

Explainable feature selection in Self-Service BI with Ontology-based Recommender Systems

Sarah PINON, Isabelle LINDEN, Corentin BURNAY

Recommender Systems

Recommendation Systems (RS) aim to help people cope with **information overload** by **recommending** products/services **tailored** to their profile.

Main Traditional Recommender Systems:

1. *Collaborative Filtering RS* – Recommend items that have been positively **rated** by users who have similarly rated the same items as the user of interest.
2. *Content-based Filtering RS* – Recommend items that have similarities with items that the user has already **rated** positively.

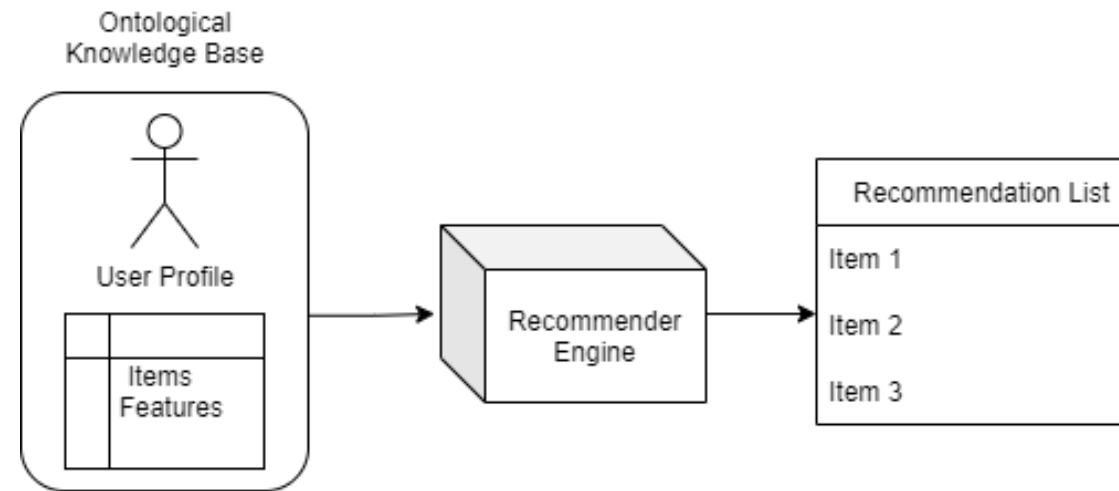
➔ Traditional Recommender systems are mainly based on the rating of items by users. One of the main challenges of Recommender Systems lies in the trust that users have in the recommendations provided.

Ontology-based Recommender Systems

Ontology-based Recommender Systems (OBRS) can **improve user trust** by providing **explainable recommendations**.

OBRS Architecture:

- **Ontological Knowledge Base (OKB)** – the set of representative concepts of the domain and their relationships. This Ontology is then populated by associating instances to concepts.
- **Recommender Engine** – either computes semantic similarities between the instances of the OKB, or applies an additional part of the OKB composed of rules defining the mapping between the user requirements and the items features.



➔ The exploration of semantic relations by the recommender engine allows **to easily provide an explanation on the recommendations**.

The context of BI & Self-Service BI

BI is one of the most important Data-Driven Decision Support System used in companies. In BI, there two types of users:

- *IT experts*: set up and run BI systems
- *Business Users*: use final BI reports to support their business decision




Increasingly dynamic environment
facing current companies

Self-Service BI is a variant of BI whose objective is to increase the reactivity of companies. To do this, Self-Service BI platforms allow business people to transform data into information to create their reports without the help of IT experts.

Self-Service BI & OBRS

Current Self-Service BI tools are **accessible to only 22% of business people**. These users face many **challenges** during their use, such as selecting the right data columns and choosing the right data analysis for their needs.



OBRS are adapted to help business users make these choices along the BI process.

- Thanks to the OBRS knowledge base, all the requirements and needs of the business user can be considered in the system.
- The recommendation engine will be able, by browsing the semantic relations of the knowledge base, to easily justify and explain the recommendation provided to the user.

Thanks for your attention !

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System Architecture

