

# Conversational Data Exploration

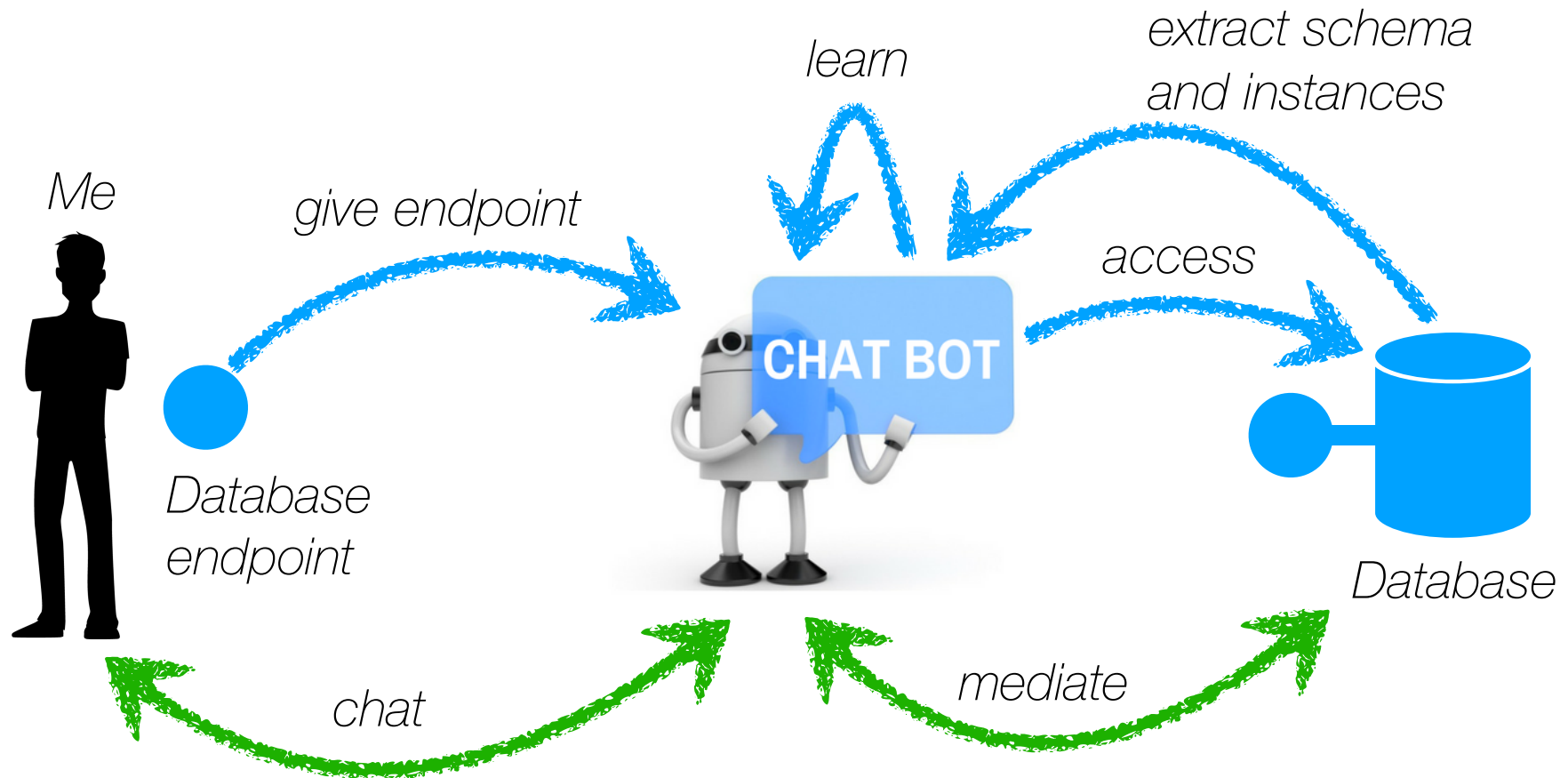
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**POLITECNICO**  
MILANO 1863

DIPARTIMENTO DI ELETTRONICA  
INFORMAZIONE E BIOINGEGNERIA

Goal = a framework for the fast development of  
**data exploration chatbots**





Very first **prototype**  
in action

# Requirements

Support **generic** data exploration vocabulary and actions

Extract and learn **database-specific vocabulary**

Extract and learn **database-specific actions**

Enable user to **iteratively** explore database

Allow user to **manipulate** query results

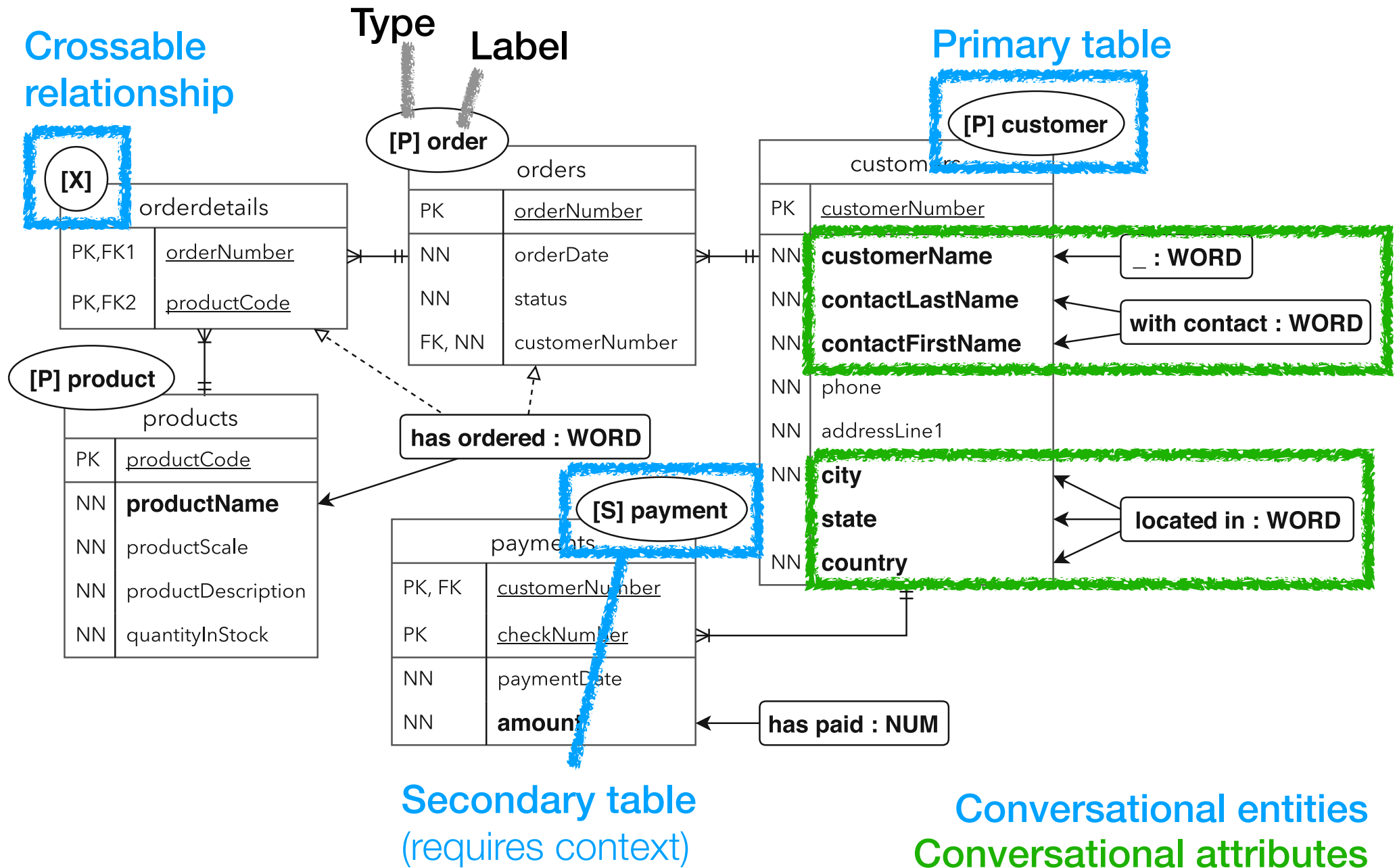
**>> Challenges**      Learn data exploration intents from schema

Translate intents into SQL queries

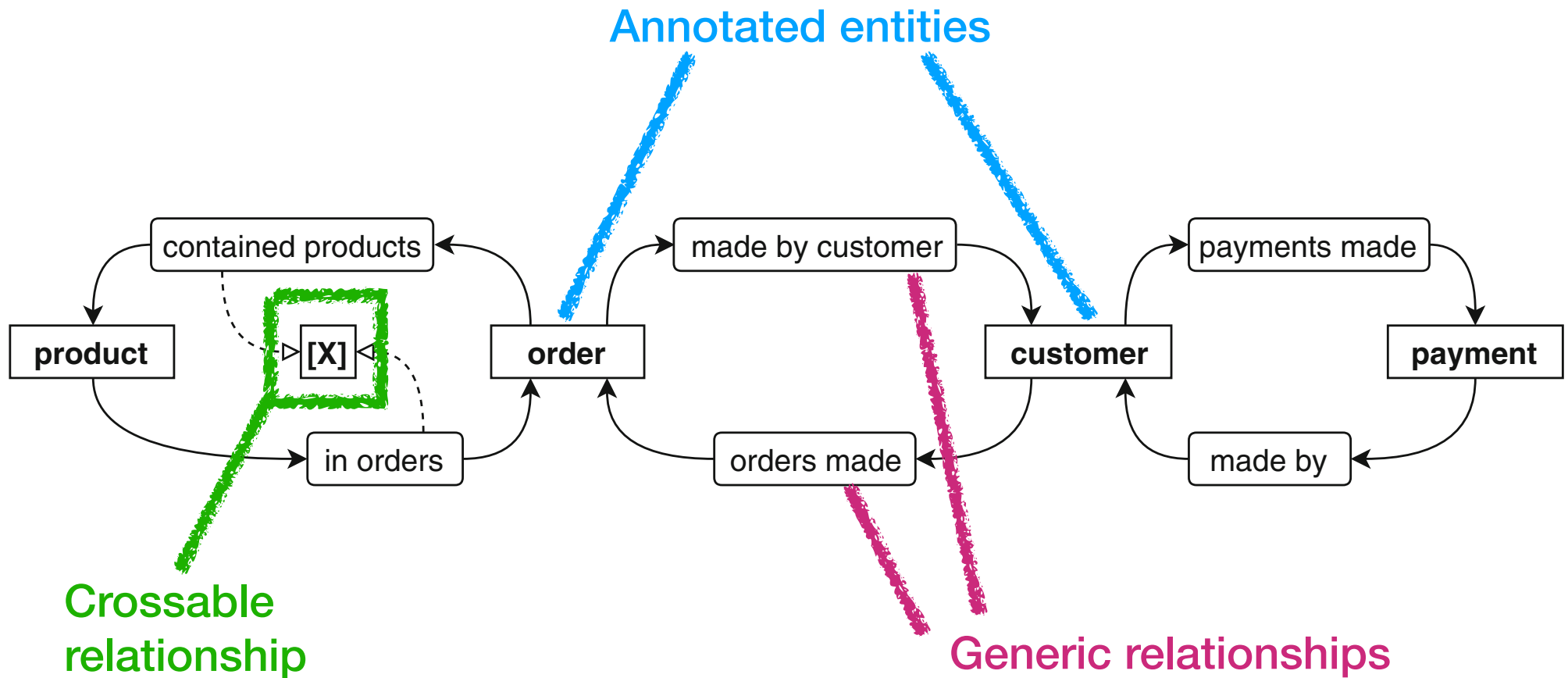
Data visualization

**>> Assumption**      In the beginning, involve database expert

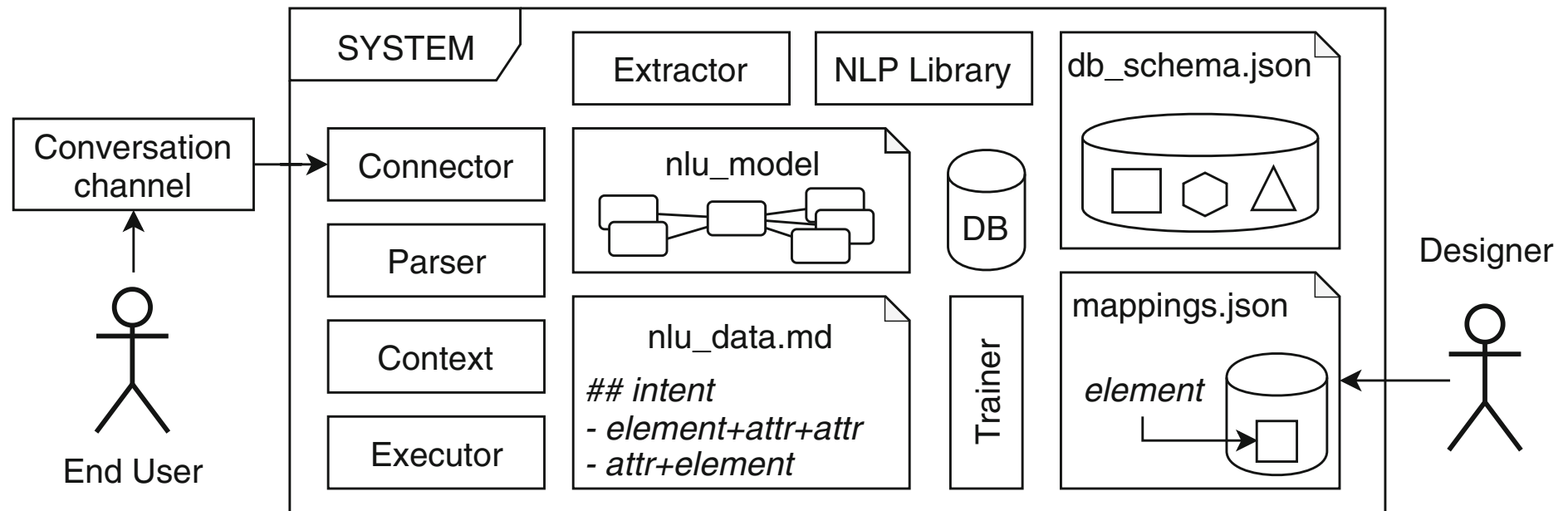
**Annotation** of data model >> aid identification of intents and entities



**Conversational relationships** = specify navigation options (**joins**)

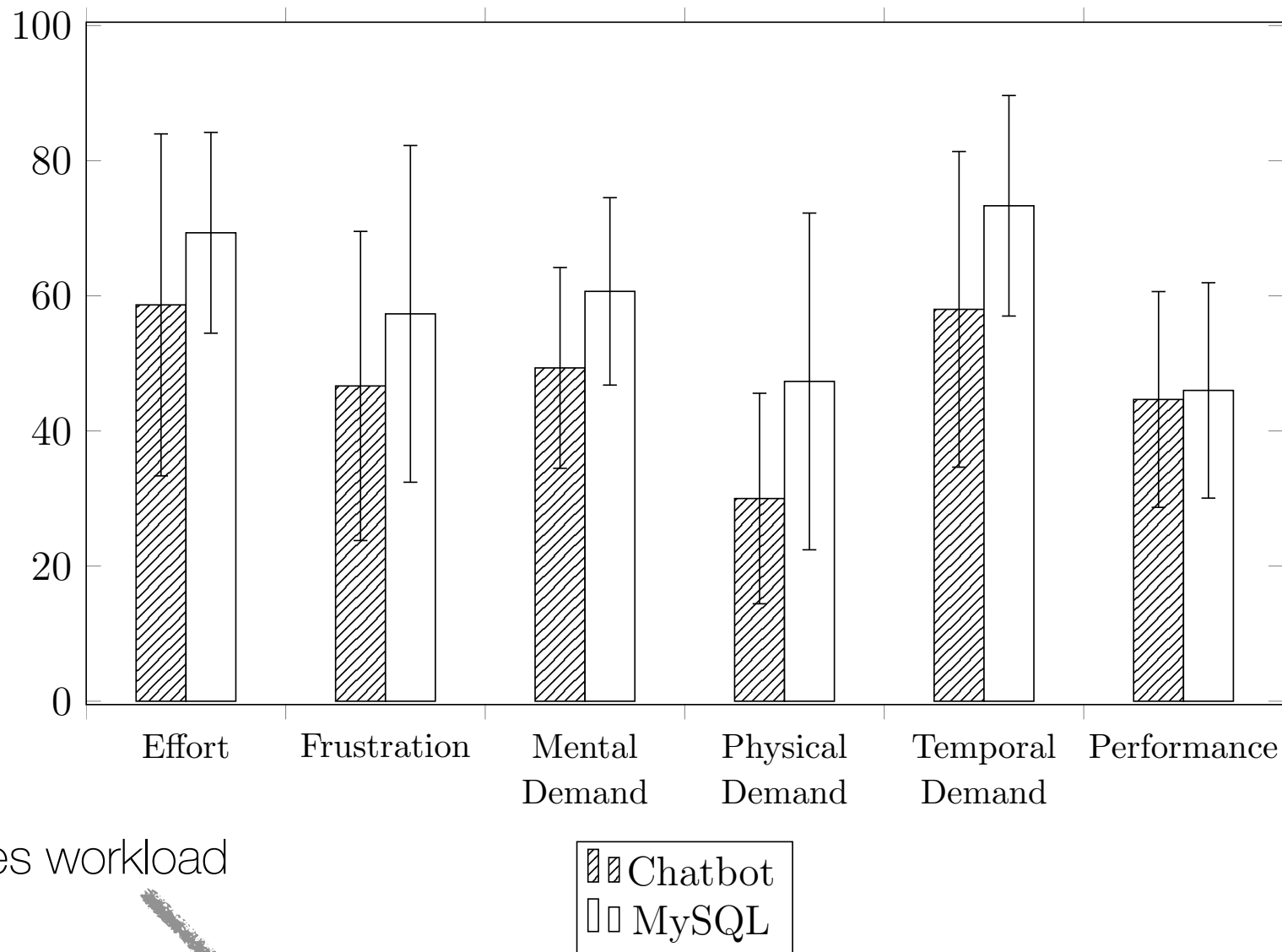


# High-level architecture



- >> **Key steps**
1. Parsing of database schema
  2. Schema annotation
  3. Generation of training phrases + training

## User study: preliminary results are positive!



*Figure 6.3: NASA-TLX dimensions: means and standard deviation comparison. Low values represent high satisfaction.*



## Conclusion

Conversational data exploration is **feasible!**

The **proof-of-concept** prototype works

Everything still **preliminary**, but excellent starting point

**Model-based** development helps boost productivity

## Open challenges

Effective/interactive **visualization** of results

**Automatic** derivation of annotations (machine learning)