PSEBot: A Mobile Assistant Chatbot with Natural Language Processing that Provides Stock Data from the Philippine Stock Exchange

Robert A. Cosuco and Fermin Roberto G. Lapitan
Institute of Computer Science, College of Arts and Sciences, University of the Philippines – Los Baños

Abstract

PSEBot is a mobile assistant chatbot developed using the React Native framework and DialogFlow for online NLP service. This chatbot aims to provide pertinent stock information on the go. It recognizes intent based on the user's text query and provides corresponding real-time price and technical indicator of the stocks listed in PSE. Upon the conducted SUS survey of 30 testers, the chatbot is considered usable.

Introduction

Information regarding the publicly listed stocks is not that user-friendly given that access to it is mainly done on a computer. Hence, studies that focus on giving stock information on a mobile platform is a priority. A mobile-based chatbot that could give relevant stock data and technical indicators on the go may help stock investors in their financial endeavor.

Objectives of the Study

Specifically, the study aims to:
1) to get historical and real-time data of stocks from the Philippine Stock Exchange;
2) to recognize the user's intent based on query;
3) to compute for the technical indicators of a specified stock; and
4) to determine the usability of the chatbot.

Methodology

The mobile chatbot was created using NodeJS, React Native, DialogFlow, and RestDB.io

The flow of the chatbot is summarized in the following flowchart.

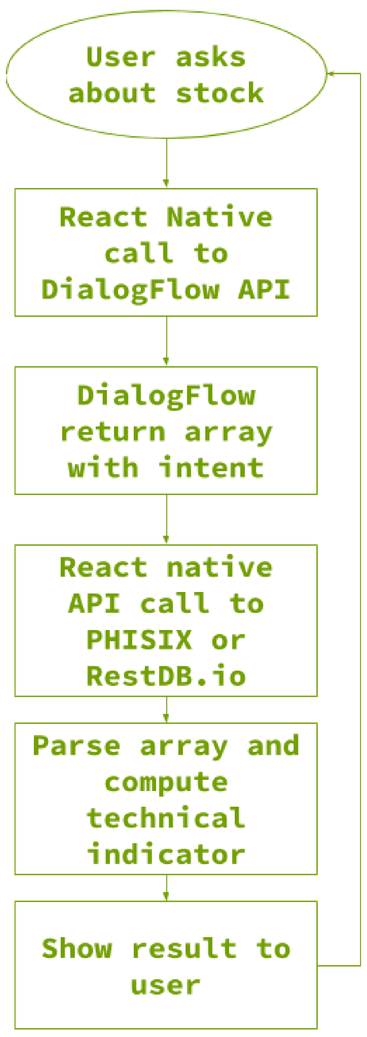

Figure 1. Chatbot Flow

Results and Discussion

A. Chatbot Application

PSEBot was developed and tested by 30 users with background on the Philippine Stock Exchange. The average score using the System Usability Scale (SUS) survey was 78.92. This is graded as A-, which is considered as above the 73 percentile of scores in the database.

B. Screenshot

The following are screen captures of the conversation of the user with the chatbot.

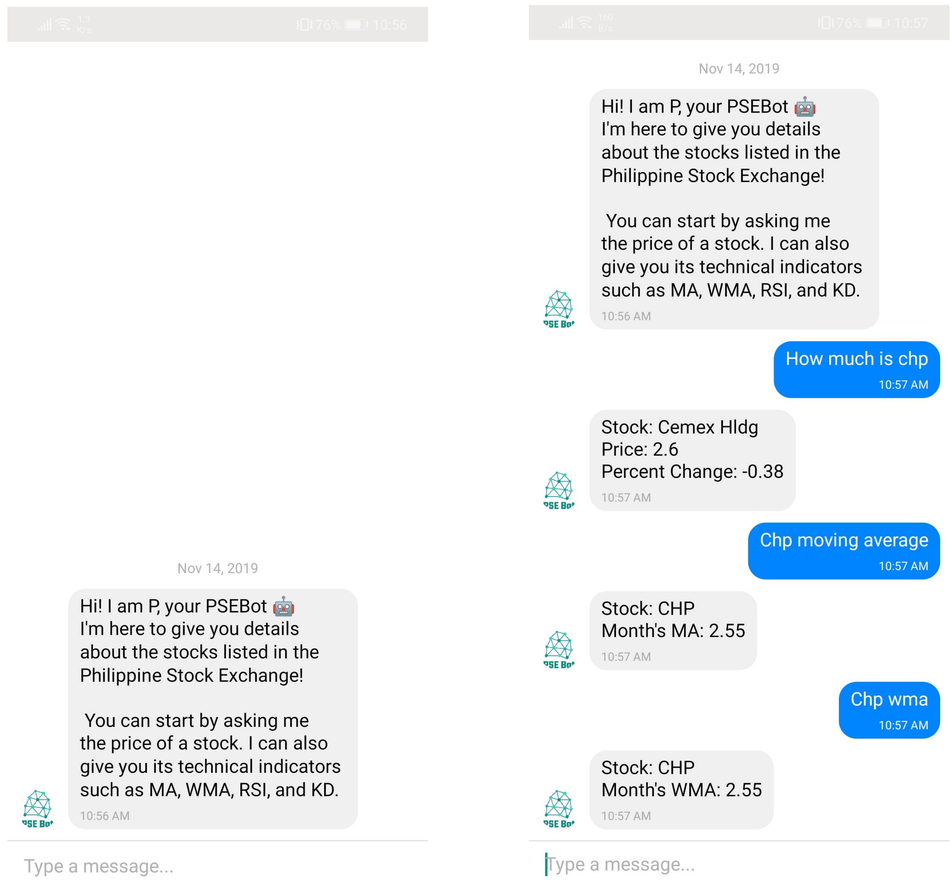

Figure 2. Sample conversation with the chatbot

C. Technologies

The study incorporated different technologies from the online database which served historical information for the stocks to the agent in DialogFlow which is connected to the ReactNative framework as the user interface.

Conclusion

The chatbot was able to provide users important information regarding the stocks on the go without the need to log in to their trading accounts. It was able to give real-time price, volume, and technical indicator of a stock. The chatbot is deemed usable with an above average score.

About the Author

The author is an undergraduate BS Computer Science student in the University of the Philippines – Los Baños. He is a proud member of the Young Software Engineers' Society. Besides binge watching tv series during free time, he is also interested in investing in different markets besides stocks such as trust funds and cryptocurrencies.