242-301 Advanced Computer Engineering Lab I Semester 1/2018

Lab 3SA02: Cross Platform Desktop Application Development

Asst. Prof. Suntorn Witosurapot, wsuntorn@coe.psu.ac.th

Introduction

Desktop Applications are that of certain OS-specific applications, which can provide users with the full power of native operating system (OS). However, developers of this kind of applications will meet inflexibility on porting the applications' source codes to run on the other platforms, due to different architectures of OS and platform. Unlike **Web-based applications**, they can run on different machines at ease, due to making no assumption about the running platform; just the web environment and the browser. See advantages and disadvantages of these two kinds of application from [1]. Nevertheless, with the advanced technology, it is now possible to develop the desktop applications by using means of Web-based applications. This leads to the goal of this laboratory. Our focus will be on a tool named "Electron[1]", which enables a web application runtime built on Node.js and the open source Google project Chromuim. As seen in Fig. 1, it brings web technologies to the desktop allowing developers to build desktop applications for major operating systems such as Windows, Mac and Linux, using JavaScript, HTML and CSS.

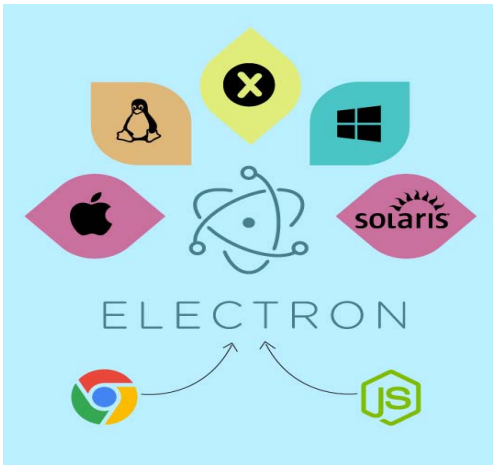

Fig. 1 Broadview of Electron Capability
(credit: http://www.promaticsindia.com/blog/githubs-electron-enabling-quick-and-easy-cross-platform-app-development/)

Useful resources

1. The Basics of Building a Cross-Platform Desktop Application with Electron, Cabot Technology Solution, https://hackernoon.com/the-basics-of-building-a-cross-platform-desktop-application-with-electron-814306c22d76 [Access: Aug 3, 2018]
2. รู้จักกับ "Electron" อีกก้าวของ "JavaScript", @noomerzx https://stories.sellsuki.co.th/รู้จักกับ-electron-อีกก้าวของ-javascript-c435834897df, [Access: Aug 3, 2018]

[1] https://electronjs.org/

Instruction

Section 1: Learn the technology from YouTube video

1.1 Overview

In this section, you will study about Electron by using a means of YouTube video.

1.2 Procedures

1.2.1 Access the YouTube video named "*What is Electron: The Hard Parts Made Easy*" at https://www.youtube.com/watch?v=8YP_nOCO-4Q&feature=youtu.be

1.2.2 Listen to understand the technology of Electron.

1.2.3 Download & install an Electron demo app that can be run on your computer

Section 2: Developing a simple hello world app

2.1 Overview

In this section, you will learn how to create a simple hello world desktop App by using JavaScript language.

2.2 Procedures

- Create a simple application by following the "Electron Tutorial" article, which can be found at https://redstapler.co/electron-tutorial/. This involves learning to prepare electron workspace, install electron using npm, create and run your first JavaScript desktop App.
  - Video: https://www.youtube.com/watch?v=sJFuMKPfpfs
  - Code: https://gist.github.com/theredstapler/3a09fb15b424317c10110c0d24d53e44

Section 3: Packaging the App

3.1 Overview

In this section, you will learn a) how to package Electron desktop App. into executable file (ex. Windows .exe file), and b) how to hide source code into asar file.

3.2 Procedures

- Follow the instruction given in the video titled "Electron Tutorial - Packaging the App" at https://www.youtube.com/watch?v=rP7j_hDL40Y or https://www.christianengvall.se/electron-packager-tutorial/
- View and see the resulted bundle of asar file

Check your understanding

- Describe how your Electron app works (Note: see reference [1] on the first page) and according to the Fig. 2, answer the following questions in your just-finished experiment:
  - The main process is in file(s): ……..
  - The render process is in file(s): ……

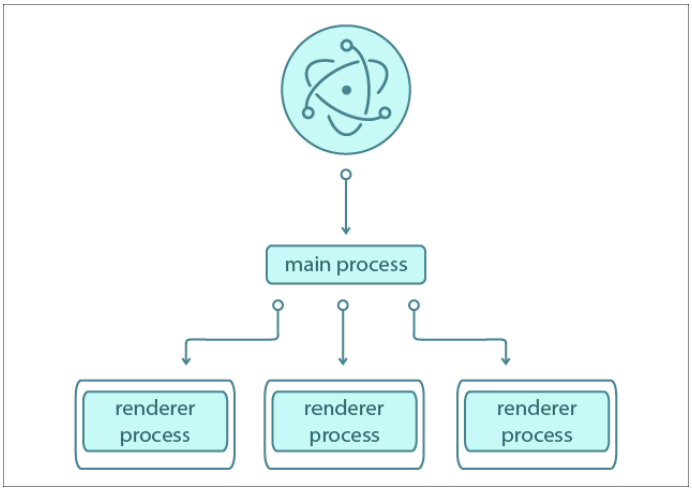

Fig. 2 How Electron App Works

- Explain why the Electron tool can give benefits to your programming in the future.

Good Luck!

Suntorn Witosurapot