

①

ct-01 Solve

once on avg. every day, it takes about an hour to restart.

oneday = 24 hours

downtime = 1 hours

uptime = (24-1) hours = 23 hours

we know that,

Probabilistic availability = $\frac{\text{uptime}}{\text{total time observed}}$

$$= \frac{23}{24} \times 100\%$$

② Reliability:— if we are testing for about a specific time in a definite environment and find that our system gives successful attempts more than failure. then we can

Say that our system is reliable, to achieve reliability we have to follow some metrics like Availability, RocoF, PoFoD, MTBF, MTTR.

Correctness: It basically indicates that a system is giving the right output comparing with the requirement or not. It is hard to achieve true correctness of any system.

(3) availability 7,99.6%

$$\text{PoFoD} < 0.05$$

$$\text{RocoF} < 4 \text{ failures per } 36 \text{ our.}$$

$$10 \text{ days} = 10 \times 24 = 240 \text{ hours.}$$

$$\text{no. of Requests} = 18972.$$

$$\text{Total failures} = 26 + 27 + 32 = 85$$

$$\begin{aligned} \text{downtime} &= \text{system crashed} \times 5 \text{ min} \\ &= 32 \times 5 \text{ min} = 160 \text{ min} = 2.67 \text{ hours} \end{aligned}$$

$$\text{Uptime} = (240 - 2.67) \text{ hours.}$$

$$= 237.33 \text{ hours.}$$

$$\text{Availability} = \frac{\text{Uptime}}{\text{total time observed}}$$

$$= \frac{237.33}{240} \times 100\%$$

$$= 98.89\%$$

that is less than 99.6% [not valid]

$$\text{PoFOD} = \frac{\text{failure number of } ~~\text{request}~~}{\text{total number of Requests}}$$

$$= \frac{85}{18972}$$

$$= 0.00448$$

that is less than 0.05 [valid]

$$RocoF = \frac{\text{number of failures}}{\text{total time observed}}$$

$$= \frac{85}{248}$$

$$= 0.35 \text{ failures per hour.}$$

$$\therefore \text{for 36 hours} = (0.35 \times 36) \text{ failures per 36 hours}$$

$$= 12.6 \text{ failures per 36 hours.}$$

that is bigger than 11 failures per 36 hours.
[not valid]

So, only PoFOD is good, Availability and RocoF are not good enough to release the software.