Chrome Browser Extensions

Dr. Garrett Dancik

Overview

- Browser extensions essentially allow you to run Javascript on top of the current page, or in the background of the browser itself
- We will focus on Chrome browser extensions, though the process of developing extensions for other browsers is similar.
- Currently available Chrome extensions can be found here:
  - https://chrome.google.com/webstore/category/extensions

- We will consider 3 types of extensions:
  - Those which automatically run on desired pages
  - Those which run when the extension icon is clicked
  - Those which have a pop-up that allows for user input before running on the page

The manifest file

```json
1 ▼ {
2     "name": "Chrome Browser Extension Demo",
3     "description": "Demonstrates background and content scripts for a Chrome extension",
4     "version": "1.0",
5 ▼   "permissions": [
6         "activeTab"
7     ],
8
9     // These scripts automatically run when the url matches the specified patterns
10 ▼  "content_scripts": [
11 ▼    {
12          "matches": ["<all_urls>"],
13          "js": ["changeColor.js"]
14      }
15    ],
16
17    // Background scripts can be used to respond to events, such as clicking the icon
18 ▼  "background": {
19      "scripts": ["background.js"],
20      "persistent": false
21    },
22 ▼  "browser_action": {
23      "default_title": "Chrome Browser Extension Demo"
24    },
25    "manifest_version": 2
26  }
```

The extension has permission to access the currently active tab

The javascript *changeColor.js is* injected into all pages after the DOM loads.

The *background.js* script is run when the browser is opened

Manifest version must be 2 (required by Chrome browser)

References

- Content scripts:
  - https://developer.chrome.com/extensions/content_scripts

- Match patterns:
  - https://developer.chrome.com/extensions/match_patterns

- Permissions:
  - https://developer.chrome.com/apps/declare_permissions

- Google main page and tutorial:
  - https://developer.chrome.com/extensions

- To load / manage extensions, use the URL
  - chrome://extensions/

How to include jQuery in an extension

- You will need to download jQuery (compressed version recommended) from https://jquery.com/download/

- To use jQuery with *content scripts*, simply include the jQuery file (jquery-3.3.1.min.js) in the appropriate place in the manifest file.

- For use with *browser actions*, use *chrome.tabs.executeScript* in the background script to inject jQuery, and a callback function that handles the logic of your extension.

Manifest file when using a popup

```json
{
    "name": "Highlighter",
    "description": "Extension for Highlighting Words on a page",
    "version": "1.0",
    "permissions": [
        "activeTab"
    ],
    "browser_action": {
      "default_title": "Enter a search term",
      "default_popup": "popup.html"
    },

    "manifest_version": 2
}
```

Specify a default_popup for the
browser action