

General Article

CodeFetch-A Plugin for Text Editor

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Received 30 Nov 2017, Accepted 06 Dec 2017, Available online 11 Dec 2017, Vol.7, No.6 (Nov/Dec 2017)

Abstract

The Internet is complex, large and ever evolving. Almost 90% of all the data in the world has been generated over the last few years. In this vast ocean of data, how does one get the relevant piece of information? This is where comes the "CodeFetch". In this paper, we present a plugin extension for any text editor, in this case, Atom, which is an open sourced text editor for languages such as C, C++, Python, PHP, Perl, JavaScript, which is made by GitHub. The plugin named "CodeFetch", basically fetches regular algorithms and chunks of code used normally from the internet through the technique of web scraping. The user inputs a query in plain English. The plugin searches the web, scrapes the data from the most reliable source possible and returns possible outcomes of the selected query in user's desired language. The user can now choose the best possible option as per his requirement. What makes this unique is it also includes an Alexa Skill, which is an artificial intelligence based voice user interface, which fetches code upon being asked and pastes it directly to the text editor.

Keywords: Atom – A Text Editor, JavaScript, Python, and Amazon Alexa.

1. Introduction

In the present scenario, due to the increase in the amount of data, to get the relevant data or piece of information has become essential. Atom is an open sourced text editor for almost all programming languages made by GitHub, available for Windows, MacOS, and Linux operating systems (<https://github.com/atom/atom/releases/tag/v1.22.1>). This plugin is for who codes and as well as to anyone who is learning to code. This plugin is a convenient and easy to use application for students and professionals. The plugin will scrape the internet for correct answers related to query and fetch them for the user making this process simplified. This also includes the Amazon Alexa, which is an artificial intelligence based voice user interface. We included the Alexa skill which is in python who fetches the code upon being asked and pastes it directly in the text editor when the plugin is called. The objective of this paper is to extract data from internet using Google's Search-based on search query and use JavaScript for text editor and Python for Alexa to give the desired result.

2. Background Work

With the increase in the amount of data, there is a need to extract information about the entities, their

properties and relationships from the textual data. Text mining is a form of an information extraction used to retrieve unknown information. Another form of information extraction is Web Scraping (Vargiu, 2012). Web scraping is technique used to extract the data from the internet or websites. It is data scraping in which relevant data is gathered and copied from the websites into a central local database (https://en.wikipedia.org/wiki/Web_scraping). Web scraping is similar to web indexing where indexing is done by softbot and then the unstructured content is converted to the structured content (Malik, 2011). This plugin uses this technique to find the data for the query and gives best possible data in return. In this case we have used the StackOverflow website to scrape the algorithms and information. We are only scraping the accepted the answers by the StackOverflow website.

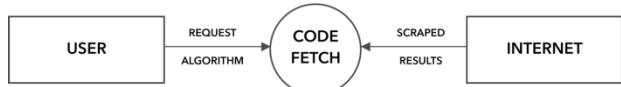


Figure 1: A general data flow diagram

2.1 Atom – A Text Editor

Atom is an open sourced and free text editor developed by Github. It is a desktop application written in CoffeeScript and Less. It supports almost every programming language such as C/C++, C#, CSS,

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CoffeeScript, Git, HTML, JavaScript, Java, PHP, Python, Ruby, Ruby on Rails, Sass, Shell Script, Scala, SQL, TOML, XML, YAML etc. It supports for plug-ins written in Node.js and embedded Git Control. For this the “CodeFetch” plugin is written in JavaScript ([https://en.wikipedia.org/wiki/Atom_\(text_editor\)](https://en.wikipedia.org/wiki/Atom_(text_editor))).

This text editor is available for OS X, Windows or Linux making it a Cross-platform editor. It has Smart autocomplete which helps you to write code faster with a smart and flexible autocomplete. It has Find and replace option which helps you to find, preview and replace text as you type in a file or across all your projects. It has multiple panes feature which splits your Atom interface into multiple panes to compare and edit code across files (<https://atom.io>).

2.2 Amazon Alexa

According to Nilsson (Nilsson, 2017), Artificial Intelligence is a field of study that is used to explain and emulate the intelligent behavior of machines by which it works efficiently. Artificial Intelligence finds its application in speech recognition, pattern matching, induction, deduction etc. Speech recognition is the process of understanding human speech through the computer and converting the speech signals into words (Sathya, 2017). Alexa is an artificial intelligence based intelligent personal assistant developed by Amazon. It is capable of doing various tasks such as voice interaction, music playback, making to-do lists, playing audiobooks, reading mails, setting alarms and providing weather and other real time information such as news.

Alexa can use itself to control several smart devices and act as a home automation system. Alexa allows users to activate the device with a wake-word (such as *Echo, Code* for this plugin). Alexa supports only English and German language for interaction and communication. An app is available from the Apple App Store, Google Play and Amazon Appstore. This app can be used by the owners of Alexa-enabled devices to install skills, manage alarms, control music etc(https://en.wikipedia.org/wiki/Amazon_Alexa).

Amazon also allows developers to build and publish skills for Alexa using Alexa Skills Kit. One can always update, edit and delete the skills (<https://developer.amazon.com/docs/custom-skills/register-and-manage-alexa-skills-in-the-developer-portal.html#register-a-new-skill>). For this plugin we have made the Alexa Skill using Python.

3. Methodology

In this section, we give the detailed steps to use the plugin for text editor as well as for Alexa. The following steps have been followed in order to find the result of the query using text editor:

- 1) Download the Atom-text editor on your operating system

- 2) Open the Atom and Create a new project
- 3) Install the plugin.
- 4) Enter the Algorithm and Language
- 5) Run the CodeFetch plugin

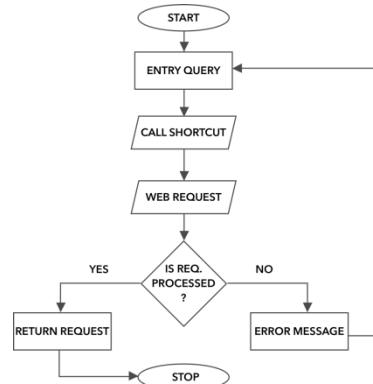


Figure 2: Flow chart for CodeFetch Plugin for Text Editor

The following steps have been followed in order to find the result of the query using Alexa:

- 1) Create a developer account for making custom Alexa skill
- 2) Enter the account key in your program
- 3) Create the custom Alexa skill using Alexa skill kit by Amazon
- 4) Give the command containing Algorithm and Language to Alexa
- 5) Open text editor and Run the plugin

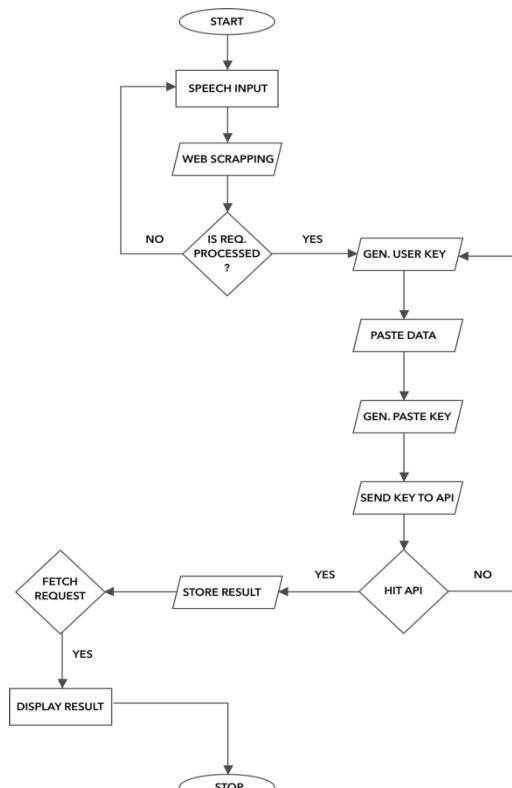


Figure 3: Flow chart for CodeFetch Plugin for Alexa

4. Results

Enter the Algorithm you need, here *Bubble Sort* and Language selected is *python* on the right bottom of the editor.

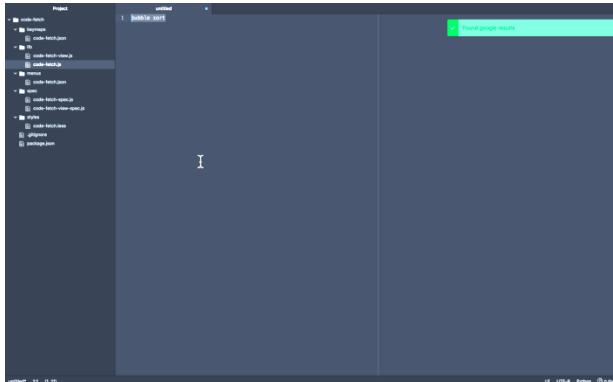


Figure 4: Entering the Algorithm name

Select the name and press right click. A menu will appear and select the plugin "CodeFetch".

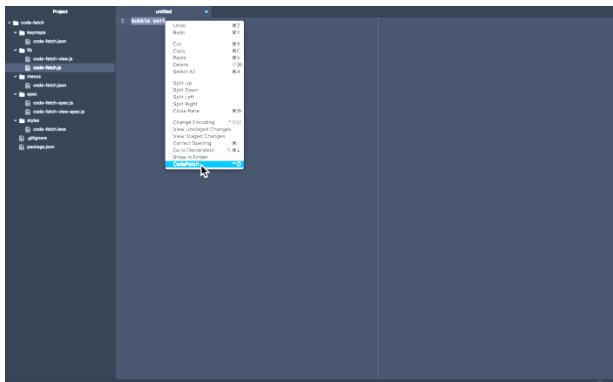


Figure 5: Running the CodeFetch plugin

If the algorithm is found, it will display the code in the desired language.

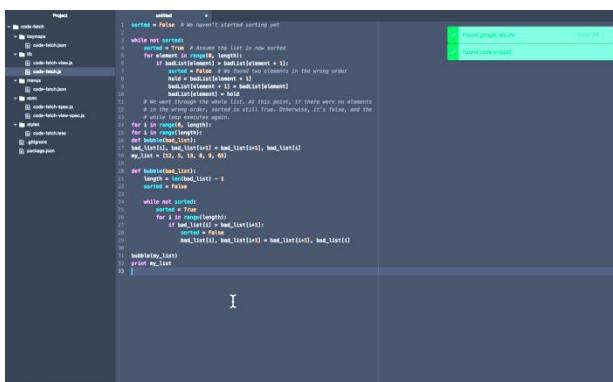


Figure 6: Result- Bubble sort Algorithm

In this, we give command to Alexa to find the *Bubble Sort* algorithm in *python* language and once it finds the

code successfully. We go to the editor and write the word "alexa" and run the plugin "CodeFetch".

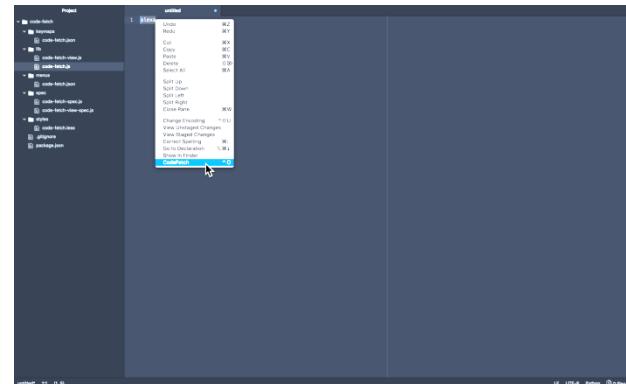


Figure 7: Using Alexa

It will display the result, that alexa stores when the command was given.

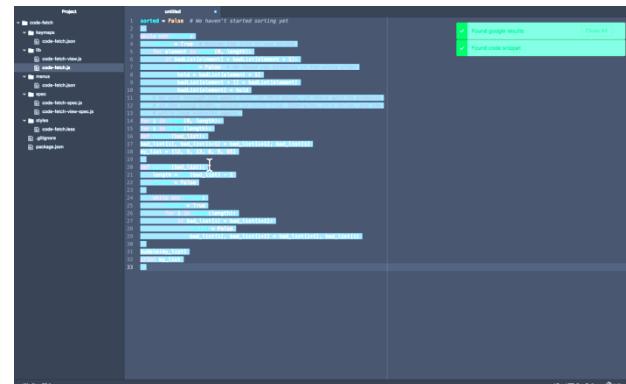


Figure 8: Result- Using Alexa

Conclusion

Based on the above visual results, we conclude that this plugin works successfully. This plugin helps to get the code/algorithm from the internet and transform it according to the user's need. It saves a lot of time for the programmers in writing the code as well as in finding the successful running algorithm or code all over the internet.

You can take the help of Alexa also, in which it finds the code for you and store it, so that whenever you want to use that code, all you have to do is run the plugin on text editor using the shortcut made for Alexa.

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