FIT QA System

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Client: FIT students
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- Meeting with client:
  - Aug 27 2017 through a survey, please see last page for results
- Goal and motivation:
  1. To give direct answers to questions about FIT.
     When students search on FIT website, they often encounter that getting the information requires many clicks and eyeballing to find. Thus, a system that can give them a direct answer to frequently asked questions would be useful.
  2. To answer questions asked in the form of a natural language.
     Sometimes students find it hard to figure out the correct keywords to search with, thus we want our system to be able to answer questions asked in a natural language.

- Approach (key features of the system):

  1. Natural Language Processing
     Students don't need to struggle with keywords, they can ask questions in a natural way. The system would then interpret the questions and give answers accordingly. For example, one can ask "when does the library open" instead of trying among "building hours library", "library open time" and so on.

  2. Question Types
     Categorize most frequently asked questions by users and implement algorithms to find accurate answers for these questions. We will focus on factoid questions such as Who, When, Where instead of How. For example, "Who is the current school president?","When does the library close tomorrow?", "Where is Professor X's office?".

  3. Direct Answers
     For common questions that can be answered with concise sentences, the system will give direct answers instead of related webpages. For example when asked about the opening time of the library, the system would give a time instead of the library homepage.

  4. Show Directions
     When asked about a location(within the campus), the system would present the location on the map. For example, if a user asks "where is PDH", the system will show the user a map directing the user to PDH.

5. Voice Search
   With the voice search feature of FIT QA System, students no longer have to stop and type in questions while riding or driving. Just tell the QA system and you'll get your answer.

- Novel features/functionalities:
  - Natural Language Processing
    Questions composed in natural languages are not supported by the FIT website.
  - Voice Search
    Voice Search hasn't been used in FIT apps or websites yet.

- Technical Challenges
  - Two of the members are not very familiar with Python.
  - We need to use NLP and Machine Learning in our project but we don't know much about them.
  - We want to use web technology such as React Native and Angular to develop native apps for all platforms but we don't know much about them.

- Milestone 1 (Oct 2): itemized tasks:
  - Decide a cooler name for the project.
  - Decide question categories.
  - Decide what information we should put in Knowledge Base and which questions should be answered by analyzing text.
  - Learn about Python and try some "hello world" examples.
  - Learn about NLP, Machine Learning, database, voice recognition and related libraries, try some "hello world" examples.
  - Learn about web technologies, such as React Native and Angular, that help us build cross platform app, try some "hello world" examples.
  - Get familiar with collaboration tools: Github, Trello, Google Docs.
  - Create Requirement Document.
  - Create Design Document.
  - Create Test Plan.

- Milestone 2 (Oct 30): itemized tasks:
  - Implement a crawler that downloads all question and answer pairs from FIT IT FAQ website.
  - Use machine learning and search to determine if a question from the user is asking about the same information as existing question.
  - Demo feature: In command-line, enter an IT related question and get an answer.

- Milestone 3 (Nov 27): itemized tasks:
  - Implement a program that saves information to Knowledge Base. These information include professor contact information, academic calendar, building location and hours, Registration information, Event locations and dates.

- Demo feature: In command-line, enter an FIT related question in the above categories and get an answer. Return a direct answer if the answer can be found in Knowledge Base or return a google search result paragraph if otherwise.

- Task matrix for Milestone 1 (teams with more than one person)

Task	Ge	Jiayi	Oyinkan
Investigate/Select Technical Tools/Find relating papers	Database/ NLP/Python 33.33%	Database/ ML 33.33%	Database/ Web/Python 33.33%
Decisions	Question categories	Information in Knowledge base	Name of System
Investigate/Select Collaboration Tools	programs	documents/presentations	communication, task calendar
Requirement Document	write 50%	write 25%	write 25%
Design Document	write 25%	write 25%	write 50%
Test Plan	write 25%	write 50%	write 25%

- Approval from Faculty Sponsor
  - "I have discussed with the team and approve this project plan. I will evaluate the progress and assign a grade for each of the three milestones."
  - Signature: _____ Date: _____
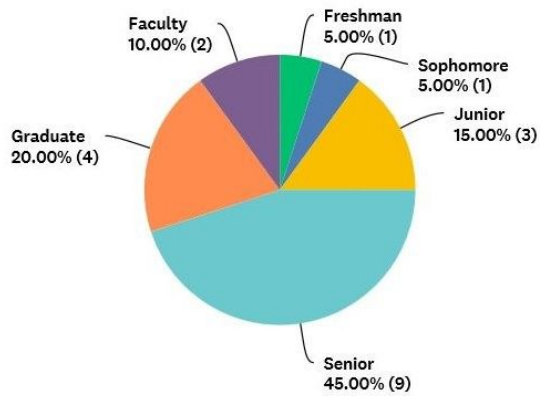
Our Interview with the Client

https://www.surveymonkey.com/results/SM-3YP3DKKK8/

Q1   Customize   Export ▾

What's your class standing?

Answered: 20   Skipped: 0

- Faculty 10.00% (2)
- Freshman 5.00% (1)
- Sophomore 5.00% (1)
- Junior 15.00% (3)
- Graduate 20.00% (4)
- Senior 45.00% (9)

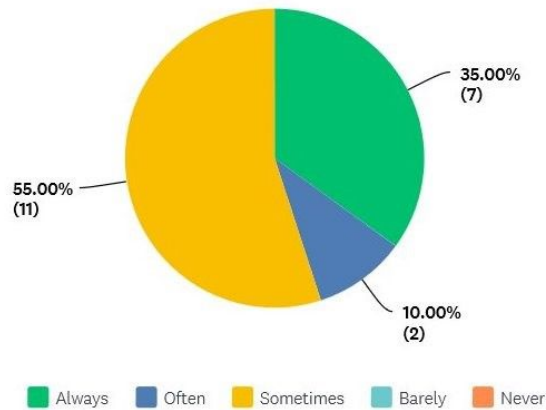**Q2**   Customize   Export ▾

How often do you use Florida Tech Website to find on-campus information (e.g. dining hall hours, professor office location, final exam schedule, registration information)?
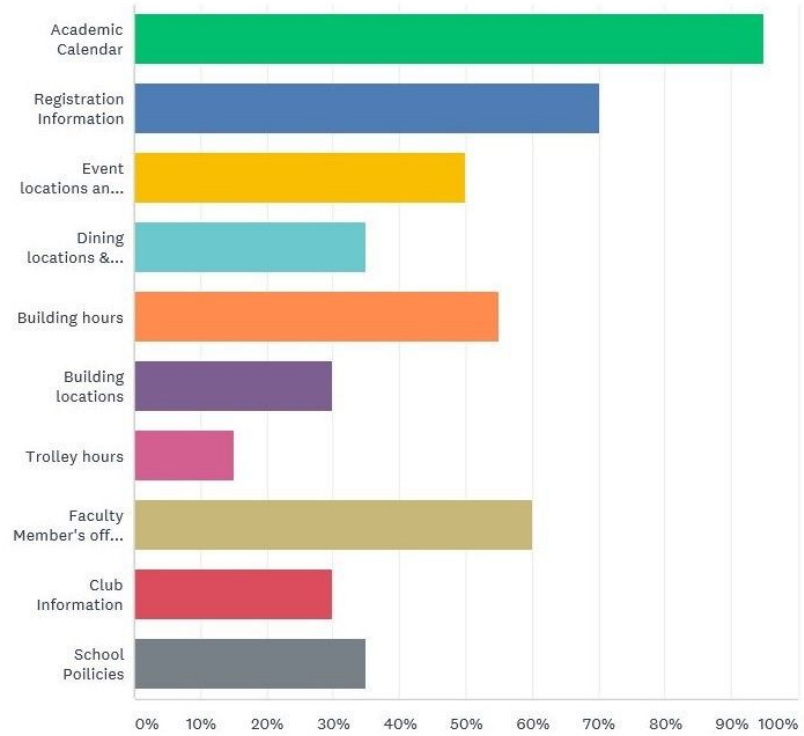
Answered: 20   Skipped: 0

- 35.00% (7)
- 55.00% (11)
- 10.00% (2)

■ Always ■ Often ■ Sometimes ■ Barely ■ Never

Q3

What kind of information do you search for on fit.edu?

Answered: 20   Skipped: 0

Q4

Do you find it difficult to find information on Florida Tech's Website?

Answered: 19   Skipped: 1

Chart values (left to right):
- Yes it's hard to find the correct keywords to search with: 47.37%
- Yes it always gives me unrelated search result webpages: 31.58%
- Yes, I don't know where to find information: 26.32%
- No I like the FIT website: 15.79%

Q5
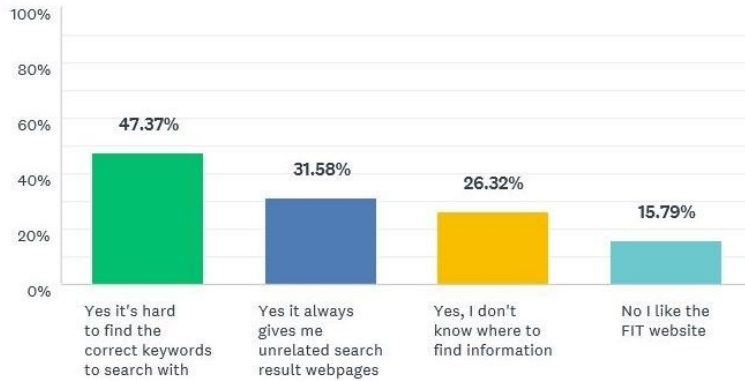
What features do you want in an optimized search engine?

Answered: 20   Skipped: 0

Categories (left to right): Voice search--So that you can search while riding ...; Search with English--No more keywords! Just ask with...; Direct answers--No more reading through the webpages!...; Get the directions--Ask for a location, and you'll se...

Legend:
- Yes that's exactly what I want!!
- Yes that would be nice
- I don't care
- I don't think that'll be necessary
- I hate it