Documentation

# Original Ideas

* **Student mental health bot (chosen)**
* UNHCR UN bot. Many refugees, little volunteers. In business, many customers compared to number of customer service. So use bot to streamline process and redirect. Extend this to refugee.

# Thoughts

* Think of AI for good
* Emails bombard students with websites and phone numbers, is overwhelming. Obvious that they mean good, but could be improved
* UofT has had problems with mental health. Protests from students wanting change. Same with other universities. What mental health chatbots are there? There is, but not targeted for university. Our prototype create a framework that universities can input links so that can apply to university.
* Mental health facts
* <https://www.utoronto.ca/news/how-ai-helping-predict-and-prevent-suicides>
* <https://woebothealth.com/>
* <https://www.healthline.com/health/mental-health/chatbots-reviews#6>
* <https://studentlife.utoronto.ca/task/support-when-you-feel-distressed/>
* <https://studentlife.utoronto.ca/wp-content/uploads/Feeling-distressed.pdf>
* <https://www.utoronto.ca/news/five-mental-health-and-wellness-developments-u-t-students-need-know>
* My SSP already exists( <https://www.utoronto.ca/news/u-t-rolls-out-demand-my-ssp-counselling-service-all-students>) but this chatbot can enhance. Can reduce number of operators needed. Extended from business example
* Check my mental health training
* Especially important now with pandemic, especially when its uncertain times (jobs and stuff) and plus students will be entering new methods of learning (online) and will face challenges/stress that have never been experienced before. COVID-19 also problem for mental health.
* Some students may prefer texting rather than calling
* Limitations:
  + Of course, legal and social challenges. E.g. who is responsible if the bot does not give accurate info? What considerations must be made in terms of sensitivity
  + This is a prototype, so the actual thing would be edited by the institution
  + More research will have to be one into what conversations actually look like. (Like dealing with inclusiveness, not enough to just guess what they would talk like. Need to design with them)

# Features

* Redirect to appropriate resources (LUIS)
* Support Different languages (Language Detection)
* Support explanation about itself (QnA)

# Schedule

|  |  |
| --- | --- |
| 30 | Decide to do competition. Find topic |
| 31 | Research Azure resources needed and setup rough framework |
| 1 | Determine features of the bot and what is needed to build it |
| 2 | Build the bot and connect to website |
| 3 | Enhancement with LUIS and more features |
| 4 | Enhancement with LUIS and more features |
| 5 | Create script and record demo |
| 6 | Put together video |
| 7 | Put together video |
| 8 | Submit |
| 9 |  |
| 10 |  |
| 11 | Submission Due |
| 12 |  |
| 13 | Presentation |

# Technical Aspects

## Building the Bot

* Look at bot making guidelines <https://www.microsoft.com/en-us/research/uploads/prod/2018/11/Bot_Guidelines_Nov_2018.pdf>
* Sample code: <https://github.com/Microsoft/BotBuilder-Samples>
* Sample code 2: <https://github.com/MicrosoftDocs/ai-fundamentals>
  + <https://github.com/MicrosoftDocs/ai-fundamentals/blob/master/03a%20-%20QnA%20Bot.ipynb>
* Learn: <https://docs.microsoft.com/en-us/users/samuma/collections/j1wwu3onom36x3>
* Learn2: <https://docs.microsoft.com/en-us/learn/paths/process-natural-language-azure-cognitive-language-services/>
* QnA: <https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/quickstarts/create-publish-knowledge-base>, <https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/overview/overview>
* Handoff: <https://docs.microsoft.com/en-us/azure/bot-service/bot-service-design-pattern-handoff-human?view=azure-bot-service-4.0>
* Bot Service (LOTS OF INFO): <https://docs.microsoft.com/en-us/azure/bot-service/bot-service-overview-introduction?view=azure-bot-service-4.0>
* <https://azure.microsoft.com/en-us/services/bot-service/#demo>

## Tasks

* Categorize mental health resources (tagging and organizing)
  + 0.5h
* Chatbot
* Put chatbot into website
  + 1h
* Presentation (script, demo, video)
  + 1h+0.5h+2h
* XP (learning path + high yield XP paths)
  + 2h

## Cognitive Services

* TextAnalytics
  + Detect language
  + Extract key phrase
  + Determine sentiment
  + Extract known entities
* Speech
  + Speech recognizer
  + Speech synthesis
* Translation (under Speech)
  + Translate text
  + Translate speech
* LUIS

## Demo Functionalities

### Resource High-Level Classification

|  |  |  |
| --- | --- | --- |
| Class | Description | Possible Values |
| Time Availability | Time range in which resource is available | 24/7, business hours, weekday, 9am-5pm, 9am-10pm, 10am-10pm |
| Supported Languages | Languages that can be used to communicate | English, Multilingual, Cantonese, Mandarin, Portuguese, Spanish, Hindi, Punjabi, Urdu |
| Scope | Whether the resource wanted deals with a variety of cases, or specific cases | General, specific |

### Resource Tags (for Scope:General)

* UTSG
* UTM
* UTSC
* On-campus
* Off-campus

### Resource Tags (for Scope:Specific)

* Health professionals
* Sexual assault
* Safety
* Equity
* Emergency
* Traditional Healers
* Women
* Abuse
* Black
* Youth
* Gambling
* Drugs
* Alcohol
* Addiction
* Suicide
* Support
* Strategy
* Connection/referral
* LGBTQ
* Confidential
* Feminist
* Academic
* Financial
* Medical (STI test, drug test, injury, contraception, planning)

## Demo

1. From conversation to resources
2. Support multiple languages

### Part 1: Convo -> Res

Phrases:

* I’m stressed with the upcoming exams
* I don’t want to live anymore
* I just got sexually abused. What do I do?
* I need to speak with somebody!
* I am addicted to drinking.

### Part 2: Different languages

Detect language

* Able to access
  + Web app bot
  + LUIS
  + Then show web app bot working
* Unable to access
  + Bot emulator (self-made)
  + LUIS code
  + LUIS
  + Then show bot emulator working

# Final Steps

* Finalize bot
* Update FAQ and QnA