

BRIDGING THE VIRTUAL AND THE PHYSICAL SPACE



Kornelia – A chatbot for public libraries

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Chatbot: Definition

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- ❑ Combination of the terms “chat” and “robot”
- ❑ Simulation of an interlocutor
- ❑ Server application replying questions posed via Internet in a input field

Chatbot: In libraries

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- ❑ Means to bridge the gap between libraries and digital natives
- ❑ Chatbots were usually implemented in scientific, academic libraries
- ❑ Needs of public libraries' customers are different
 - Punctual questions such as “Is the library open?”

Chatbot: Examples

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- Stella → Bibliothekssystem Universität Hamburg

<http://www.sub.uni-hamburg.de/>



- BoB → Free University of Bozen

<http://web.inf.unibz.it/bob/?popup=yes&language=en>



Project: Teamwork

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- ❑ Kornhaus libraries
- ❑ Student group
- ❑ IT professional
- ❑ Designer

Kornhaus libraries: Context

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- Network of 21 public libraries in Bern



Kornhaus libraries: Why a chatbot?

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- ❑ Implementation of a new information system
 - A chatbot hosted on the homepage
 - Accessible 24/7
 - Fun approach to the library and its catalogue
 - Meeting point between people, information and technology

- ❑ Birth of **Kornelia**

IT professional

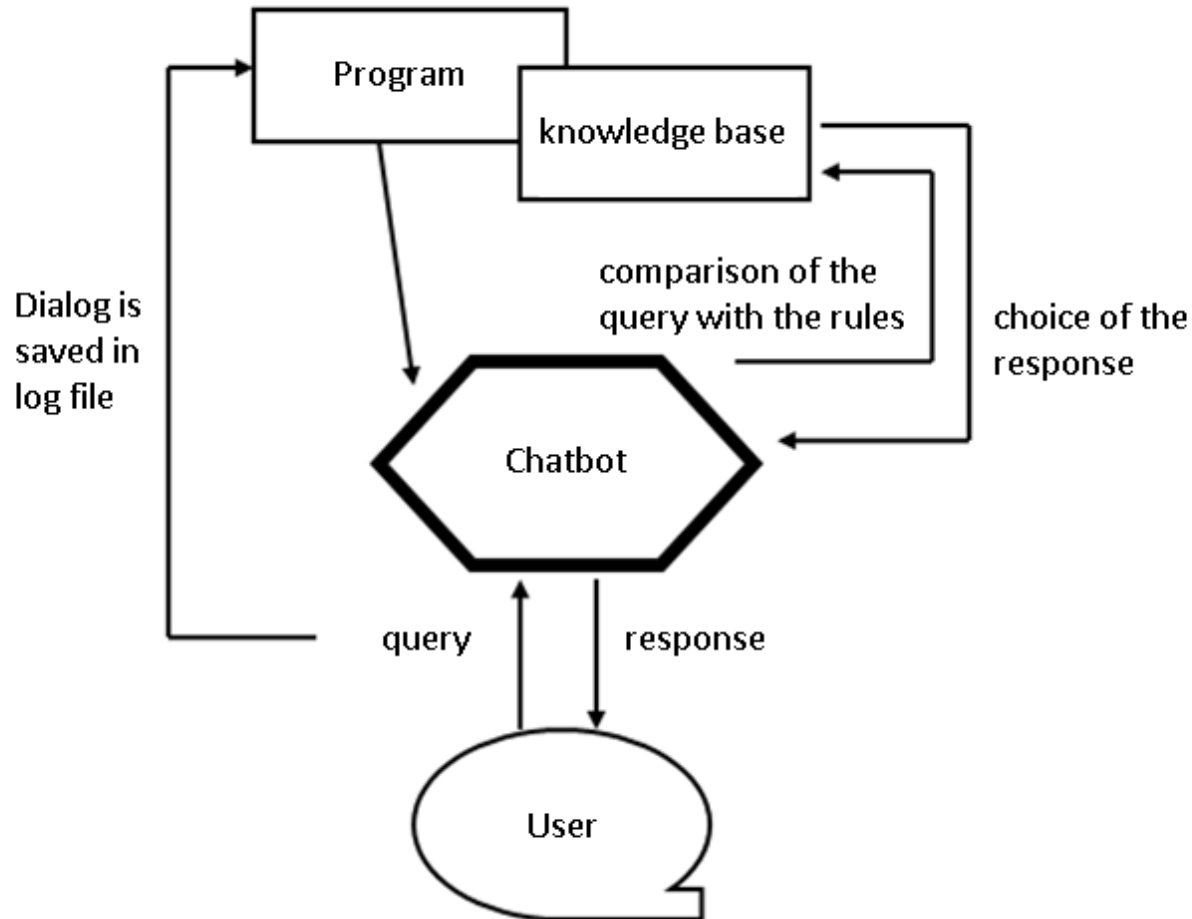
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Chatbot – **Project: Teamwork** – Testing – Conclusion

IT Professional: The chatbot's architecture

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IT Professional: Technical development

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- ❑ Program E
- ❑ Written in PHP and uses MySQL
- ❑ Chats saved in log files

IT Professional: Program E

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h e gWebDMS GmbH

Kornelia's Admin Console Version: V 0.9 - Bot: 17

[Lade-Console](#) | [Training](#)

Ein Startup- bzw. AIML, bzw. [Quality-Gate](#)-File(s) auswählen und hochladen:

Aktuelle Files um dieses File ergänzen
 Alle Files durch das ausgewählte File archivieren und ersetzen

Nachdem AIML-Files hochgeladen wurden, muss Kornelia reinitialisiert werden.
Ihr bisheriger Datenbank-Stand des Avatars geht verloren.

[Ansicht auf Kornelia's aiml-Files](#)

Index of /~bernsava/st/aiml

Name	Last modified	Size	Description
Parent Directory		-	
archiv/	21-Apr-2009 16:27	-	
basics2.aiml	21-Apr-2009 16:27	683K	
download/	15-Oct-2008 19:19	-	
orig_aiml/	17-Aug-2008 22:16	-	
qualityGate/	01-Apr-2009 21:27	-	
startup.xml	07-Apr-2009 16:44	28K	

AIML
 Chats
 Training-Chats
 Bot Backups

[Regeln](#)
[Bot-Eigenschaften](#)
[Download AIML](#)
[Avatar starten](#)
[QualityGate](#)

Student group

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Chatbot – **Project: Teamwork** – Testing – Conclusion

Student Group: AIML - Definition

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- ❑ Artificial Intelligence Mark-up Language
- ❑ XML derivate
- ❑ Content can theoretically be structured with only three tags
- ❑ Content based on rules containing requests and their corresponding answers

Student Group: AIML - Rules

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<category>

<pattern>What is your name</pattern>

<template>My name is Kornelia.</template>

</category>

- ❑ Question in the “pattern tag”
- ❑ Answer in the “template tag”

Student Group: AIML - Wildcards

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<category>

*<pattern> Who is *</pattern>*

<template> I don't know who that is.</template>

</category>

- ❑ Special characters (“*” or “_”) which replace one or more words
- ❑ Just a fraction of the input will be encoded
- ❑ The chatbot recognizes the phrase structure

Student Group: Content

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- Three types of content
 - Social chat
 - General chat about libraries
 - Kornhaus focused chat

Student Group: Problems (1)

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- ❑ Large variety of question's formulation
- ❑ Information depends on the particular libraries (ex. Opening hours)
- ❑ No connection between the chatbot and the catalogue → leading to confusion

Student Group: Problems (2)

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- ❑ Lack of information
 - divergence between Kornelia's knowledge and the expectations of the librarians
- ❑ Informal / formal formulation of the questions / answers

Designer

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Chatbot – **Project: Teamwork** – Testing – Conclusion

Designer: Graphical design

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- ❑ Discussion about the chatbot's gender
 - Female → more trustworthy

- ❑ Choice between four character types
 - Suitable for the Kornhaus and timeless
 - Neither too young or skinny, nor too sexy

- ❑ Artificial style

Designer: Development

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Chatbot – **Project: Teamwork** – Testing – Conclusion

Designer: Facial Expressions

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neutral



happy



thoughtful



explanatory



angry

Testing: Internal testing

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- ❑ The log files allowed the continual improvement of Kornelia's knowledge
- ❑ Monthly analysis of the log files
 - percentage of the correctly answers had increased
- ❑ Implementation of a quality gate
 - 50 essential questions

Testing: Usability test

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- ❑ Carried out by people not involved in the project and without any further information
- ❑ User and expert focused evaluation
- ❑ Axis of the test:
 - Kornelia's ability to answer
 - The design
 - The quality of her user-friendliness

Testing: Results

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❑ Strengths:

- Innovative
- Fascinating
- Entertaining

❑ Weaknesses:

- Irrelevant questions
- Vague answers
- Lack of professional knowledge
- Old fashioned and unattractive
- Chat example as guide was missing

Conclusion

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- ❑ Constant implementation of Kornelia's knowledge

- ❑ Online since beginning July 2009

http://www.kornhausbibliotheken.ch/index.php?option=com_wrapper&view=wrapper&Itemid=64

Kornelia

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Ihre Frage

Guten Tag, mein Name ist Kornelia. Ich bin Ihre virtuelle Beraterin auf der Internetseite der Kornhausbibliotheken Bern. Ich beantworte gerne Ihre Fragen.

Thank you for your attention!

