
Foundations of Computer Science 1

Formale Grundlagen der Informatik I

Dr. Laura Kovács

Course Organization

- Course webpage – **check it weekly** for updates:

www.ifi.uzh.ch/ee/teaching/hs09/form_grund/

- **No course on September 30th!**
 - Online course material: lecture slides and lecture notes.
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Course Literature

■ Recommended:

- Clemens Cap:
„*Theoretische Grundlagen der Informatik*“.
Springer Verlag Wien, 1993.

■ Further Material:

- Michael Sipser:
„*Introduction to the Theory of Computation*“.
Second Edition, Thomson Course Technology, 2005.
 - Glynn Winskel:
„*The Formal Semantics of Programming Languages - An Introduction*“.
MIT Press, 1993.
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Homeworks

- Enroll yourself on the homeworks' webpage:
www.olat.uzh.ch
 - Homework assignments:
 - Starting from September 23rd;
 - Available on each Wednesday 12 o'clock;
→ Due by next Wednesday 10am;
 - Solving online, within 60 minutes time limit;
 - You may try solving 3 times – the last solution counts;
 - 10 points per assignment.
 - There will be a total of 10 homework assignments.
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Homework assistance

- Teacher assistants:

- Viviane Cantaluppi

- viviane@ifi.uzh.ch

- Lukas Scheuner

- lukas.scheuner@access.uzh.ch

Course Grade

- 80 % final exam's grade

+

- 20% homeworks' grade:
 - ← Your **best 8** homeworks will be counted.
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Course Content

- Information Theory

- Boolean Algebra and Propositional Logic
- Predicate Logic
- Trees
- Graphs
- Relations

Data Models

- Program Annotations
- Program Verification
- Algorithmic Complexity

– *computation time (constant, logarithmic, linear, polynomial, exponential, ...)*

Programs

Why bother?

June 4, 1996:

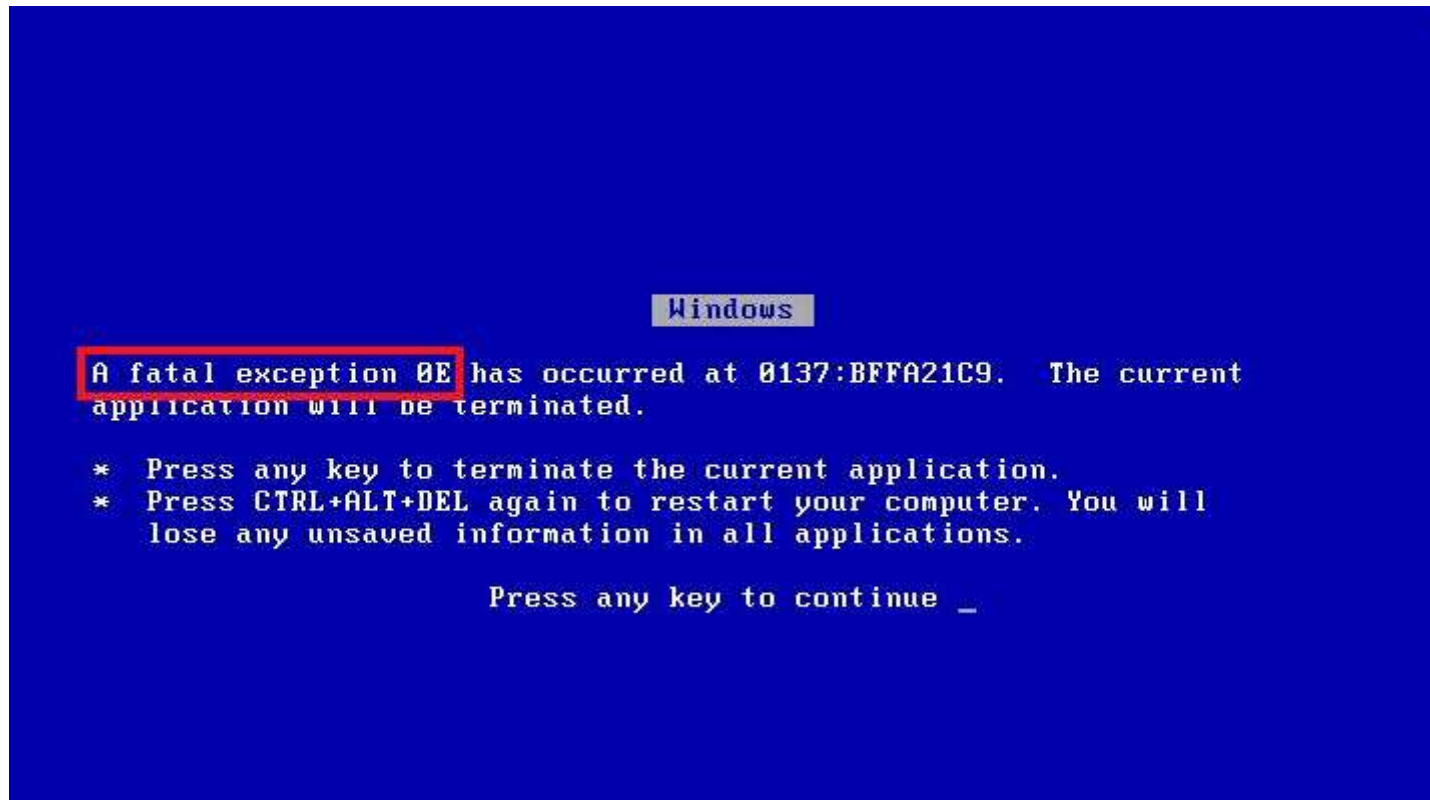
The European Ariane 5 rocket explodes 40 s into its maiden flight due to a **software error**.

A data conversion from 64-bit floating point to 16-bit signed integer value had caused the error.



Why bother?

Software errors might happen on your own PC.



Why bother?

Software errors might happen to your bank ...



January 1-7, 2002.

Ganz ohne Geheimzahl konnten Postbank-Kunden bis Montag mit ihrer Sparcard unbegrenzt Geld abheben. "Wir haben bereits nach wenigen Tagen **den Fehler bei der neuinstallierten Software** bemerkt und korrigiert. Wir wissen nur von einem einzigen Fall in Hamburg, wo der Softwarefehler zufaellig entdeckt wurde. Der Betroffene muss das abgehobene Geld zurueckgeben."

[Sueddeutsche Zeitung]
