Software quality

What is Software Quality?

- Conformance to requirements:
  - Lack of bugs
    - Low defect rate (# of defects/size unit)
  - High reliability (number of failures per n hours of operation)
    - Measured as mean time to failure (MTTF), i.e., the probability of failure-free operation in a specified time

What is Software Quality?

according to the IEEE:

software quality = (1) the degree to which a system, component, or process meets specified requirements; (2) the degree to which a system, component, or process meets customer or user needs or expectations

Software Quality Assurance

- Verification
  - Are we building the product right?
- Validation
  - Are we building the right product?

Importance of Software Quality

- Software is a major component of computer systems (about 80% of the cost) used for
  - Communication (e.g., phone system, email system)
  - Health monitoring
  - Transportation (e.g., automobile, aeronautics),
  - Economic exchanges (e.g., e-commerce),
  - Entertainment,
  - etc.
- Software defects may be extremely costly in terms of
  - Money
  - Reputation
  - Loss of life

With all the examples that we talked about before.