



## Cold Start Problem

- Inability to address the system's new products or users.
- If an item or user is not seen during the training, the system cannot create an embedding for it and cannot query the model with this item.

# Types of Cold Start Problem

1. **New community:** no users are present and the lack of user interaction makes it very hard to provide reliable recommendations
2. **New item:** a new item is added to the system, it might have some content information but no interactions are present
3. **New user:** a new user registers and has not provided any interaction yet, therefore it is not possible to provide personalized recommendations



## **Solution to The Cold Start Problem**

- Profile Completion
- Content-Based Filtering
- Spark ALS