COST OF SOFTWARE FAILURES

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What is Software Failure?

Definition :Deviation of the delivered service from compliance with the specification.

A failure that occurs when the user perceives that the software has ceased to deliver the expected result with respect to the specification input values.

Classification of Failures

Internal Failure : Internal failure costs arise when results of work fail to reach designated standards and are detected before transfer to the customer takes place

External Failure : External failure costs arise when products or substandard products are delivered to customers.

Common causes of Software Failure

- A lack of good design
- confusing /misleading the data
- Obsolete software
- Inconsistent processing/Software environment
- Inability to handle production data capacities
- Inadequate software performance
- Attitudinal changes among programmers
- Cyber Security
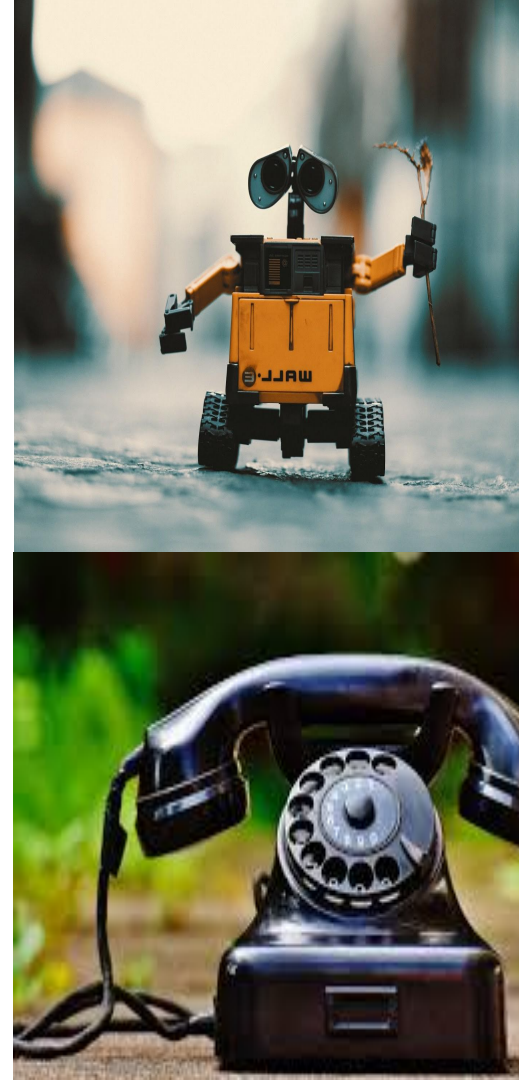
What can Software Failures lead to?

Software failures or incorrect software's requirements can have severe consequences including

➔ Customer dissatisfaction and Bad Reviews
➔ Brand Damage and Bad Press
➔ Losses to Competitors
➔ Loss of financial assets
➔ Security and Hacking risks
➔ and even the loss of human lives.

REAL TIME EXAMPLES

St.Mary's Mercy Hospital

MERCY HEALTH
SAINT MARY'S

- Imagine waking up one day and checking your mailbox letter from a hospital saying you died.
- This had happened to 8500 people who received treatment between Oct 25 to Dec 11 at St. Mary's Mercy Medical Center in Grand Rapids, Michigan
- The hospital had recently upgraded it's patient-management software. A mapping error had occurred which assigned a code 20(means expired) instead of 01(which means discharged)
- This erroneous data was not only sent to patient but also to insurance companies and local social security office.

Toyota

- In the mid 2000's many Toyota drivers were reporting that their cars were accelerated without even touching the pedal which resulted in series of accidents
- Later investigators discovered that software errors were there cause of unintended acceleration
- As a result, Toyota recalled millions of vehicles and Toyota's stock price decreased 20% a month after the cause of the problem was discovered

Failure of Vikram lander in Chandrayaan-2

India's attempt to become the first country to land a robotic mission at the Moon's south pole failed, after engineers lost contact with the Vikram lander — part of the Chandrayaan-2 probe.

In a statement ISRO's Mission Control Centre provided a brief explanation of what went wrong, saying the unmanned landing module's "descent was as planned and normal performance was observed up to an altitude of 2.1 km. Subsequently, communication from Lander to the ground stations was lost."

Conclusion

Some level of software failure will always be with us whether we like it or not as long as software practices and failure rates remain as they are today.As society comes to rely on IT systems that are ever larger, more integrated, and more expensive, the costs of failure may become disastrously high.The real problems, however, lie in software's basic design or rather, its lack of design. During design phase, there should be high-level design and detailed design where each component in the design is properly analyzed and tested to avoid design flaws.

> THE BUG FORCES THE SOFTWARE TO ADAPT, EVOLVE INTO SOMETHING NEW BECAUSE OF IT. WORK AROUND IT OR WORK THROUGH IT. NO MATTER WHAT, IT CHANGES. IT BECOMES SOMETHING NEW. THE NEXT VERSION. THE INEVITABLE UPGRADE.

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THANK YOU