Title
ANTswers: an interactive library FAQ

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**BACKGROUND**

ANTswers is an AIIM chat robot (bot) built to answer questions about the UCI Libraries but is only responding to general conversations. Ant% is available from the Library homepage (http://www.lib.uci.edu/ant%), all conversations are anonymous, and no login is required.

In March of 2014 for beta testing. Ant% was built for an academic library with two main libraries, a study center, Special Collections & Archives, and a medical library.

Our goal in creating a library chatbot was to:

- Enhance (not replace) current information services.
- Focus: Focus group determines scope and personality.
- Determine Answer Percentage.
- Statistics are downloaded weekly into an Access Database which is linked to Excel spreadsheet. At the beginning of each quarter a spreadsheet is created using pivot charts and by refreshing the data weekly statistics can be quickly and easily shared.

**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 AIML programming was completed by 1 staff member (botmaster) with support provided by a programmer in the Libraries’ IT department.

- 9/2/13 - 9/23/13
  - Focus: Focus group determines scope and personality.
- 9/23/13 - 12/13
  - Focus: Development of AIML files and testing.
- 1/6/14 - 3/10/14
  - Transcripts reviewed and revised to database made by botmaster.
- 3/25/14 - current
  - Ant% 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><srai>ANSWER</srai></template></category>
```

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

**EVALUATION**

While Program-O contains translog files 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 translog files from Program-O and allows for tagging, reviewing (statistics), and forwarding transcripts to other library staff.

```
<category><pattern>CONTACT YOU *</pattern>
<template><srai>CONTACT YOU</srai></template></category>
```

Each transcript is reviewed and the statistics are submitted, statistics are kept on the following criteria:

- General Information:
  - Date | Hour | Quarter | Week | Day of Week
- Determining Answer Percentage:
  - # of Questions
  - # of Library questions: asked | answered | answer rate
  - # of general questions: asked | answered | answer rate
  - What is being asked:
    - questions type: books | apps | articles | etc.

**MAINTENANCE**

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

Correct

```
<category><pattern>QUESTION</pattern>
<template><srai>ANSWER</srai></template></category>
```

Incorrect

```
<category><pattern>QUESTION</pattern>
<template><srai>ANSWER</srai></template></category>
```

Opening the AIML for Borrowing & Fines we can find the category for RENEW. We can then add a new category for the phrase, "How soon can I renew?" Next time this question is asked the library patron will receive the correct response.

**RESULTS**

Data is from 3/25/14 – 6/9/15

- Total number of conversations: 715
- Total number of questions: 4,86
- Total number of Library Questions: 1,918 (53% of total)
- Total number of General Questions: 1,554 (45% of total)

**LANGUAGE ANALYSIS**

**FUTURE PLANS**

- Redesign of ANTswers’ library related files due to a changing library web presence.
- Grant to refine database using knowledge gained from the translog files – goal is to eventually reach a 95% answer rate for library questions. ANTswers will then move out of beta.
- A research project is currently underway to compare how questions are asked in an Internet search engine, QuestionPoint (APL), and ANTswers.

**BUILD YOUR OWN CHATBOT**

This 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 all 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.

http://escholarship.org/uc/uci_libs_antswers