Lightweight and Portable Cross-Platform Application Development Framework

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Cross-platform application development is extremely useful among software developing organizations because large end-user audiences can be targeted. Earlier approaches had drawbacks like complexity of design, low-level accessibility and slowness of learning rate. Later, cross-platform application development with web technologies were introduced. Electron and NW.js are the most popular frameworks. These combine embedded chromium browser and node runtime. The community pointed out several unseen drawbacks of these frameworks, such as large bundled application size, high memory consumption and development workflow. A possible solution is to introduce a new cross-platform application development framework. Importantly each platform has a built-in browser component which can be used instead of embedded chromium. Windows has MSHTML and Linux has gtk-webkit2. Furthermore, there is a default web browser in each platform too. Therefore, the chromium module can be replaced with either the user's web browser or web browser component. Node runtime can be replaced with a lightweight web server. This study introduces a new framework architecture which delivers the implementation of a portable, lightweight cross-platform application development framework including proof of using top frontend frameworks. The new framework uses the browser component or user's browser instead of embedded chromium and will replace node runtime by introducing a lightweight server runtime which exposes required OS level functions. The application development kit consists of launchers per platform, a HTML interface and source files (JavaScript and CSS). Some key highlighted advantages of new framework architecture design are light-weightedness, full portability, less resource consumption and easiness of development workflow.

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