

# COMP0016\_2020\_21\_Team8 - AvaBot

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Note: please see the original readme.md at [our GitHub repository](#) for better reading experience.

## Overview

Project Title: Avande2 COVID19 changes

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## Project Intro

Due to the COVID-19 epidemic, most companies have switched to remote working, however, productivity and communication take a hit when employees are new to working from home.

AvaBot is therefore created to ease the pain, it is a ChatBot assistant that holds rich knowledge base to answer employees' questions about the company's newly induced tools and policies for remote working. It is also endowed with AI functionalities, including natural language processing and image recognition, to help employees with documents: to read, analyze, and understand documents for them and thus enhance their productivity.

## System Architecture

AvaBot application system consists of several components.

Users can interact with AvaBot as a REST API on web chat and on multiple applications to which it is channeled.

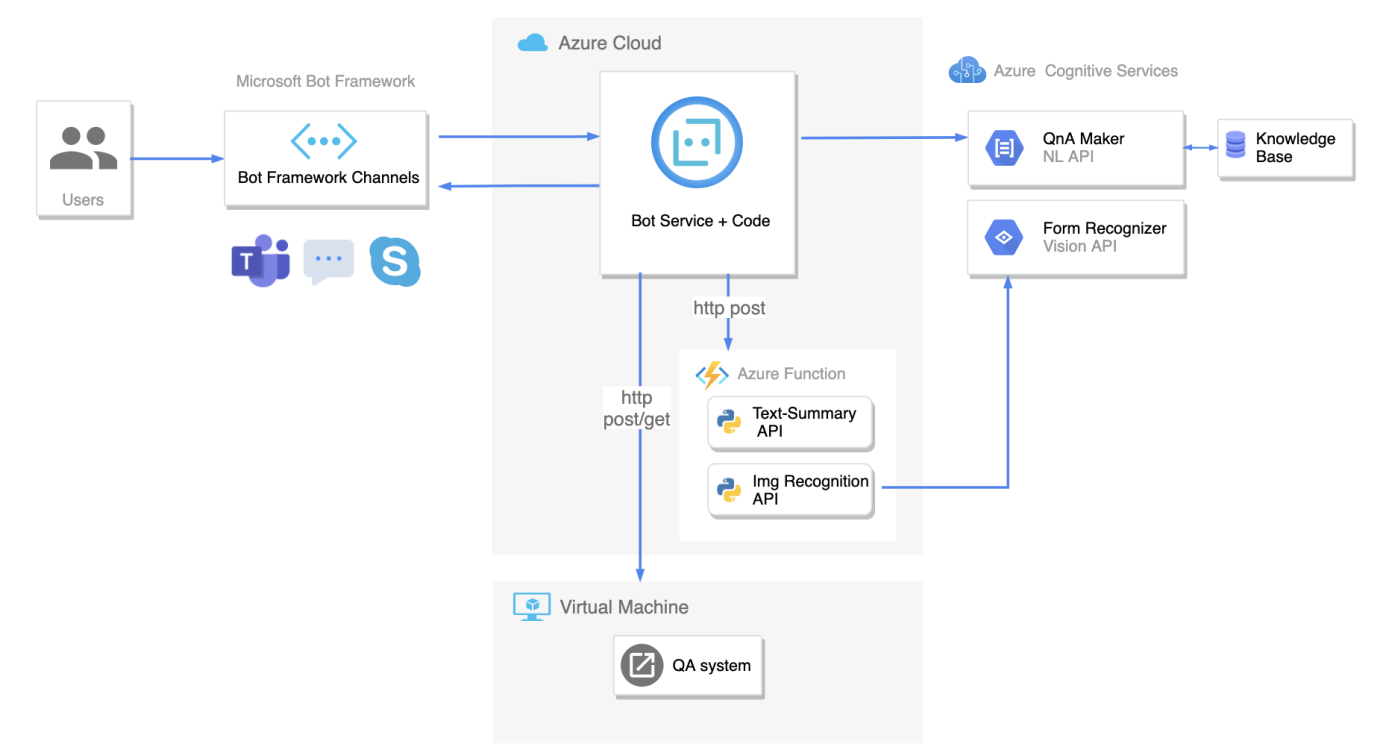
The bot source code is deployed to Azure Cloud by using Azure Bot Service. The bot src can be found [./AvabotTeam8-src/](#).

AvaBot is connected to a QnA Maker with rich knowledge base that allows it to answer a variety of questions. The QnA Maker is configured in [./AvabotTeam8-src/dialogs/answerDialog.js](#).

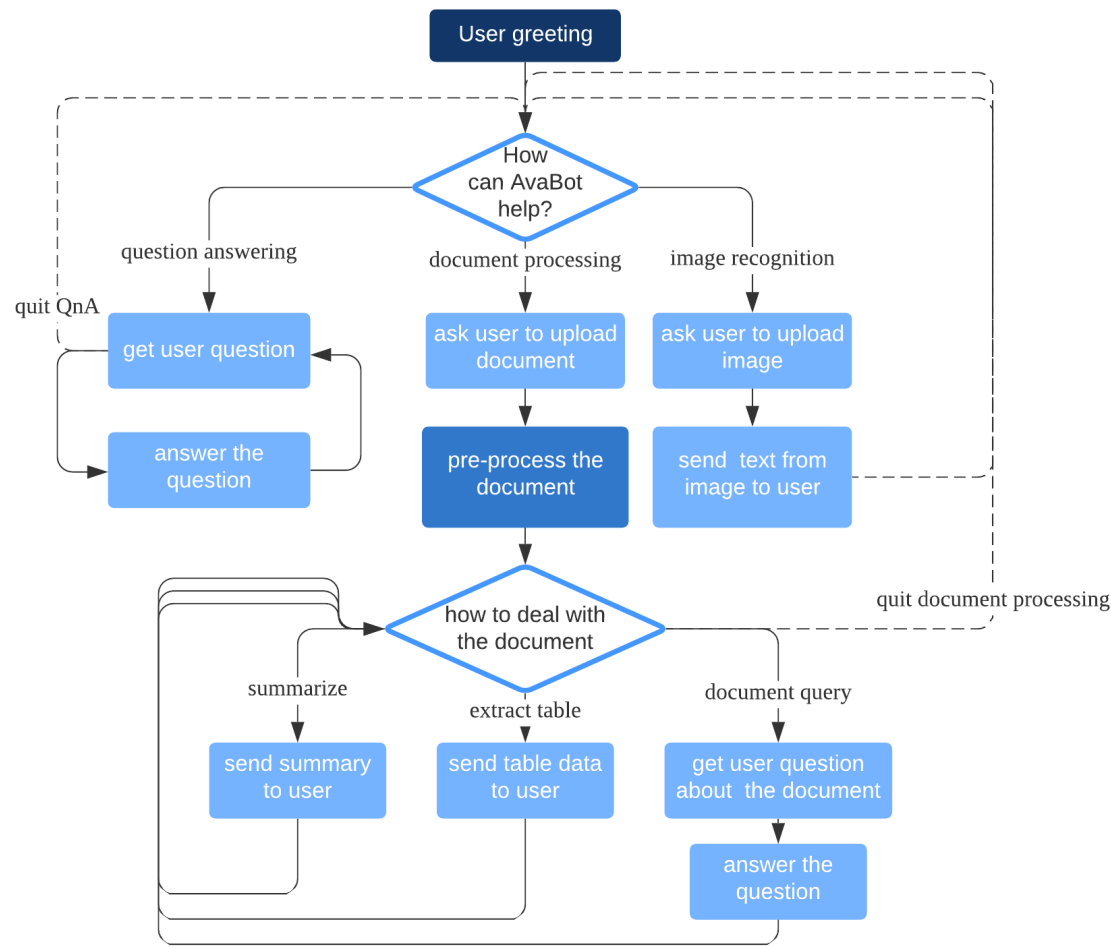
Document processing functionalities are integrated to AvaBot by APIs. The code of the APIs are in [./textSum/](#), [./QAsystem/](#), and [./formRecogFunction/](#).

Due to the high complexity and dependency on environment, QA system has been placed to a virtual machine in order to optimize its performance.

Below is the system architecture diagram for AvaBot:



Below is the dialog flow diagram for AvaBot:



## Project tree

Below is the project tree showing the main files and their uses in the repository:

```

.
├── AvabotTeam8-src/      # The bot source code
│   ├── .vscode          # VS Code configuration for bot development
│   ├── bots/
│   │   └── avabot.js     # The bot class
│   ├── coverage/        # Testing coverage report
│   ├── dialogs/         # The bot's dialog classes
│   │   ├── mainDialog.js
│   │   └── ...
│   ├── node_modules/    # Node module dependencies for the project
│   └── PostDeployScripts/ # Bot Deployment Scripts for setting continuous
deployment
│   ├── test/            # Unit tests and integration tests for the bot
│   └── .env              # environment file for connecting to azure
services
│   ├── index.js         # App entry point
│   ├── package.json     # Node.js package configuration file
│   └── web.config        # Configuration file if using iisnode behind
Express
│   └── ...
├── docs/                # Documentation files
├── formRecogFunction/    # Src and documents for Form Recognizer API
├── QAsystem/            # Src and documents for QA system API
├── testAPI_example/     # Demo for calling APIs in python
├── textSum/             # Src and documents for Text Summarization API
├── WebBrowserBot/       # Demo for running AvaBot on a web browser
├── AvaBot.bot           # Bot configuration file for running the bot on
MS bot emulator
├── LICENCE              # License for the project
└── *.md                 # Project documentation files

```

## Deployment

- See AvaBot Deployment Manual [here](#)

## AvaBot Deployment Manual

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AvaBot has been created using [MS Bot Framework](#), it can

- Answer general questions, Avanade-related questions, and UCL-related questions
- Summarize a document
- Extract table data from a document
- Answer questions about a document
- Recognize images of business-card pattern

## Prerequisites

- [Git](#)
- [Node.js](#)
- [ngrok](#)
- [Bot Framework Emulator](#)

## Build and Run

### Configure Bot Framework Emulator

- Install the latest Bot Framework Emulator from [here](#)
- Launch Bot Framework Emulator
- Go to Settings on the left bottom of the window
- Enter Path of ngrok
- Tick **Bypass ngrok for local address** box
- Tick **Run ngrok when the Emulator starts up** box

### Run the bot

- Clone the repository

```
git clone  
https://github.com/UCLComputerScience/COMP0016_2020_21_Team8.git
```

- Make sure **MicrosoftAppId**, **MicrosoftAppPassword**, **QnAKnowledgebaseId**, **QnAEndpointKey**, and **QnAEndpointHostName** are correctly configured in **AvabotTeam8-src/.env** file
- In a terminal, navigate to **AvabotTeam8-src**

```
cd AvabotTeam8-src
```

- Install modules

```
npm install
```

- Run the bot

```
npm start
```

- Launch Bot Framework Emulator

- File -> Open Bot
- Browse and choose `AvaBot.bot` in the `COMP0016_2020_21_Team8` repository

## Test

The testing of the project uses `mocha`, `chai`, and MS `botbuilder-testing` package. Make sure you have installed them by `npm install`.

- In a terminal, navigate to `AvabotTeam8-src`
- Run test by

```
npm run test
```

- Run test with coverage by

```
npm run cover
```

- Run test and generate a coverage report by

```
npm run coverage
```

Note: for passing all the tests, make sure the APIs used by the bot are working properly.

## Further Development

To develop your own bot application, see [Azure Bot Service](#) for creating Web App Bot resource and configure the `AvabotTeam8-src/.env` file with your AppId and AppPassword.

To learn more about deploying a bot to Azure, see [Deploy your bot to Azure](#) for a complete list of deployment instructions.

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- See how to use the APIs for [Text Summarization](#), [QA System](#) and [Form Recognizer](#) in the corresponding folders.

## Usage

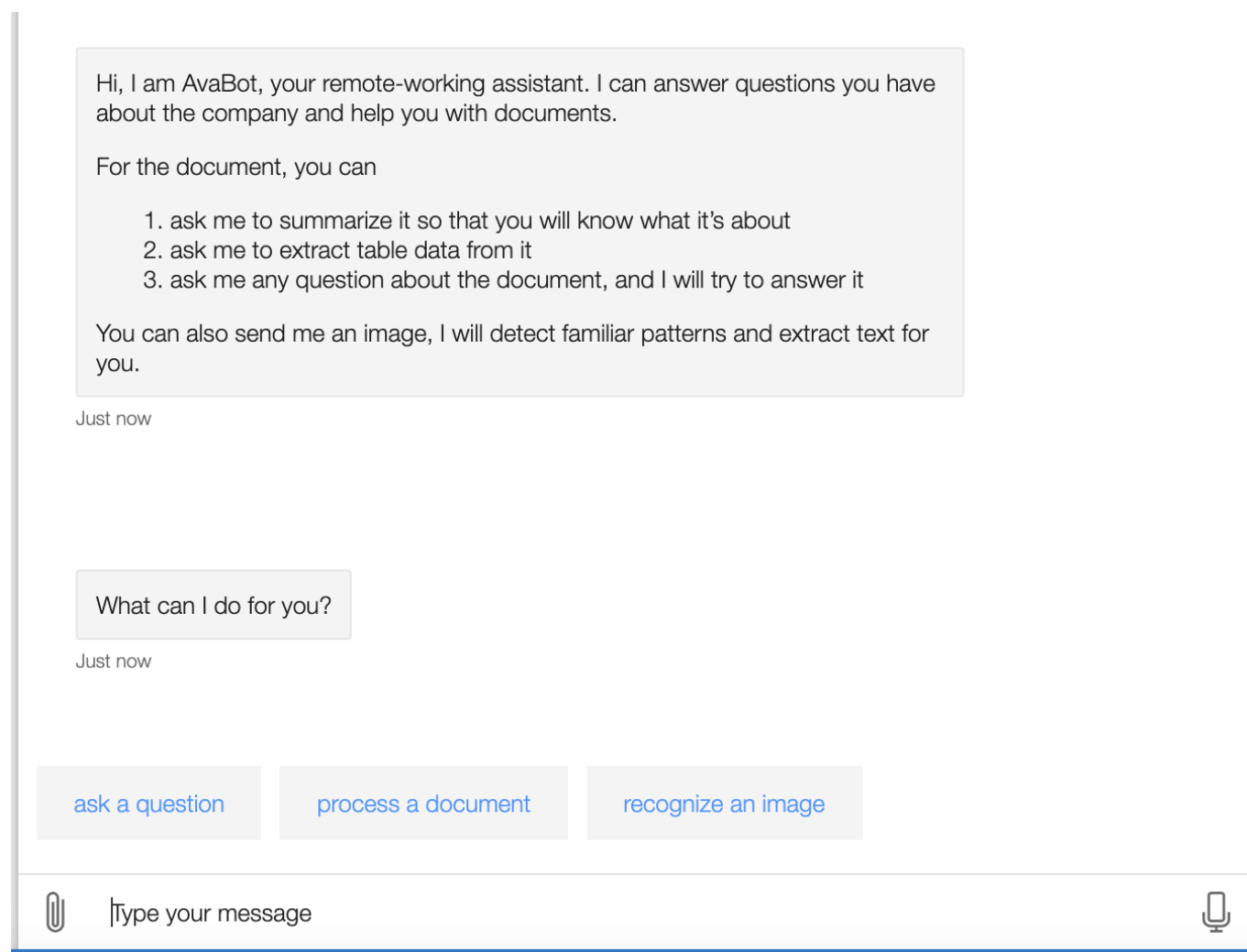
AvaBot is hosted on the Azure Bot Service. The service defines a REST API and an activity protocol for how bots and channels or users can interact. AvaBot's messaging endpoint is at

<https://avabotteam8.azurewebsites.net/api/messages>.

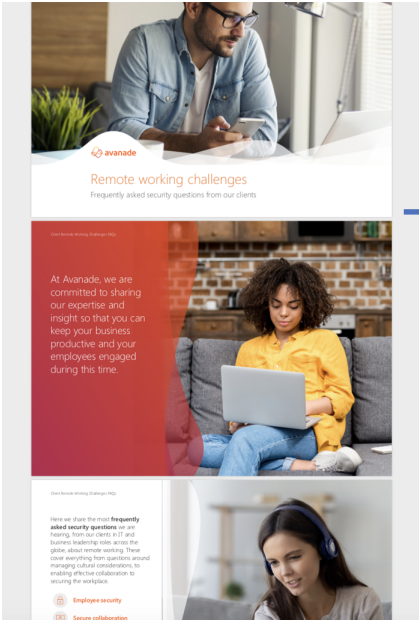
Demo for using the bot on a web browser can be found in [./WebBrowserBot/](#).

## ShowCase

## 1. AvaBot greets the user:



## 2. AvaBot summarizes a document:



Avande  
Remote working challenges  
Frequently asked security questions from our clients

At Avande, we are committed to sharing our expertise and insight so that you can keep your business productive and your employees engaged during this time.

Here we share the most frequently asked security questions on you hearing from our clients in IT and business leadership roles across the globe about remote working. These cover everything from questions around managing cultural considerations to enabling effective collaboration to securing the workplace.

Employees security  
Secure collaboration

How can I help with the document?

A minute ago

summarize it

A minute ago

Title: Remote working challenges

Summary:

Remote working challenges Frequently asked security questions from our clients At Avande, we are committed to sharing our expertise and insight so that you can keep your business productive and your employees engaged during this time.

The unprecedented demand for accessing company resources remotely puts extra pressure on access points and VPN services.

A modern born-in-the-cloud Application Proxy solution that enables secure remote access to internal web applications – with additional security checks via conditional access and MFA – is highly scalable.

You can also complement your traditional VPN technology with new cloud remote access solutions that will improve remote worker security while alleviating capacity risks on your legacy VPN solution.


Help employees to control where data resides and is processed by considering what security policies should be extended to corporate-owned devices or even personal devices.

Enabling BYOD for employees and partners may require enhanced security and

summarize it extract table QnA about it

Type your message

3. AvaBot recognizes an image:



Dr. Avery Smith  
Senior Researcher  
Cloud & AI Department

Contoso  
2 Kingdom Street  
Paddington, London, W2 6BD

avery.smith@contoso.com  
https://www.contoso.com/  
mobile: +44 (0) 7791 123456  
tel: +44 (0) 20 9876 5432  
fax: +44 (0) 20 0123 4567

Attachment "business-card-english.jpg" has been received.

Processing the image, please wait

-----Recognizing business card #1-----

Contact First Name: Avery  
Contact First Name: Smith  
Company Name: Contoso  
Department: Cloud & AI Department  
Job Title: Senior Researcher  
Email: [avery.smith@contoso.com](mailto:avery.smith@contoso.com)  
Website: <https://www.contoso.com/>  
Address: 2 Kingdom Street Paddington, London, W2 6BD  
Mobile phone number: None  
Fax number: None  
Other phone number: None

Type your message

Appendix

- [Development Blog](#)
- [Project Website](#)
- [User Manual](#)