

University of Technology, Jamaica
Faculty of Engineering and Computing
School of Computing and Information Technology

Analysis of Programming Languages (CIT4004)

Semester 2 - 2019/2020
Student Group Project (20%)

Lecturer: David White

Date Given: Week of February 10, 2020

Due Date: Week of March 9, 2020

| Project Team Members | | |
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| Name | Id Number | Signature |
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Voice activated AI-powered personal assistants

Today, many mobile and IoT devices are equipped with voice activated AI-powered personal assistants such as Amazon's Alexa, Microsoft's Cortana, Google's Google Assistant, Apple's Siri, and Samsung's Bixby. These voice-activated personal assistants are activated when their wake word or phrase is spoken. They can then be used to search the internet, control devices such as lights and doors, play music streams, send emails, order products online, order take-out food, state the condition of the local weather, etc. The global market for these assistants is estimated to be US \$7.4 billion by 2024.

This project requires your group members to research and document any voice activated AI-powered personal assistant, develop personalized services, skills, actions or extensions for that personal assistant, and present it in class.

Issues to consider and discuss in your project documentation:

- What programming language(s) was your chosen voice activated AI-powered personal assistant developed in
- Given the ever-expanding capabilities of voice activated AI-powered personal assistants, why then is there still the need for existing programming languages and why are new programming languages still being created
- What programming language(s) is used to develop personalized services, skills, actions or extensions for voice activated AI-powered personal assistant



- What are the characteristics of the programming language used to develop personalized services, skills, actions or extensions for your chosen personal assistant, and how do these characteristics affect the readability, writability and reliability of the language
- Is the development language compiled, interpreted or both (hybrid)

The Application

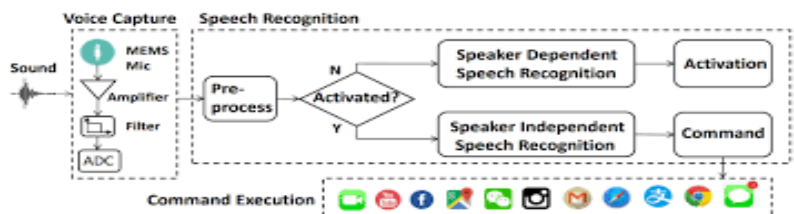
Organized yourselves into groups of no more than three (3) persons and build personalized services, skills, actions or extensions for a voice activated AI-powered personal assistant of your choice. When activated, your personalized services, skills, actions or extensions must allow a user to speak the keywords “About”, “Semantics”, “Lambda Calculus”, and “Quit”. The system should respond to the keywords as follows:

About: Speak “APL class of 2019/2020 semester 2 project” and list the name of the group members

Semantics: Speak a brief explanation of what semantics are in programming language design, and list the three types of semantics.

Lambda Calculus: Accept spoken lambda calculus expressions, evaluate them, and speak the final result.

Quit: Exit the personalized services, skills, actions or extensions and return to normal mode.



Required

To complete this project successfully, you should:

- Produce a project report discussing the issues relating to the programming language(s) used to develop personalized services, skills, actions or extensions for your chosen voice activated AI-powered personal assistant
- Develop personalized services, skills, actions or extensions for your chosen voice activated AI-powered personal assistant, according to the specifications given above
- Email your project report and working application code to your tutor.
- Make a 10-15 minute presentation on your project to the class in the allotted time

30% of the overall project grade will be allocated to your project report.

70% of the overall project grade will be allocated to your application.

Your completed project must run, you must hand in your project report and application source code, and you must conduct the 10-15 minute presentation to the class to receive a project grade. Bring a copy of this project sheet with you to the presentation and place the names and id numbers of all your group members in the space provided. Late projects will attract a loss of 10% per day. Projects which do not run will not receive a passing grade. No individual projects will be accepted. Plagiarism is considered as a very serious offense by the University and will be penalized as outlined in the Student Handbook.