Citicorp Center Tower

Presented by

Ravi Patel

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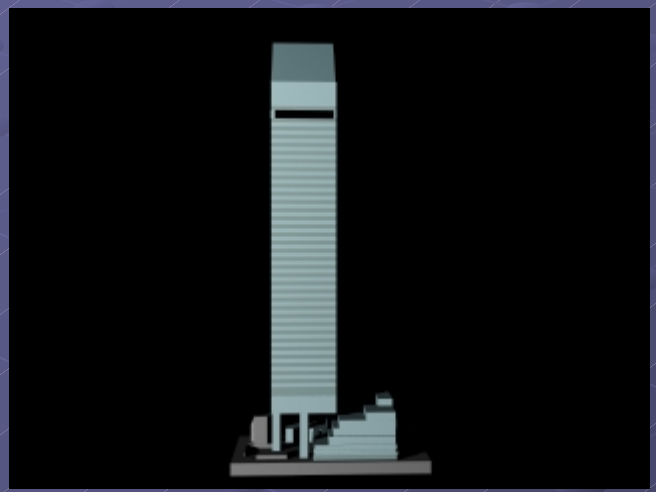
Citicorp Tower

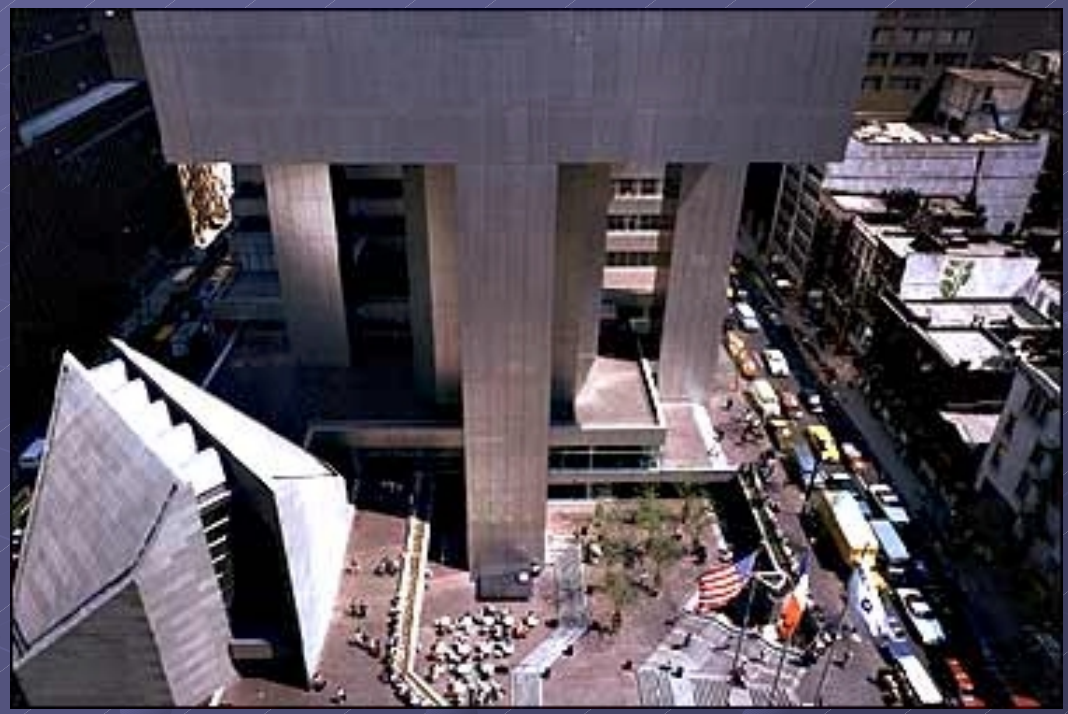


- Built in 1977
- Manhattan, New York
- William LeMessurier, Structural Engineer

Outline

- Technical Issues
- Events that occurred as a result
- Stakeholders and Ethical issues
- Scenario Analysis
- Relation to Software Engineering

Technical Aspects



- Built on 4 nine-storey high stilts
- Supports 25,000 tons of steel
- Tuned Mass Damper

The Events

- June, 1978
  - Phone call from a tentative student
  - Decided to give a lecture on the tower
  - Calculated the wind stress on the tower
  - Situation was identified

The Events

- July 24th,1978
  - Flew to New York to investigate the bolt design
  - Designs only considered perpendicular winds
  - High winds were also not considered

The Events

- July 26th, 1978
  - LeMessurier flew to London, Ontario to meet Alan Davenport
  - After wind tunnel testing they concluded that the situation could be worse that LeMessurier preconceived

The Events

- July 28th, 1978
  - Worked through the wind tunnel numbers
  - Calculated that a sixteen-year storm could result in a catastrophic outcome
  - Evaluated his options
    - Stay silent
    - Commit Suicide
    - Blow the whistle on himself
  - Decided to turn himself in

The Events

- August 1st,1978:
  - Approached his liability insurer
  - Meet with appointed lawyers
- August 2nd,1978:
  - Meet with Executive VP of Citicorp, John S. Reed

The Events

- August 8th,1978:
  - Citicorp puts out a press release
- September 13th,1978:
  - Citicorp served LeMessurier and Hugh Stubbins with a lawsuit for $4.3 million
- October, 1978:
  - Welding completed

Stakeholders

- William LeMessurier
- The owners of Citicorp
- Hugh Stubbins, the architect
- Bethlehem Steel
- Insurance companies
- The possible casualties

Ethical Standards

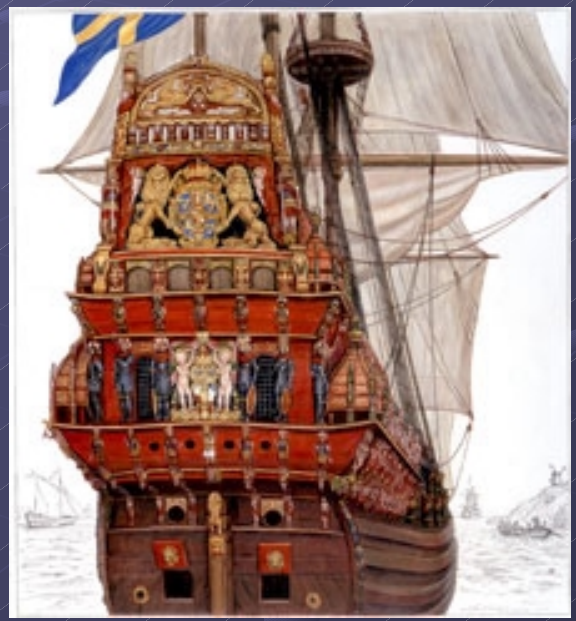
- Engineers shall be honest.
- Engineers shall be loyal to employer or client.
- Engineers shall hold paramount the safety, health and welfare of the public in the performance of professional duties.
- Engineers shall not go public unless necessary; furthermore, they shall issue public statements in an objective and truthful manner.
- Engineers shall disclose conflict of interest beforehand.
- Engineers shall expose risks openly to supervisors.
- Engineers shall obey the law.
- Engineers shall participate in a lifelong learning process regarding the practice of their profession.
- Engineers shall perform services only in areas of competence

What if he stayed silent?

- What would be the consequences?
  - Loose his license
  - Full financial liability
  - Jail time

What if there was insufficient theory?

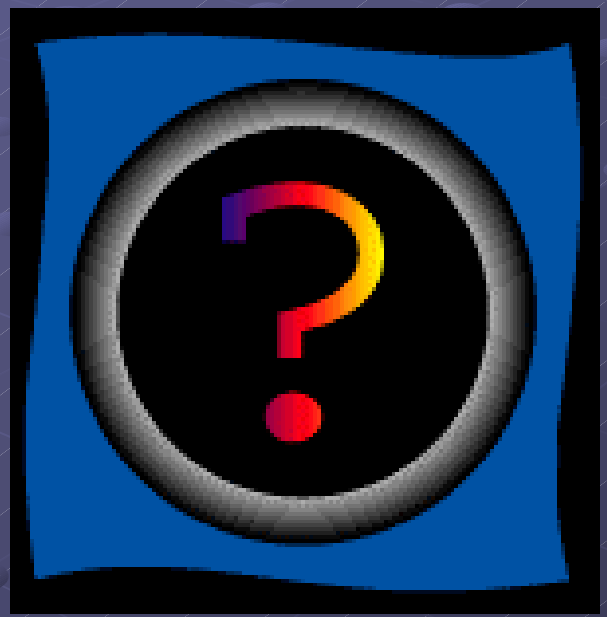
- Vasa Ship Wreck
  - Theory on Stability was nonexistent
  - No recorded punishments
- Society sets expectations



Where does Software Engineering stand?

Conclusion

Questions



Additional Reading

"The Fifty-Nine-Story Crisis"

Joe Morgenstern

The New Yorker, May 25th,1995

"LeMessurier's Confession"

Richard Korman

Engineering News Record, October 30th,1995

"Critics grade Citicorp confession"

Richard Korman

Engineering News Record, November 20th,1995