Title
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Data Availability
The data associated with this publication are available at: https://dash.lib.uci.edu/stash/dataset/doi:10.7280/D1P075

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ANTswers: an interactive library FAQ

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BACKGROUND

ANTswers is an AIML chat robot (chatbot) built to answer questions about the UCI Libraries but also to respond to general conversations. ANTswers is available from the library homepage (http://www.lib.uci.edu/AI), all conversations are anonymous, and no log-in is required.

In March of 2014 for beta testing, ANTswers was built for an academic library with 2 main libraries, a study center, Special Collections & Archives, and a medical library. Our goal is to create a library chatbot to:

- Enhance reference services
- Serve a large number of people at any one time of the day
- Serve a wide range of library patrons
- Use it to remind genre patrons
- Provide UCI specific information

IMPLEMENTATION

ANTswers was in development for a year prior to going live. A focus group of 13 members of library staff was created to discuss the personality, look and feel, and scope of the chatbot. The majority of the API was programming was completed by 1 staff member (botmaster) with support provided by a programmer in the Libraries’ IT department.

- 5/13 – 9/13
  - Focus: Scope group determines scope and personality
- 9/23/13 – 12/9/13
  - Focus: Development of AIML files and testing
- 1/14 – 3/14
  - Transcripts reviewed and revision to database made by botmaster.
- 4/25/14 – current
  - ANTswers goes live

BASICS OF AIML

AIML stands for Artificial Intelligence Markup Language and is an XML compliant language. Each question / answer pair is considered a unit of knowledge and is represented as:

```
<category>
  <pattern>QUESTION</pattern>
  <template>RESPONSE</template>
</category>
```

Where <category> defines the unit of knowledge, <pattern> defines the keyword, phrase, or question, and <template> defines the chatbots response. Recursion can be used to map secondary categories to the primary category.

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

EVALUATION

While Program-O contains transcript logs they are just viewable. Initially in the testing phases a Google form was used to track statistics on each conversation but the connection between the statistics and the conversation was lost. Moving forward the best solution was a statistics database built using MySQL, which pulls transcripts from Program-O and allows for tagging, reviewing (statistics), and forwarding transcripts to other Library staff.

Each transcript is reviewed and statistics are submitted, statistics are kept on the connection between the statistics and the conversation was lost. Moving forward the best solution was a statistics database built using MySQL which pulls transcripts from Program-O and allows for tagging, reviewing (statistics), and forwarding transcripts to other Library staff.

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

RESULTS

Data is from 3/25/14 – 6/9/15

- Total number of conversations: 715
- Total number of questions: 3,486
- Total number of Library questions: 1,918 (55% of total)
- Total number of General questions: 1,554 (45% of total)

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

LANGUAGE ANALYSIS

http://www.online-utility.org/text/analyze.jsp

Chatbot transcripts are exported and run through a text analyzer on a quarterly and yearly basis. Information on how library users are asking questions is used to refine the ANTswers database but is also of interest as the UCI Libraries works to redesign our library website.

Some top phrases containing 4 words (without punctuation marks): (number of questions correctly answered divided by the number of library related questions asked)

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

FARE

- Number of questions asked
- Number of questions correctly answered
- Number of questions incorrectly answered

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

MAINTENANCE

Transcripts are reviewed on a daily basis (M-F) in our Lib Web Admin System, chatbots responses are evaluated and changes are made to the AIML code if needed.

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<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

FUTURE PLANS

- Redesign of ANTswers’ library related files due to a changing library web presence.

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

- A research project is currently underway to compare how questions are asked in in-person reference, QuestionPoint (24/7), and ANTswers.

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```

BUILD YOUR OWN CHATBOT

The collection includes approximately 130 AIML files that are available for download and for the use in creating other library chatbots. You will need to review and edit each of the files for your particular institution. To implement your own library chatbot you will need a server, chatbot software (we used Program-O), editing software (we used Notepad+) and at least minimal experience with HTML, CSS, JavaScript and AIML.

```
<category><pattern>QUESTION</pattern><template>RESPONSE</template></category>
```