APPLYING DATA ANALYSIS TO PROVIDE EFFICIENT AND EFFECTIVE RECOMMENDATION SYSTEMS FOR E-COMMERCE

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Motivation of the Work

- The food industry is a complex, global collective of diverse businesses that supplies most of the food consumed by the world population.
- Today, the food industry has become highly diversified. As they have a large influence on consumerism. It is therefore challenging to find an inclusive way to cover all aspects of food sale to increase the loading of information in the e-commerce sector.
- Since online user's preferences are always changing, it is essential to adapt to the rapidly changes in the Web.
- One of the most important challenges is to apply the recommendation systems to industries such as e-commerce.

Food industry analysis: like ingredients, allergic information, health information, etc.

Extract Useful Information.

Mapping Information.

Extend Original Information.

Identify useful information for specific groups of consumers (athletes, diseases, food intolerance and/or allergies).

Infer different useful information for consumers and Discover new categories.

Thesis Objectives

Identifying an appropriate data structure for the different amount of information linked to commercial products (especially in the food industry).

Identifying and defining suitable algorithms that works with this information to infer new knowledge about the products in the market.

Designing a product recommender system to support both e-commerce agents and consumers in new efficient strategies for selling (for the former) and in taking decisions about products (for the latter).

Extending the methodology to other e-commerce fields, like cosmetics or pet care industry.

Research Plan

2017-2018
- State-of-the-art analysis. The research will assess the different proposals and approaches in the specialized literature to face similar technical problems and to account all challenges and limitations.
- Analyze the datasets provided by the food industry sector in order to design an appropriate data structure that allows its analysis.
- The part of the results.

2018-2020
- Define a set of algorithms (data analysis layer) able to infer new knowledge from the information linked to the products to be sold.
- Design a recommender system that uses the data analysis layer to support both retailers and consumers in the e-commerce experience.

2019-2021
- Evaluate the performance of the developed system. Firstly, analyzing the different algorithms and then analyzing the whole recommender system.
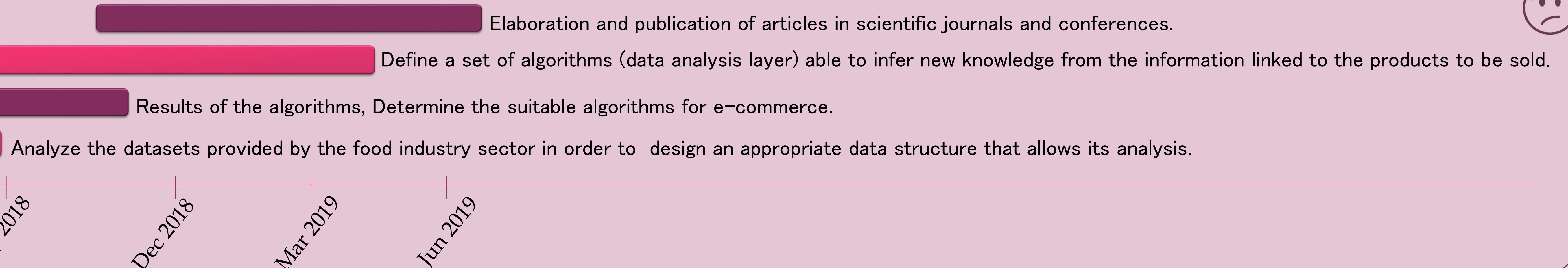
2021-2022
- Preparing the documents required for the PhD defense, according to the time and manner established by the Academic Committee of the Doctoral Program.

Elaboration and publication of articles in scientific journals and conferences.

PLAN

Next Year Planning

Elaboration and publication of articles in scientific journals and conferences.

Define a set of algorithms (data analysis layer) able to infer new knowledge from the information linked to the products to be sold.

Results of the algorithms, Determine the suitable algorithms for e-commerce.

Analyze the datasets provided by the food industry sector in order to design an appropriate data structure that allows its analysis.

Jun 2018 | Sep 2018 | Dec 2018 | Mar 2019 | Jun 2019

References

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2. Gupta, Shalini, and Veer Sain Dixit. "Scalable online product recommendation engine based on implicit feature extraction domain." *Journal of Intelligent & Fuzzy Systems* 34, no. 3 (2018): 1503–1510.
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4. Li, Jin, and Lingjing Zhan. "Online persuasion: How the written word drives WOM: Evidence from consumer-generated product reviews." *Journal of Advertising Research* 51, no. 1 (2011): 239–257.

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