



FACULTY  
OF INFORMATICS  
Masaryk University

# Use of Transactions within a Reactive Microservices Environment

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Bc. Martin Štefanko

# Transactions

- all or nothing property
- commit or rollback
- ACID properties
  - Atomicity
  - Consistency
  - Isolation
  - Durability
- XA transaction
- distributed transaction

# Transaction

*Lewis Carroll*

'Twas brillig, and the slithy toves  
Did gyre and gimble in the wabe;  
All mimsy were the borogoves,  
And the mome raths outgrabe.

"Beware the Jabberwock, my son!  
The jaws that bite, the claws that catch!  
Beware the Jubjub bird, and shun  
The frumious Bandersnatch!"



# Lists and locales

*Lorem ipsum dolor sit amet*

- Nulla nec lacinia odio.  
Curabitur urna tellus.
  - Fusce id sodales dolor. Sed  
id metus dui.
    - » Cupio virtus licet mi vel  
feugiat.
- 1. Donec porta, risus porttitor  
egestas scelerisque video.
  - 1.1 Nunc non ante fringilla,  
manus potentis cario.
  - 1.1.1 Pellentesque servus  
morbi tristique.

Nechť již hříšné saxofony d'áblů rozzvučí sín úděsnými tóny waltzu, tanga a quickstepu! Nezvyčajné krdle šťastných figliarskych ďatľov učia pri kótovanom ústí Váhu mlkveho koňa Waldemara obžierať väčšie kusy exkluzívnej kôry. The quick, brown fox jumps over a lazy dog. DJs flock by when MTV ax quiz prog. "Now fax quiz Jack!"

# Text blocks

*In plain, example, and alert flavour*

This text is highlighted.

## A plain block

This is a plain block containing some highlighted text.

## An example block

This is an example block containing some highlighted text.

## An alert block

This is an alert block containing some highlighted text.

# Definitions, theorems, and proofs

*All integers divide zero*

## Definition

$$\forall a, b \in \mathbb{Z} : a \mid b \iff \exists c \in \mathbb{Z} : a \cdot c = b$$

## Theorem

$$\forall a \in \mathbb{Z} : a \mid 0$$

## Proof

$$\forall a \in \mathbb{Z} : a \cdot 0 = 0$$

□

# Numerals and Mathematics

*Formulae, equations, and expressions*

$$1234567890 \ 1234567890 \ \hat{x}, \check{x}, \tilde{a}, \bar{a}, \dot{y}, \ddot{y} \ \iint f(x, y, z) dx dy dz$$

$$\frac{1}{1 + \frac{1}{2 + \frac{1}{3+x}}} + \frac{1}{1 + \frac{1}{2 + \frac{1}{3+x}}} \quad F : \begin{vmatrix} F''_{xx} & F''_{xy} & F'_x \\ F''_{yx} & F''_{yy} & F'_y \\ F'_x & F'_y & 0 \end{vmatrix} = 0$$

$$\iint_{x \in \mathbb{R}^2} \langle x, y \rangle dx \quad \overline{a\alpha^2 + b\beta + d\delta} \quad ]0, 1[ + \lceil x \rceil - \langle x, y \rangle$$

$$\begin{aligned} e^x \approx & 1 + x + x^2/2! + \\ & + x^3/3! + x^4/4! \end{aligned} \quad \binom{n+1}{k} = \binom{n}{k} + \binom{n}{k-1}$$

# Figures

*Tables, graphs, and images*

Faculty	With $\text{\TeX}$	Total	%
Faculty of Informatics	1 716	2 904	59.09
Faculty of Science	786	5 275	14.90
Faculty of Economics and Administration	64	4 591	1.39
Faculty of Arts	69	10 000	0.69
Faculty of Medicine	8	2 014	0.40
Faculty of Law	15	4 824	0.31
Faculty of Education	19	8 219	0.23
Faculty of Social Studies	12	5 599	0.21
Faculty of Sports Studies	3	2 062	0.15

Table: The distribution of theses written using  $\text{\TeX}$  during 2010–15 at MU

# Figures

Tables, graphs, and images

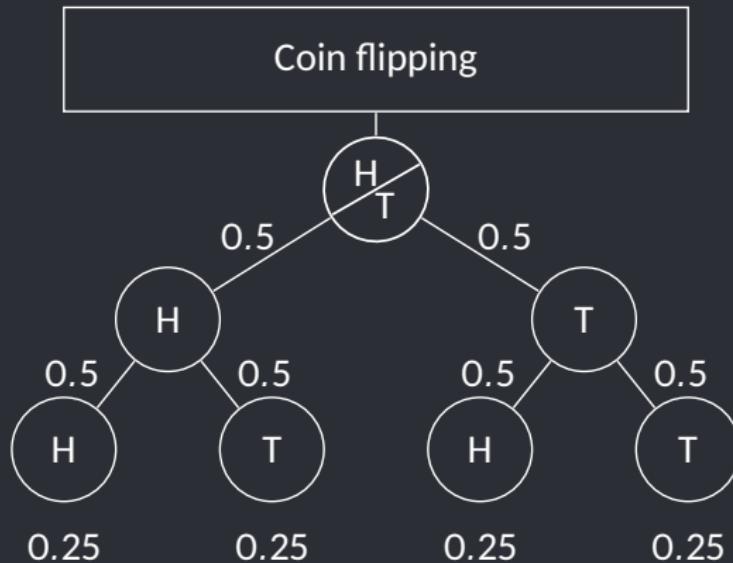


Figure: Tree of probabilities – Flipping a coin<sup>1</sup>

<sup>1</sup>A derivative of a diagram from [texample.net](#) by cis, CC BY 2.5 licensed

# Code listings

An example source code in C

```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

// This is a comment
int main(int argc, char **argv)
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    while (--c > 1 && !fork());
    sleep(c = atoi(v[c]));
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# Citations

## $\text{\TeX}$ , $\text{\LaTeX}$ , and Beamer

$\text{\TeX}$  is a programming language for the typesetting of documents. It was created by Donald Erwin Knuth in the late 1970s and it is documented in *The  $\text{\TeX}book$*  [1].

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# Bibliography

## *T<sub>E</sub>X, L<sub>A</sub>T<sub>E</sub>X, and Beamer*

- [1] Donald E. Knuth. *The T<sub>E</sub>Xbook*. Addison-Wesley, 1984.
- [2] Leslie Lamport. *L<sub>A</sub>T<sub>E</sub>X: A Document Preparation System*. Addison-Wesley, 1986.
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- [4] Till Tantau. *User's Guide to the Beamer Class Version 3.01*. Available at <http://latex-beamer.sourceforge.net>.
- [5] A. Mertz and W. Slough. Edited by B. Beeton and K. Berry. *Beamer by example* In *TUGboat*, Vol. 26, No. 1., pp. 68-73.

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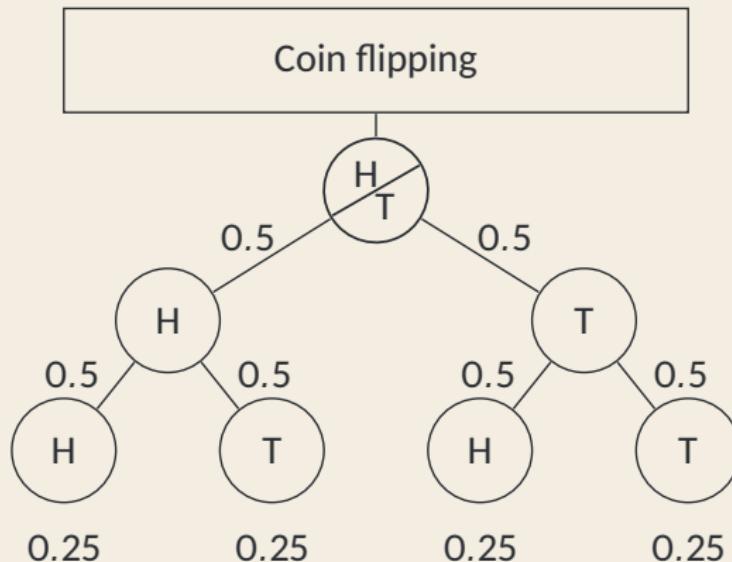


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