SOCIAL ROBOT AS UQ RECEPTIONIST

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INTRODUCTION

The main task of this project is developing an application to answer user's questions about programs in UQ and some basic questions which have objective answers. The conversation has context function, which is to say it can remember your nationality and answer questions according to it for there is some difference between domestic and international student. The data is crawled from https://future-students.uq.edu.au.

TECHNOLOGY

Natural Language Toolkit (NLTK): a package in Python to achieve lexical analysis and stemming extraction [1].

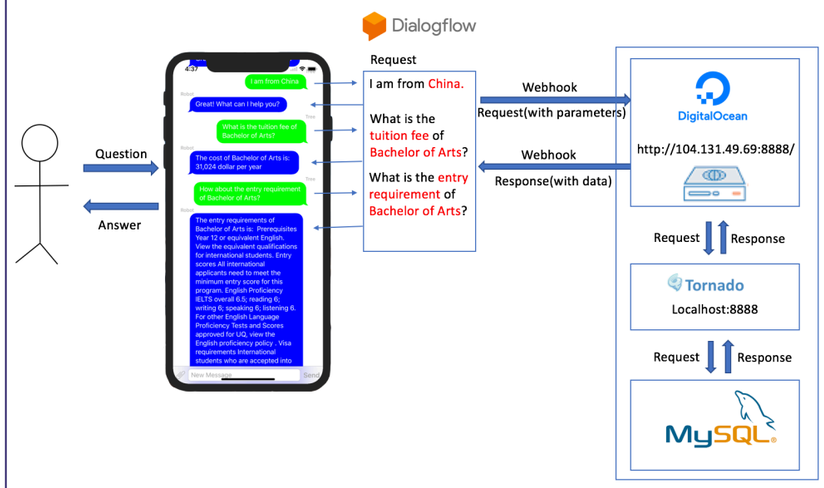
DialogFlow: a platform which is used to design the pattern of conversation and train the robot. Different intent will be invoked and execute when user's questions are referred to one of them. The client access token is used to integrate it with the iOS application. The webhook is used to connect with the web server.

Context function: the conversation should remember student's nationality for it decides different tuition fee, duration, and entry requirements.

Application: The layout is implemented by a UI library for iOS Message application, called JSQMessagesViewController [2].

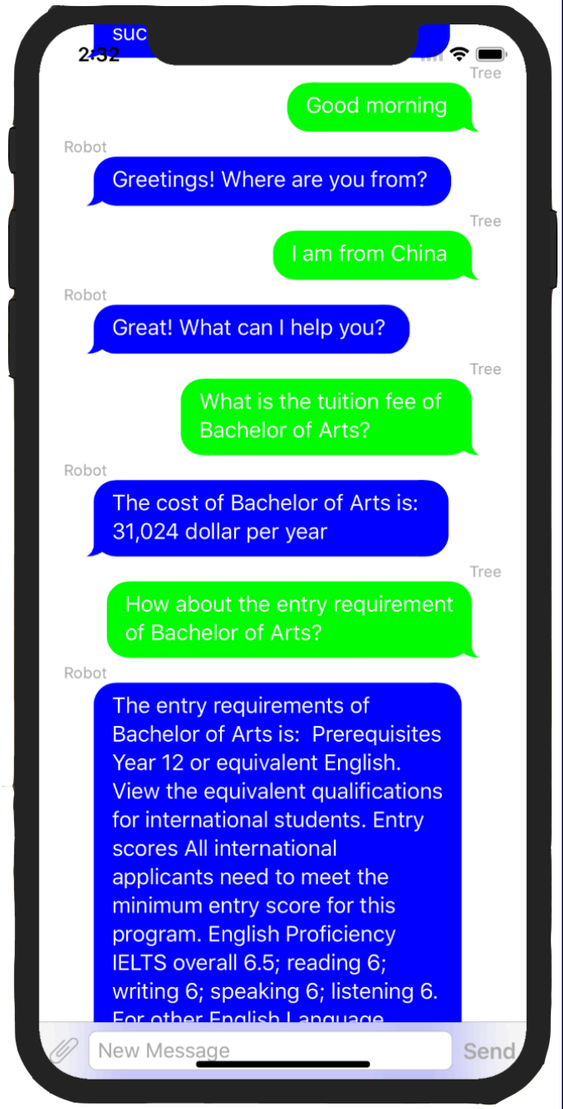
FRAMEWORK

User asks a question to the robot. The application send keywords to the DialogFlow, where question will be written in a JOSN request file. The request is sent to the host which hook with the platform. The server is connect with my local host. Local host will send request to the database to search the result. Once it is found, it will be sent back to the server and DialogFlow. The DialogFlow generate answers and show on the application for users.



The robot is developed by Python 3 and the application is deployed in an iOS system and developed by Swift 3. The robot developing platform is DialogFlow, which provides voice interaction. The Virtual Private Server (VPS) is DigitalOcean. The local web server is Tornado, which based on Python environment. The crawler is developed in Python 3. The database is MySQL and connects with Tornado.

DEMOSTRATION



FUTURE QUESTIONS

1. Storing user's profile in a new database. In next time conversation, the robot can recall his information according to his IP address or other unique information.
2. The context function should be improved. The future target of this function is user do not need to reply keywords.
3. Updating the database automatically can make the robot always up to date with the change on the internet.

REFERENCE

[1] S. Bird, "NLTK: the natural language toolkit," in *Proceedings of the COLING/ACL on Interactive presentation sessions*, 2006, pp. 69-72: Association for Computational Linguistics.

[2] J. Porch, R. Coyne, L. Zhang, and I. Dabipi, "UMES-CHAT: a Campus Mobile Social Application for Improving Study Experience of Students, by Students, and for Students," 2016.