



# ProjectWork: Some final words and some coaching

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# Take home (1)

**Business  
case,  
hands-on  
approach**



Segmenting the customer base

Building a Knowledge-based Recommendation System, Estimating CTRs/CRs and personalizing content/digital marketing using Bayesian techniques

Replicating/unveiling investment strategies

Doing Risk Management - Early Warning Systems

**Key  
methods**

Clustering and dimensionality reduction

Classifiers

Anomaly detection (Supervised/Unsupervised)

Regression models

Bayesian density estimation

# Take Home (2)

Working in a team = this is what happens in real life

Typical deliverables:

- Poster (session) = typical presentation of a young researcher at a conference
- Pitch = typical presentation of a State of Progress of a project or a product in a company

# Your goal

A working model:

- Solving a business problem
- Inspired by the data I have left you
- Somewhat documented and explained (presentation)



It is what happens in a company specializing in Data Analytics when starting a new product development or tackling a project from a customer





# Structure

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- Short presentation
- Code (very readable)
- Optional
  - Any short Appendix/short paper
  - Imagine a web/mobile app
  - ...

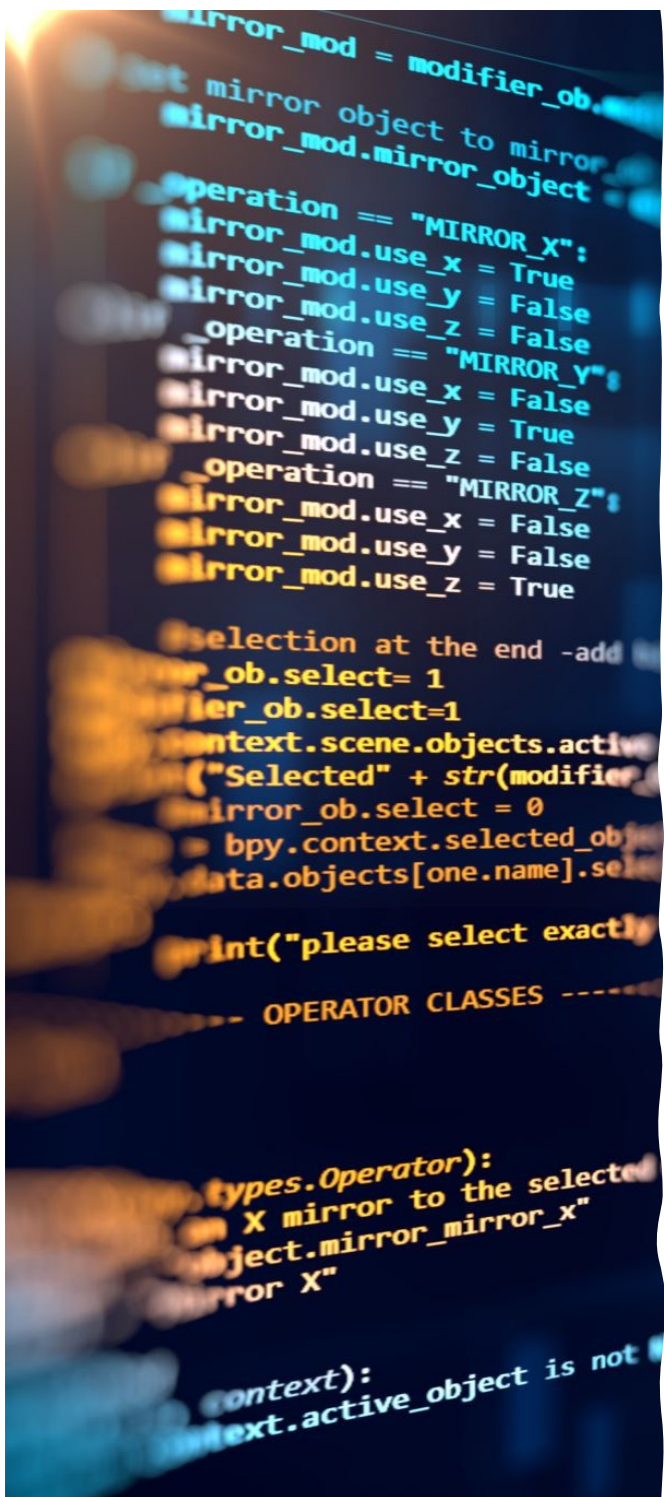
# About the presentation

Short: 12-20 slides

You will NOT pitch, you will just send it to me

Straight to the point:

- **WHAT:** What have you done
- **WHY:** What problem solves
- **HOW** - How you did it
- **KEY ASPECTS:** Any key aspects to underline, both of business and method
- **KEY RESULTS:** What results you got (they don't have to be exceptional, in Data Science you get both good and bad results, the important thing is the process)
- **OPTIONAL:**
  - Key references
  - Appendix



# Code

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- You can use Python, Matlab, R, and you can mix & match
- Use a notebook (ie Colab, JupyterLab, etc in Python, Live Editor in Matlab, ...)
- Well commented, very readable
- Representing the ML pipeline (Data Retrieval/Data Exploration/Modeling/etc etc)
- Clean:
  - Only the key steps, not the various abortive attempts, skilful use of graphics (with legends, labels, etc)
  - ... must be easily understood
- Provide instructions for use in a ReadMe file if you have multiple files that interact (e.g. a "main" + accessory files)

# About the pipeline: key steps I want to see, explained

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Data ingestion

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Data preparation: cleaning, exploration, transformation and feature selection/engineering

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Data Segregation: split subsets of data in train validation/cross-validation, and test

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Training and validation: assess the performance of the model(s) using the proper subset of data, pick the right metric(s), and understand how accurate the prediction is

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Deliverable: a tested, working model ready for deployment (...which is totally another story)



# Supplementary material (optional)

- **Short paper or Extended abstract**
  - <https://medium.com/@JerryPBlack/how-to-write-an-extended-abstract-09243dfd588b>
- **Sketch of an application:**
  - <https://miro.com>
  - <https://whimsical.com>
- **Creating a simple application or dashboard**
  - <https://shiny.posit.co/py/>
  - <https://streamlit.io>
  - <https://www.gradio.app>
  - <https://dash.plotly.com/minimal-app>
  - <https://voila.readthedocs.io/en/stable/index.html>
  - <https://panel.holoviz.org/>



What data  
should I  
use and  
what  
business  
cases  
should I  
address?

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Choose the business case  
that interests you most

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The data is the one you used  
in class - do not use other  
datasets

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You can also combine  
methods from multiple  
datasets (melting pot = Good)

# Deadlines



<b>Exam date</b>	<b>When you have to deliver the material</b>
June 4th	June 3rd
June 25th	June 24th



Recap

### Core deliverables

- Presentation: pdf format
- Code: Python/Matlab/R
- Please **send everything to:**  
[raffaele.zenti@wealthype.it](mailto:raffaele.zenti@wealthype.it)
- (CC Prof. Marazzina, and all your team members)