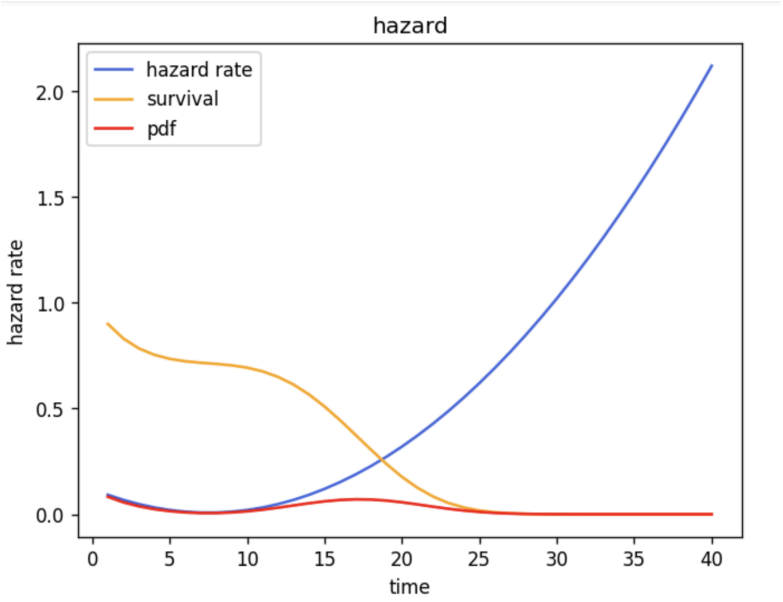
1.Explain in your own words – what does hazard rate mean?

Hazard rate is the probability of a event happen at time t given that it hasn't happened yet(i.e. you survived at time t)

Hazard: `(60-15*t + t**2)/500`

Survival: `np.exp(-((60*t-(15/2)*t**2 + (1/3)*t**3)/500))`

PDF: `hazard(t) * survival(t)=`
`((60-15*t + t**2)/500)*(np.exp(-((60*t-(15/2)*t**2 + (1/3)*t**3)/500)))`



2.Briefly explain the relationship between hazard function and distribution function?

The distribution function is the probability of event happens exactly at time t. Hazard is the probability of event happens at time t given that I survived at time t. For example, an exact 1000 hour lifetime lightbulb that randomly breaks duing its lifetime, it can have pdf that is quite uniform, but if I know it survived 999 hours, ths hazard of time 1000 is almost 100%.

3.

	A	B	C	D	E
	time	case	survived	empirical hazard	details
	0	0	1200	0	
	1	95	1105	0.085972851	95/(1200-95)
	2	134	971	0.13800206	134/(1200-95-134)
	3	203	768	0.264322917	203/(1200-95-134-203)
	4	250	518	0.482625483	250/(1200-95-134-203-250)
	5	135	383	0.352480418	
	6	85	298	0.285234899	
	7	70	228	0.307017544	
	8	40	188	0.212765957	

At each time, we calculate hazard by #case/#survived shown in details.