Data Handling: Import, Cleaning and Visualisation

Wrap up, Q&A, Exam info, Feedback

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17/12/2020

Updates

Decentral exam

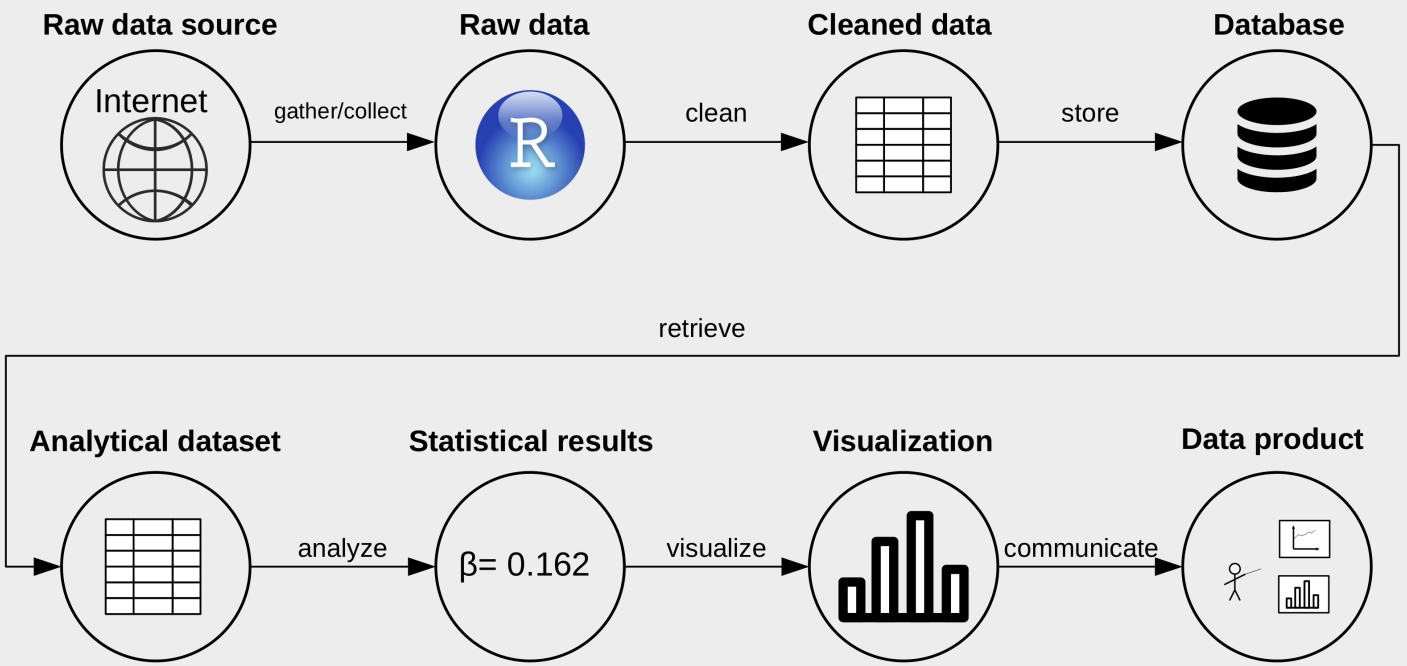
- Friday, 18 December
  - Decentral exam for **exchange students**!
  - See Canvas for details on **place/time**!
  - Bring your **student ID**!

Plan for today

1. Wrap up
2. Mock Exam/Exam Info
3. Q&A: Review of binary/hexadecimal system
4. Course Evaluation
5. Suggested Improvements
6. Final Remarks
7. Happy Holidays!🎄

Wrap up

Data (science) pipeline



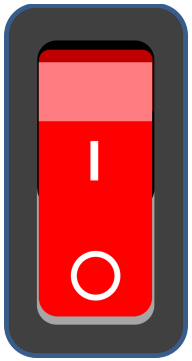
Mock Exam

Q&A

Review of binary/hexadecimal system

Microprocessors can only represent two signs (states):

- ‘Off’ = `0`
- ‘On’ = `1`



The binary counting frame

- Only two signs: `0`, `1`.
- Base 2.
- Columns: $2^0 = 1$, $2^1 = 2$, $2^2 = 4$, and so forth.

Conversion between binary/decimal

- Draw a binary counting frame/table
- Columns from right to left: $2^0 = 1$, $2^1 = 2$, $2^2 = 4$, and so forth.
- Fill in the respective binary values (`0` or `1`) in each column.
  - Binary to decimal: simply fill in the values starting with the right-most column/digit.
  - Decimal to binary: select largest column value that is smaller than (or equal to) the decimal number. Then fill up the remaining columns.
- (Same approach for hexadecimal/decimal etc.)

Example: Conversion from binary to decimal

- What is `1101` in decimal?

2^n	...	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
2^n	...	128	64	32	16	8	4	2	1

Example: Conversion from binary to decimal

- What is `1101` in decimal?

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- What is `1101` in decimal?

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						1	1	0	1

Example: Conversion from binary to decimal

- What is `1101` in decimal?

2^n	...	128	64	32	16	8	4	2	1
						1	1	0	1

- Solution:

$$(1 \times 8) + (1 \times 4) + (0 \times 2) + (1 \times 1) = 13.$$

Example: Conversion from decimal to binary

What is the decimal number 139 in binary?

Example: Conversion from decimal to binary

What is the decimal number 139 in binary?

- Solution:

$$(1 \times 2^7) + (1 \times 2^3) + (1 \times 2^1) + (1 \times 2^0) = 139.$$

Example: Conversion from decimal to binary

What is the decimal number 139 in binary?

- Solution:

$$(1 \times 2^7) + (1 \times 2^3) + (1 \times 2^1) + (1 \times 2^0) = 139.$$

- More precisely:

$$(1 \times 2^7) + (0 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (1 \times 2^3)$$
$$+ (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) = 139.$$

- That is, the number `139` in the decimal system corresponds to `10001011` in the binary system.

The hexadecimal system

- **16 symbols**:
  - `0`-`9` (used like in the decimal system)…
  - and `A`-`F` (for the numbers 10 to 15).
- **16 symbols >>> base 16**: each digit represents an increasing power of 16 (16^0, 16^1, etc.).

The hexadecimal system

What is the decimal number 139 expressed in the hexadecimal system?

- Solution:

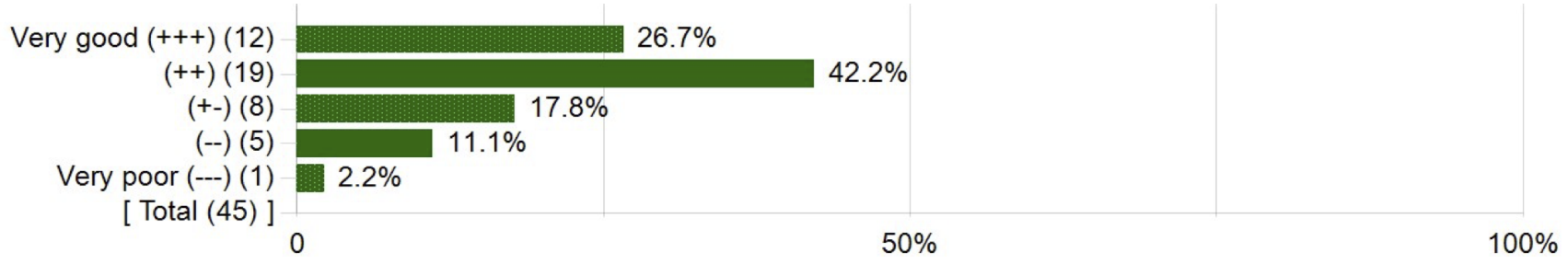
$$(8 \times 16^1) + (11 \times 16^0) = 139.$$

Course Evaluation

Course Evaluation: Summary

Overall Evaluation

How would you evaluate this course overall?



Statistics	Value
Mean	2.20
Standard Deviation	1.04

Course Evaluation: Open Feedback

Thanks a lot!

Positive Points

- Lecture notes/lecture materials
- Practical examples during lectures/exercises

Negative Points/Room for Improvement

- Why multiple choice examination and not students project?
- Exercises format (more, smaller groups, rooms)
- Lecture slides

Course Evaluation: Open Feedback

“Which aspects of this course should be changed so that future students can profit more from it?”

- Tutorial sessions 👍
- More ex(smaller) ercise sessions 👍
- Still ‘elective course format’ (not ‘mandatory course format’) 👍
- Assignments that count towards the grade 👍

Course Evaluation: Open Feedback

“Which aspects of this course should be changed so that future students can profit more from it?”

- Tutorial sessions 👍
- More (smaller) exercise sessions 👍
- Still ‘elective course format’ (not ‘mandatory course format’) 👍
- Assignments that count towards the grade 👍
- Challenge: Resources! 🎃

Course Evaluation: Open Feedback

“Which aspects of this course should be changed so that future students can profit more from it?”

- More basics, less topics
- More topics
- Challenge: Very heterogenous group (mandatory course) 🎃

Course Evaluation: Food for thought

- Expectations regarding specific evaluation criteria.
- Goals of the lecture
- Exam preparation
- Exercises vs exercises that are graded
- Responsibilities of lecturers and students

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- Goals of the lecture
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- Exercises vs exercises that are graded
- Responsibilities of lecturers and students
- Problematic incentives for the lecturer (at least if (s)he is an economist…).
  🎃

Course Evaluation: Food for thought

- Ask yourself early on what **you** can do to improve the situation!
- Do not forget to think for yourself!

My Feedback to You

- By and large attentive, focused (still room for improvement)
- Good questions

My Feedback to You

- Exploit learning by doing!
- Engage more in class!
- Think about what YOU can do to deal with the fact that this is a large lecture!

Improvements

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- **Course structure**
  - Each slide set/lecture note will at the beginning explicitly mention the learning goals.
  - Online tutorials
  - Split exercises/exercise sessions into ‘more comfortable’/‘less comfortable’

Improvements

- **Infrastructure**
  - (Cloud solution for exercises)
- **Examination**
  - (Examination: Written Exam (80%), Group project (20%))

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Final Remarks

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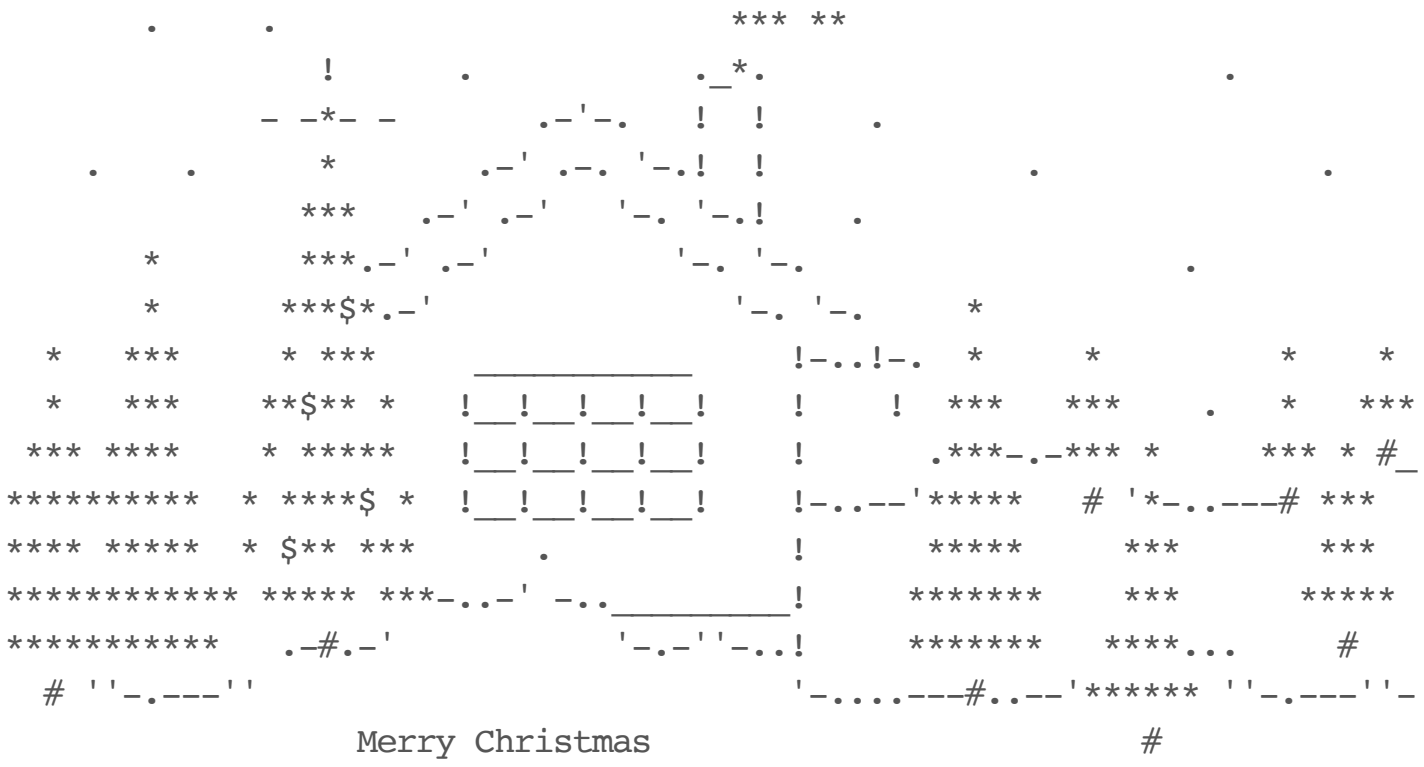
  - Connect by pointing to this course.
- All the best for your exams! 👍
- All the best for your studies and careers, **and finally, of course, …**


Merry Christmas