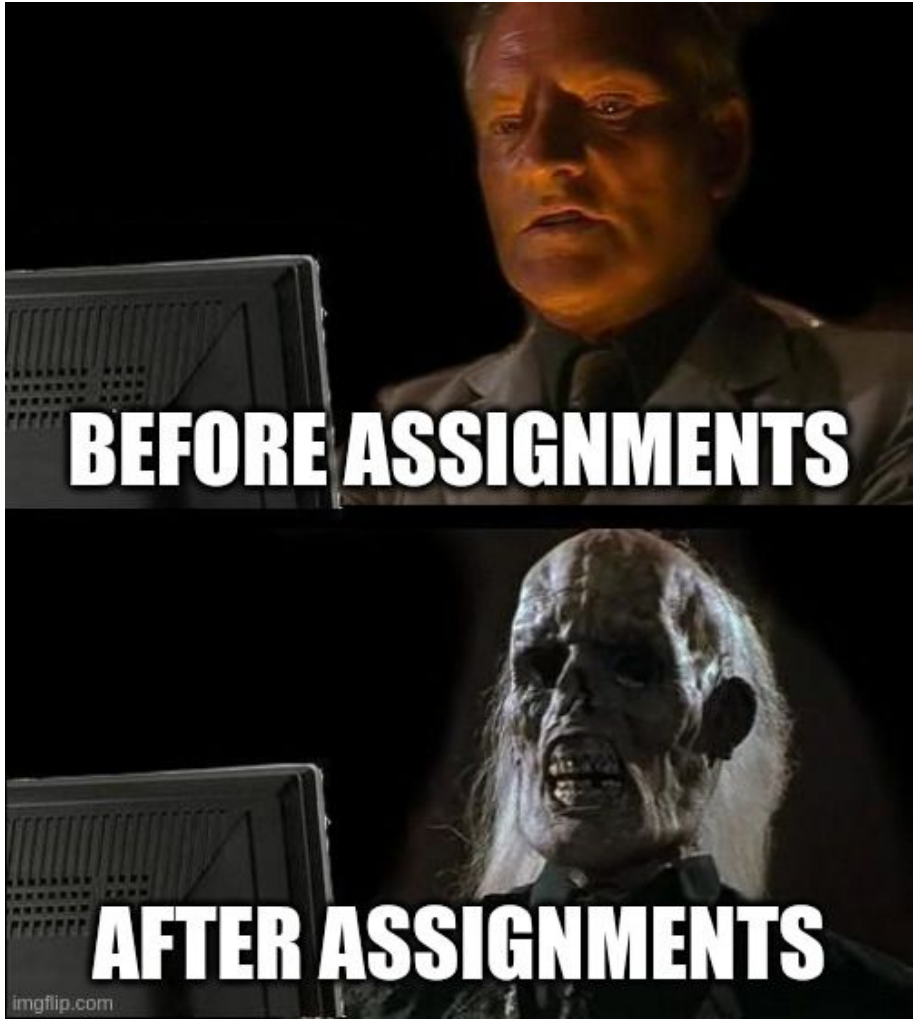
6. Assignments review

Computational Music Creativity


BEFORE ASSIGNMENTS
AFTER ASSIGNMENTS
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What’s ahead

1. Assignment 1 - Genetic Algo (35’)
2. Assignment 2 - Markov Chain (35’)
3. Assignment 3 - LSTM (35’)
4. Assignment 4 - Transformer (35’)

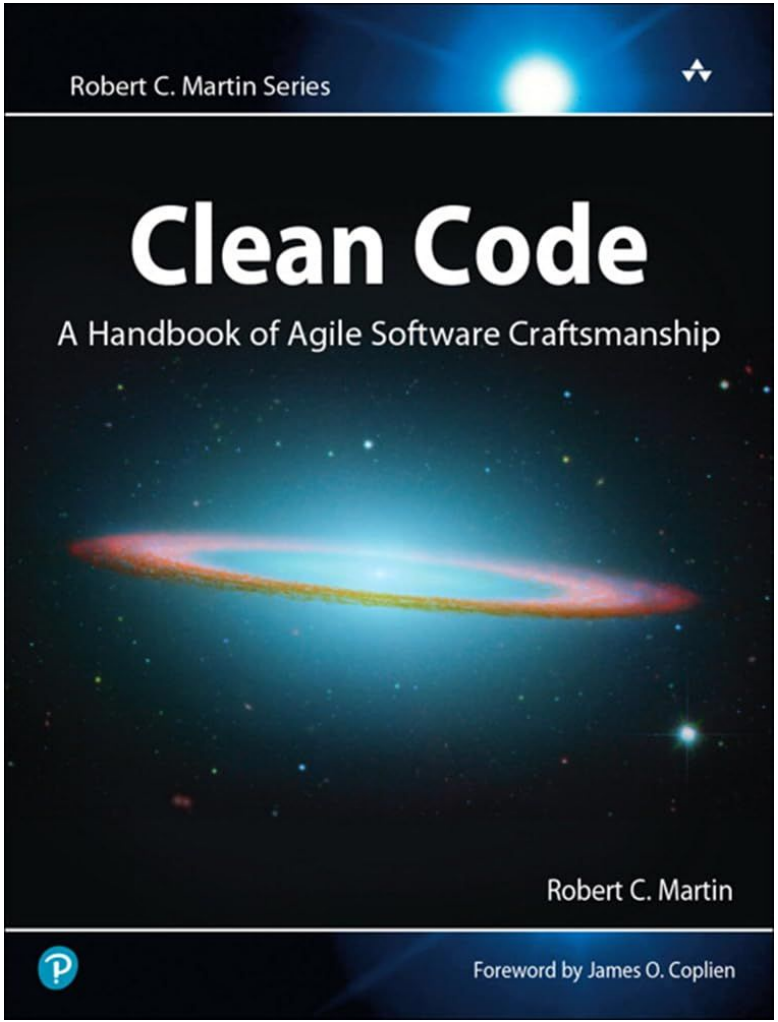
You

today

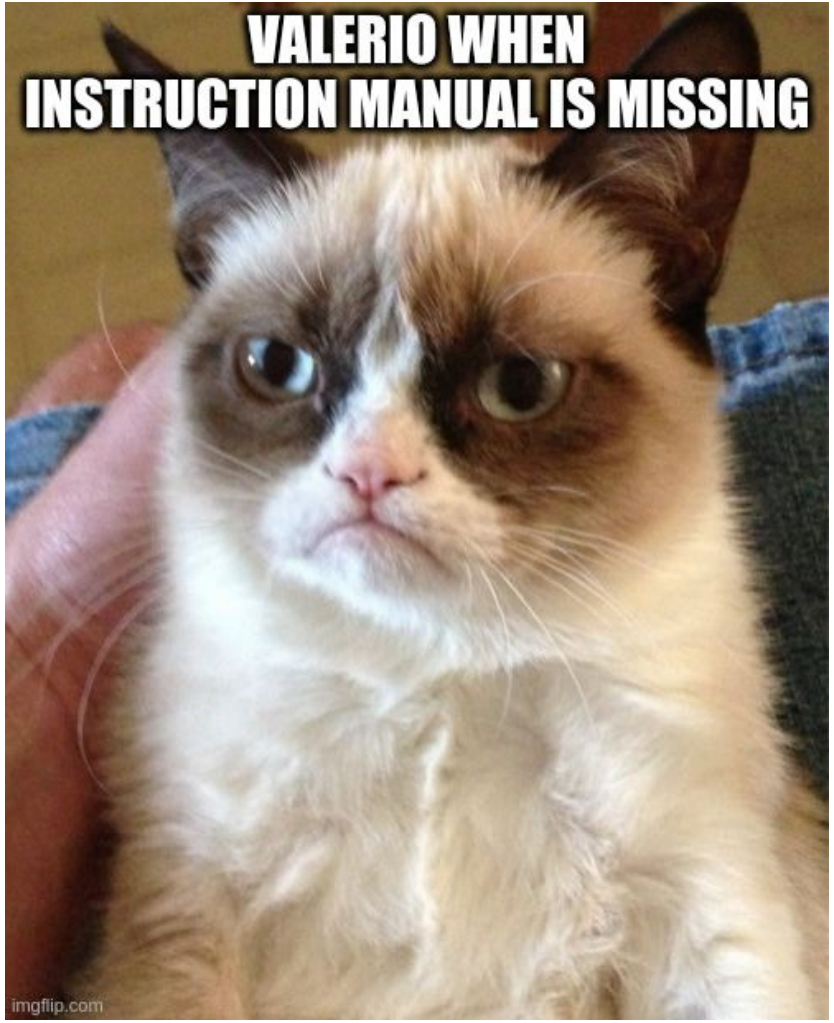
Code show and tell

- 1 team per assignment
- Describe code (high level -> low level)
- Explain decisions
- No fluff
- Coincise

What will Valerio do today?


Robert C. Martin Series
Clean Code
A Handbook of Agile Software Craftsmanship
Robert C. Martin
Foreword by James O. Coplien

IKEA
IKEA


VALERIO WHEN
INSTRUCTION MANUAL IS MISSING
imgflip.com

- README.md
  - how to install
  - how to run
  - explain design / what you did
- requirements.txt

1. Genetic Jazz Harmonizer

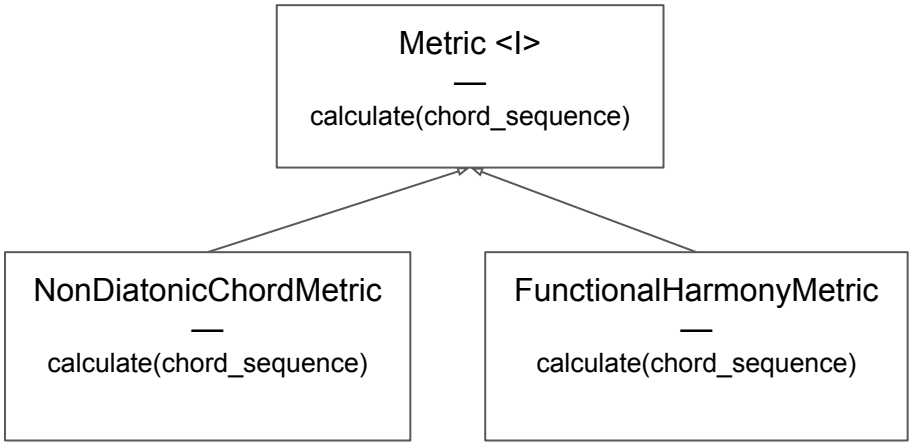
instructions

Mi Gen Noche

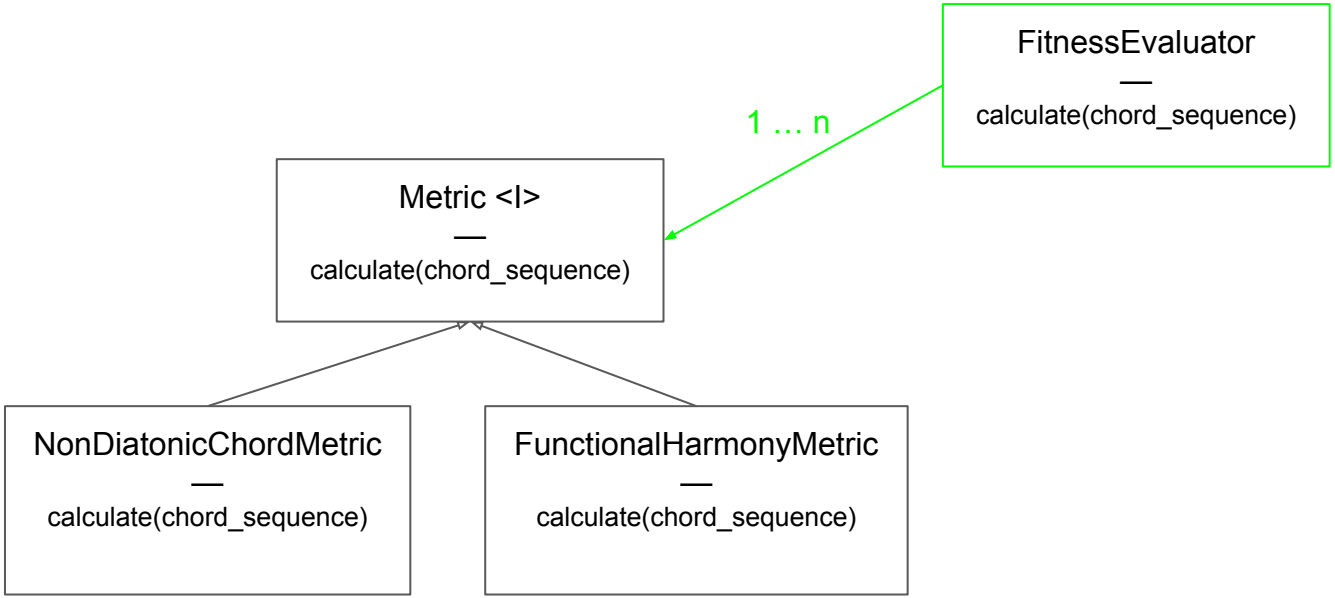
Why does *FitnessEvaluator* violate Open-Closed Principle?

How would you improve the class design to respect OCP?

FitnessEvaluator re-design



FitnessEvaluator re-design



2. 2nd Order Markov Chains

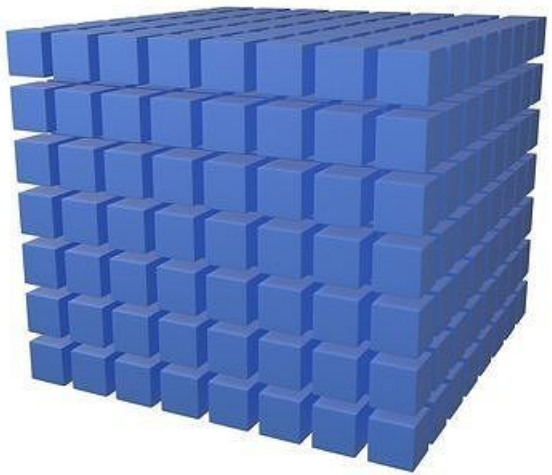
instructions

Beyond Gravity

2nd order transition matrix: Flattening

(previous, current)	next			

2nd order transition matrix: 3d tensor



transition = (previous, current, next)

3. Rock your LSTM

instructions

TheOneAndTanguy

4. Transform my Melody

instructions

Decode this tune in abc notation.

Why abc notation?

- Simple and compact
- Quite expressive
- Great for monophonic / folk
- 20% of models I trained used abc

When not to use abc notation

- Complex music (e.g. nested polyphony)
- Dynamics / articulation control
- Complex orchestration

AI ENGINEER
DEALING WITH
COMPLEX SYMBOLIC MUSIC
MUSICXML
ABC
imgflip.com

Libraries for abc notation

- music21
- abcMIDI

Kick-ass gen mus Python library

muspy

chilaquiles

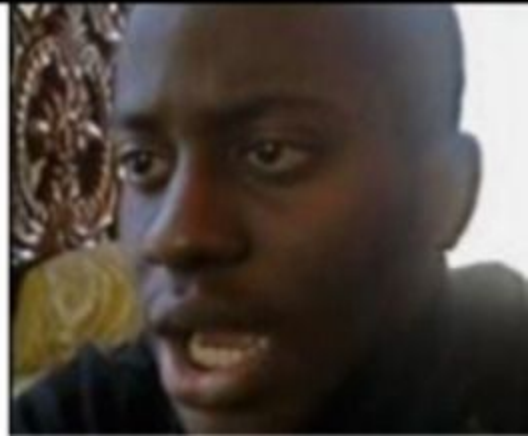
You have until Sunday 2nd at midnight to push README + requirements

… and to clean your code

… and to add a link to the 2-minute video of your paper implementation

NO INSTRUCTIONS

FAIL



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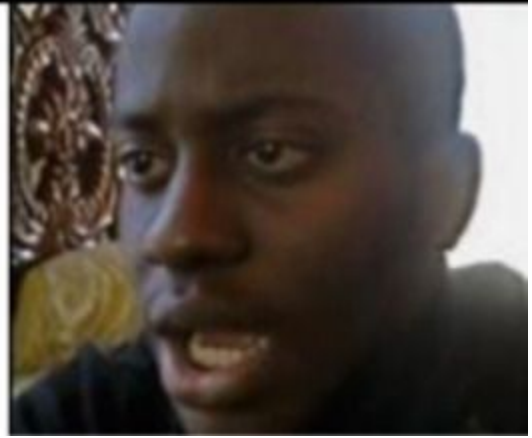
CODE DOESN'T
RUN WITH
A SIMPLE COMMAND

FAIL



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YOU CAN'T LOWER THE MARKS FOR OUR FINAL PROJECT JUST BECAUSE THE CODE ISN'T CLEAN.
I CAN
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Swapping next two classes

- Tuesday: *Generative music system planning*
- Wednesday: *Paper implementation*

WED CLASS WILL
BE 9:30-11:30AM
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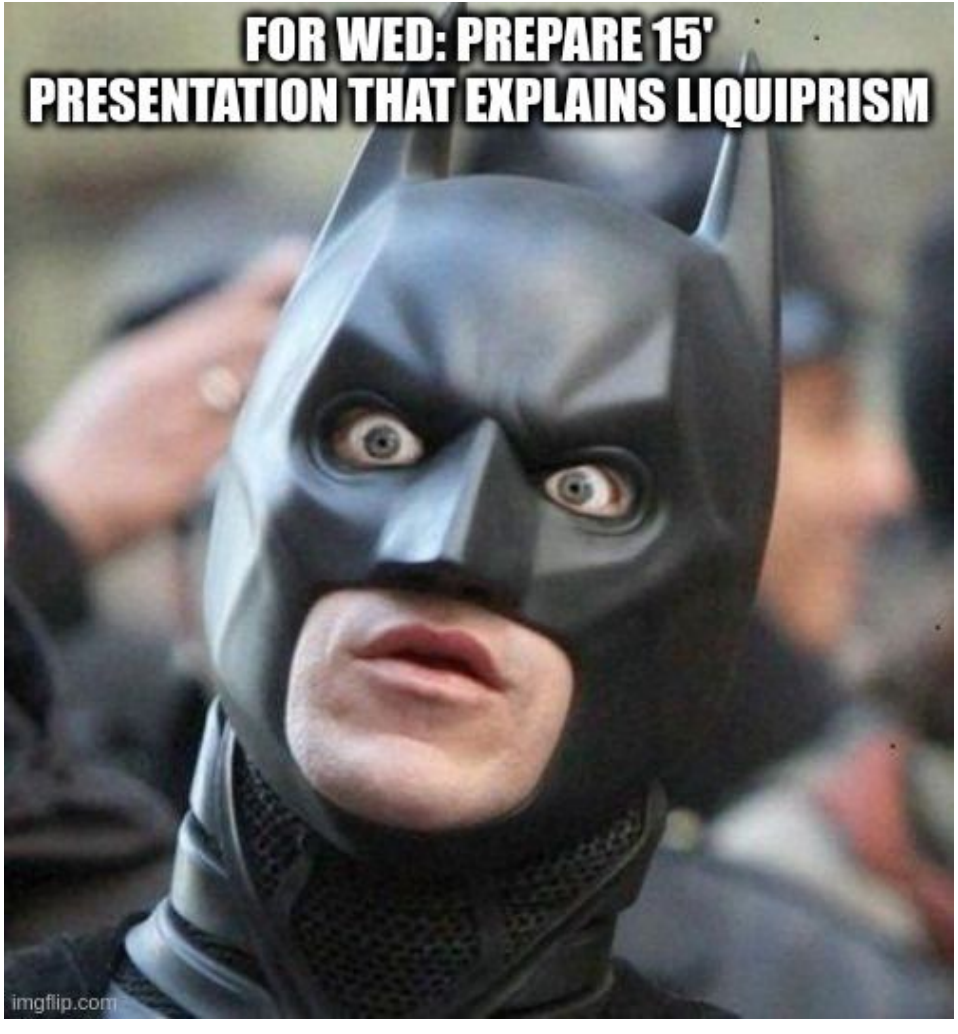
FOR WED: PREPARE 15'
PRESENTATION THAT EXPLAINS LIQUIPRISM
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