

Web Application for Managing Shared Decisions during the Treatment of Schizophrenia

Jakob Waibel, 31.05.2021, Bachelor Thesis Final presentation

Chair of Software Engineering for Business Information Systems (sebis)
Faculty of Informatics
Technische Universität München
www.matthes.in.tum.de

Schizophrenia is a serious mental illness, affecting how a person thinks and feels

Treatment of Schizophrenia with antipsychotics

- Several side effects at various severities
- Patients' tolerance to side effects varies
- Balancing efficacy and endurability of the treatment is important for its success

Shared Decision Making



Doctor



Patient



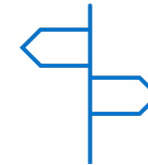
Present the scientific evidence of the antipsychotics comprehensibly



Facilitate comparison to weigh up efficacy and side effects



Help the patients making an informed decision



Help patient and doctor make a better decision

1 What are the requirements for a web application that supports the shared decision-making process of patients and psychiatrists in the treatment of schizophrenia?

2 How does the web application support the decision-making process from the patients and psychiatrist's perspective?

3 How usable is the web application from the patients and psychiatrist's perspective?

Patient

- Introduction to the process
- Preferences

Doctor

- Record Clinical Information



Together

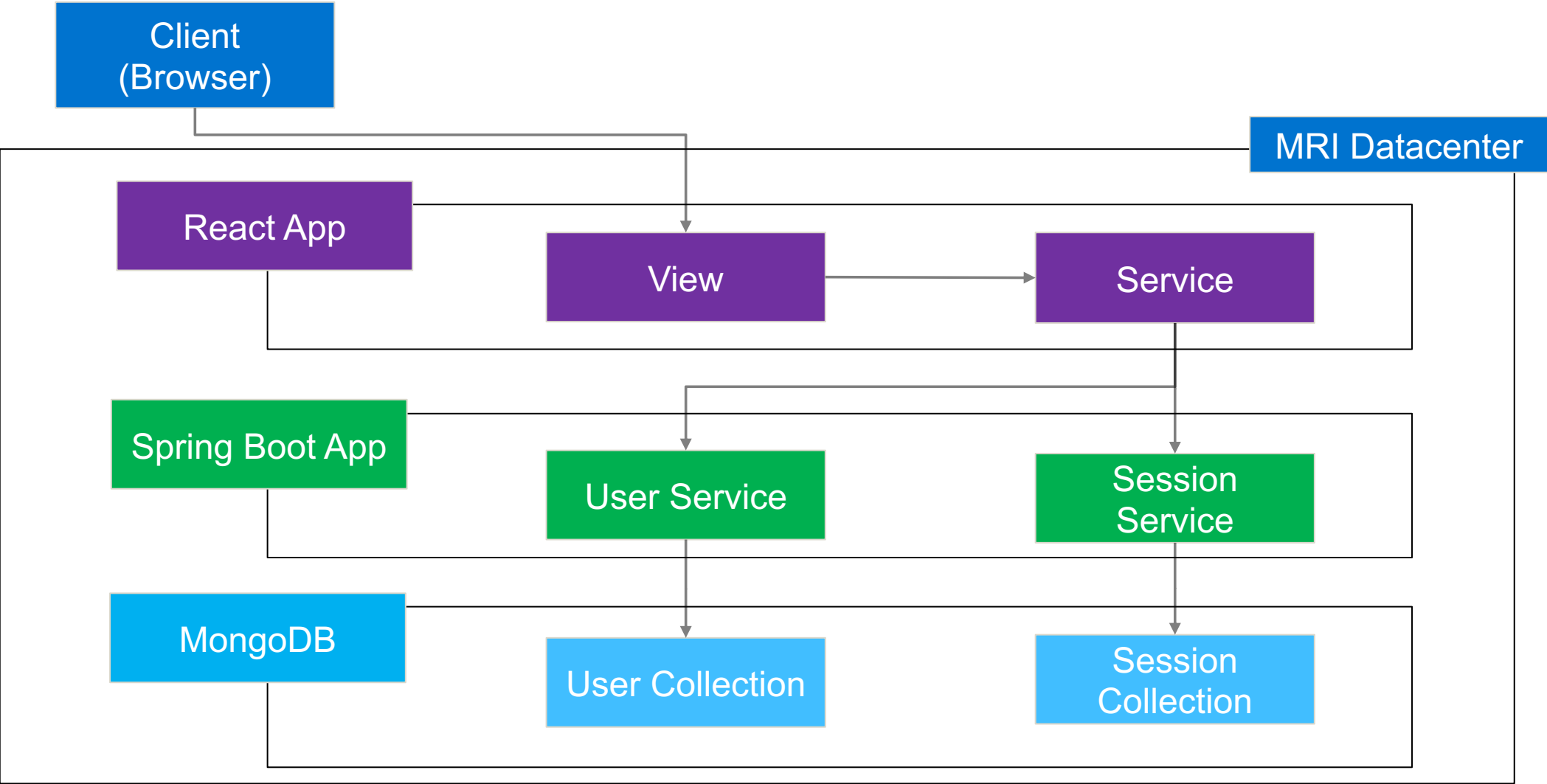
- Compare severities of different side effects
- Exclude antipsychotics
- Rank remaining antipsychotics
- Record decision reasonings

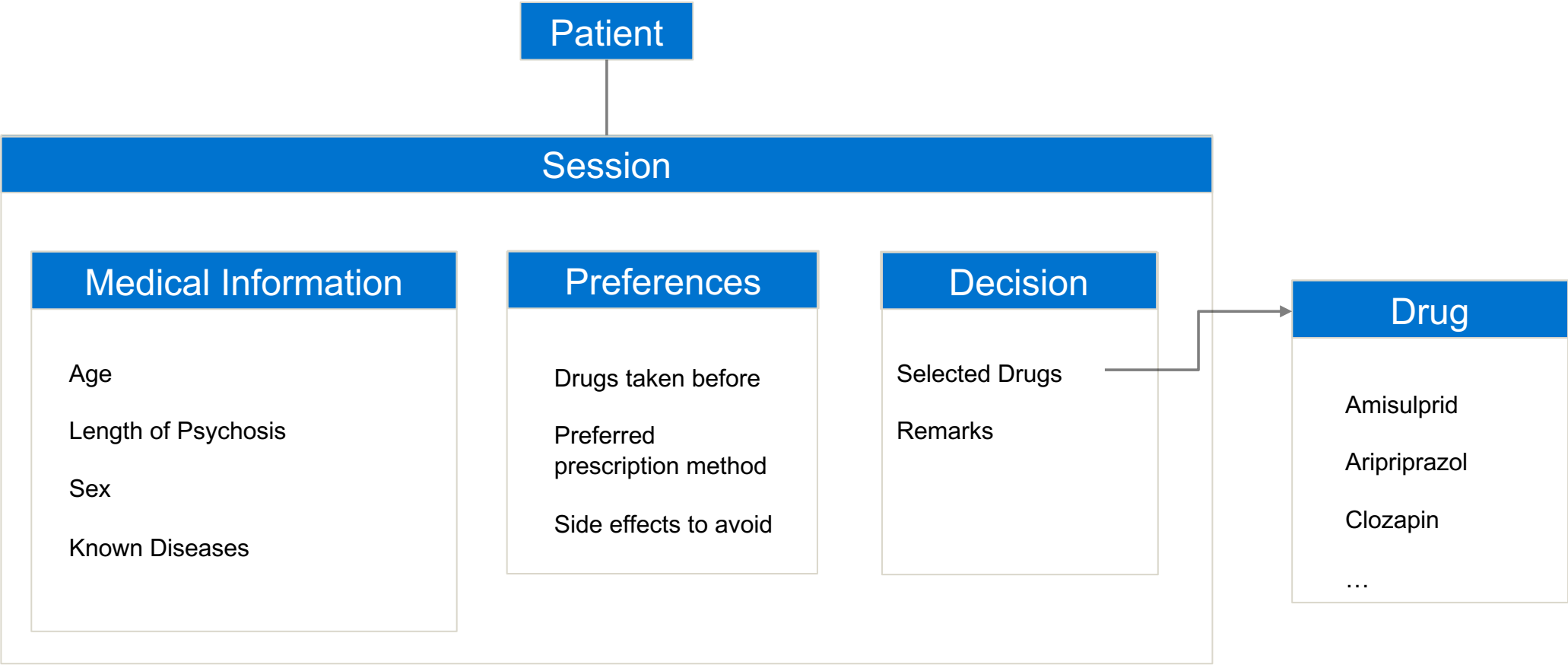
Discuss about preferences

**Make a shared decision
using the [interactive data
plots](#) of the antipsychotics**

Pseudonymisation

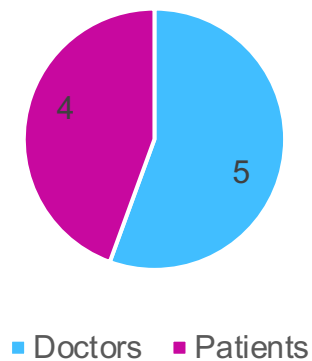
- The application collects sensitive and personal information
- Must follow rules on data protection for digital systems
- Pseudonymize usernames to avoid identification
- Keep the real names to the pseudonyms on paper



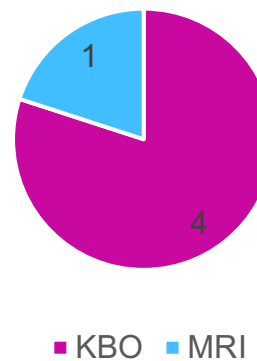


- Interviews with Patients and Doctors at two psychiatry stations in Munich
 - KBO, closed station
 - MRI, open station
- Use the app
- Questions about their opinions of the application

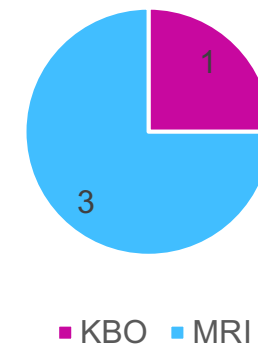
Participants

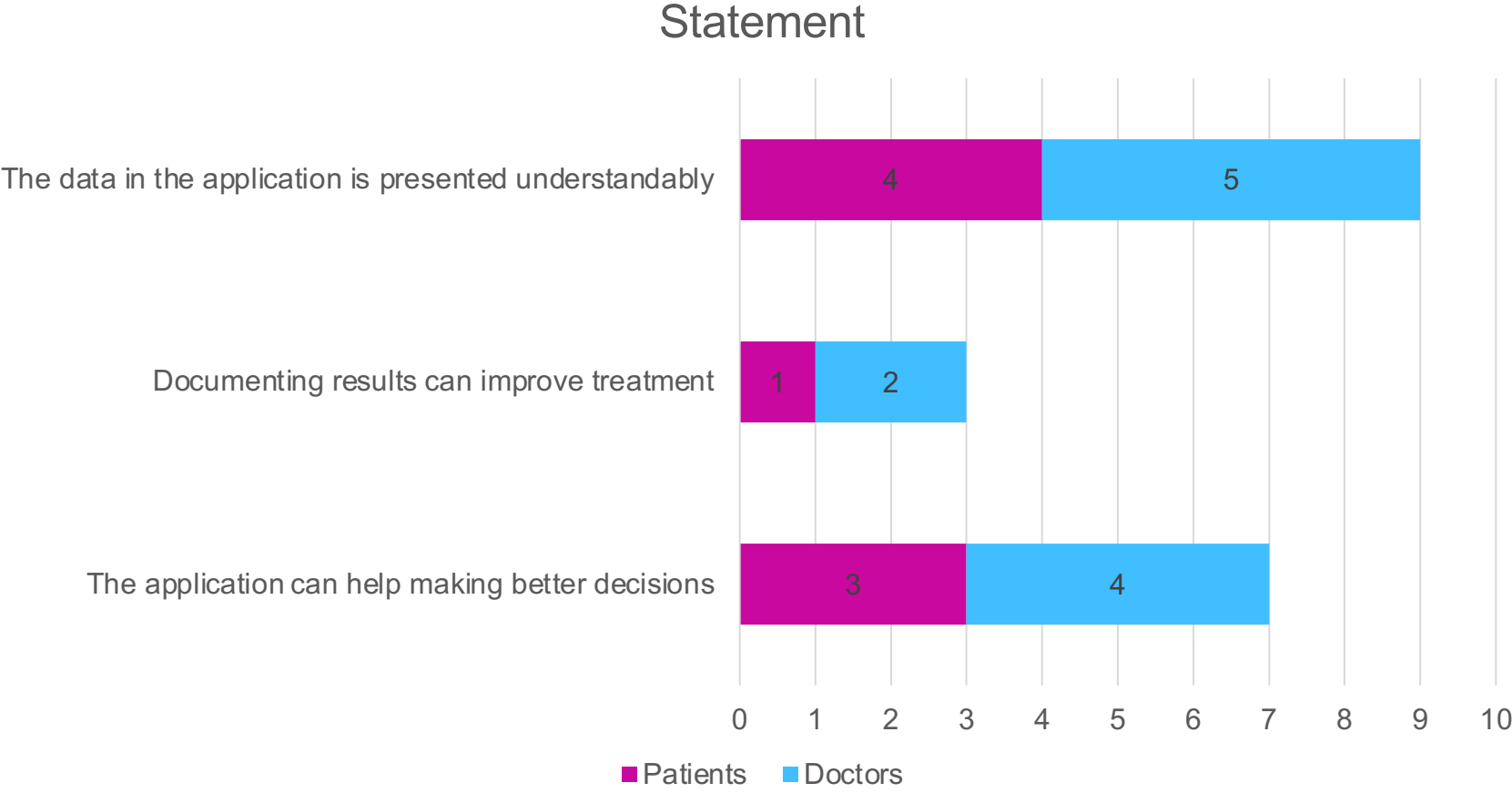


Doctors

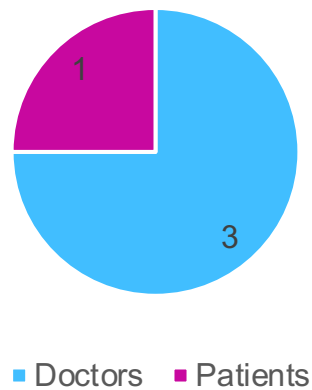


Patients

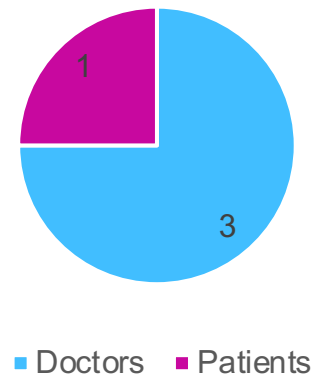




Integration into existing Systems



Warnings for antipsychotics based on medical preconditions



Limitations



- Data is not stored anonymized
- Very limited user tests
- Security concept is not proven

Lessons learned

Medical team at the MRI very helpful and engaged provided information in time

Problems recruiting patients and doctors

Early engage with external dependencies

- Delayed access to virtual machines to host the application
- Virtual machines will not be provided without data protection approval
- No feedback yet from the data protection officer



Jakob Waibel

Technische Universität München
Faculty of Informatics
Chair of Software Engineering for Business
Information Systems

Boltzmannstraße 3
85748 Garching bei München

Tel +49.89.289.17132
Fax +49.89.289.17136

jakob.waibel@tum.de
www.matthes.in.tum.de



```
{  
  "outcome": "Weight gain",  
  "drug": "Aripiprazol",  
  "rank": "4",  
  "mean": "1.26003862181967",  
  "ci_lb": "0.97610039217764",  
  "ci_up": "1.62203214685882",  
  "quantile": "1",  
  "type": "adverse event"  
}
```



```
{  
  "outcome": "Efficacy",  
  "drug": "Olanzapin",  
  "rank": "5",  
  "mean": "2.07888708321312",  
  "ci_lb": "1.94197450251029",  
  "ci_up": "2.21924630717439",  
  "quantile": "4",  
  "type": "efficacy"  
}
```

