JS JavaScript TUTORIAL

JavaScript History pushState

Summary: in this tutorial, you'll learn how to use the JavaScript history `pushState()` method.

Introduction to the JavaScript history pushState() method

The `history.pushState()` method allows you to add an entry to the web browser's session history stack.

Here's the syntax of the `pushState()` method:

```
history.pushState(state, title, [,url])
```

The `pushState()` method accepts three parameters:

1) state

The `state` is a serializable object. When you navigate to a new state, a `popstate` event is fired. And the `popstate` event has a `state` property that references the history entry's `state` object.

2) title

Most browser currently ingore this title property. If you want to change the title of the document, you can use the `documen.title` property instead.

In practice, you pass an empty string to the `title` parameter.

3) url

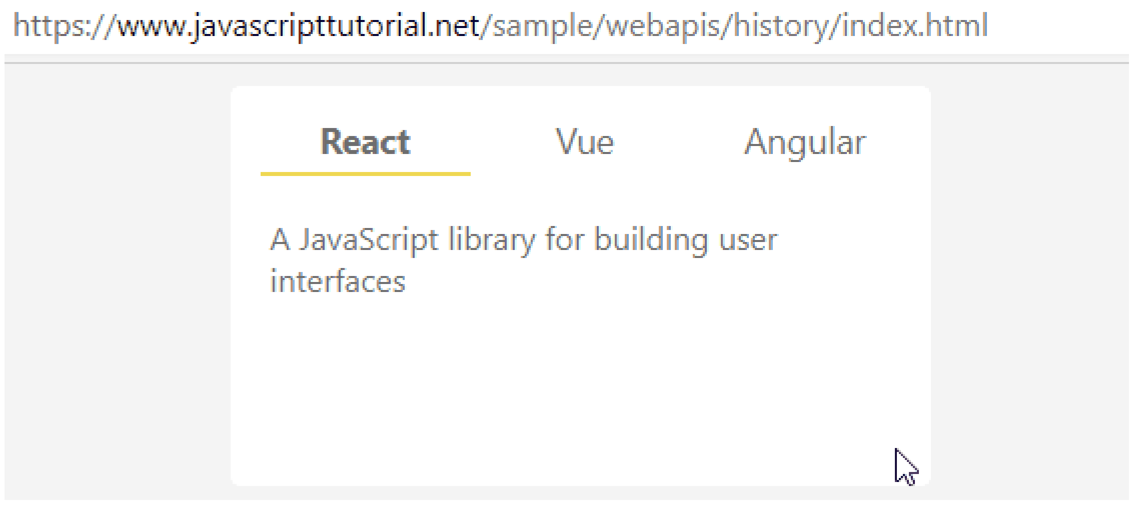
The optional `url` allows you to define the new history entry's URL. The URL must be the same origin as the current URL or the method will throw an exception.

When you set the new `url` , the web browser won't load the `url` . The `url` defaults to the current URL if you don't specify it.

JavaScript history pushState() example

We'll make a simple application that shows three tabs: React, Vue, and Angular.

When you click a tab, it'll show the content of the selected tab. it'll also update the URL using the history. `pushState()` method:


https://www.javascripttutorial.net/sample/webapis/history/index.html
React
Vue
Angular
A JavaScript library for building user interfaces

If you copy the URL with the hashtag and load it from the web browser, the app will load the corresponding content associated with that URL.

Click the following link to see the demo of the app.

Make the index.html page

The following defines the `index.html` page:

```
<!DOCTYPE html>
<html lang="en">
        <head>
                <meta charset="UTF-8" />
                <meta name="viewport" content="width=device-width, initial-scale=1.0" />
                <title>JavaScript History API: pushState Demo</title>
                <link rel="stylesheet" href="css/style.css" />
        </head>
        <body>
                <div class="container">
                        <div class="tabs">
                                <ul>
                                        <li class="active" id="tab1">React</li>
                                        <li id="tab2">Vue</li>
                                        <li id="tab3">Angular</li>
                                </ul>
                                <div class="content">
                                        A JavaScript library for building user interfaces
                                </div>
                        </div>
                </div>

                <script src="js/app.js"></script>
        </body>
</html>
```

And you can find the `style.css` file here.

In the `app.js` file:

First, select the tabs and content elements using the `querySelector()` method:

```
const tabs = document.querySelector(".tabs");
const content = document.querySelector(".tabs > .content");
```

Second, define a map object that associates the URL hash with each tab id:

```
const hashes = new Map([
    ["#react", "tab1"],
    ["#vue", "tab2"],
    ["#angular", "tab3"],
]);
```

Third, define another map called data for mapping the tab id with an object. The object has two properties: `url` and `content`.

```
const data = new Map([
    [
        "tab1",
        {
            url: "index.html#react",
            content:
                "React is a JavaScript library for building user interfaces.",
        },
    ],
    [
        "tab2",
        {
            url: "index.html#vue",
            content: "Vue is the Progressive JavaScript Framework.",
        },
    ],
    [
        "tab3",
        {
            url: "index.html#angular",
            content:
                "Angular is a platform for building mobile and desktop web applications.",
        },
    ],
]);
```

Fourth, when each tab (or li element) is clicked, the `click` event occurs. To make it more efficient, we'll use the event delegation.

So instead of handling the `click` event on each tab, we'll handle the `click` event on the parent of each tab:

```
tabs.addEventListener("click", function (event) {
    if (!event.target.id) return;
    update(event.target.id);
});
```

The `if` statement ensures that the event handler only updates the content and url if the `click` event occurs on each individual tab. It'll do nothing when you click the content area of the tab.

Inside the event handler, we call the `update()` function and pass the tab id into it.

Fifth, the following defines the `update()` function:

```
const update = (tabId) => {
    // remove the active class of the previously selected tab
    const currentTab = tabs.querySelector(".active");

    if (currentTab.id != tabId) {
        currentTab.classList.remove("active");
    }
    // add active class to the selected tab
    const selectedTab = document.getElementById(tabId);
    selectedTab.classList.add("active");

    const entry = data.get(tabId);

    if (entry) {
        // update the URL
        history.pushState(null, "", entry.url);
        // change the content
        content.innerHTML = entry.content;
    }
};
```

The `update()` function removes the `.active` class from the current tab and sets the same CSS class to the currently selected tab.

It also gets the url and content from the data based on the tab id. To update the URL, it uses the `history.pushState()` method.

The app should be working as expected with only one issue.

If you copy the URL:

```
https://www.javascripttutorial.net/sample/webapis/history/index.html#angular
```

... and paste it into the new browser window, the app will show the `React` tab instead of `Angular` tab.

To fix this, we get the hash from the URL using the `location` object and call the `update()` function when the page is loaded.

```
(() => {
    // get tab id from the hash
    const tabId = hashes.get(window.location.hash);
    // update the tab
    if (tabId) update(tabId);
})();
```

The following shows the complete `app.js` file:

```
const tabs = document.querySelector(".tabs");
const content = document.querySelector(".tabs > .content");

// store the relationship between hash & tab id
const hashes = new Map([
    ["#react", "tab1"],
    ["#vue", "tab2"],
    ["#angular", "tab3"],
]);

// store the relationship between tab id and contents
const data = new Map([
    [
        "tab1",
        {
            url: "index.html#react",
            content:
                "React is a JavaScript library for building user interfaces.",
        },
    ],
    [
        "tab2",
        {
            url: "index.html#vue",
            content: "Vue is the Progressive JavaScript Framework.",
        },
    ],
    [
        "tab3",
        {
            url: "index.html#angular",
            content:
                "Angular is a platform for building mobile and desktop web applications.",
        },
    ],
]);

tabs.addEventListener("click", function (event) {
    if (!event.target.id) return;
    update(event.target.id);
});

const update = (tabId) => {
    // remove the active class of the previously selected tab
    const currentTab = tabs.querySelector(".active");

    if (currentTab.id != tabId) {
        currentTab.classList.remove("active");
    }
    // add active class to the selected tab
    const selectedTab = document.getElementById(tabId);
    selectedTab.classList.add("active");

    const entry = data.get(tabId);

    if (entry) {
        // update the URL
        history.pushState(null, "", entry.url);
        // change the content
        content.innerHTML = entry.content;
    }
};

(() => {
    // get tab id from the hash
    const tabId = hashes.get(window.location.hash);
    // update the tab
    if (tabId) update(tabId);
})();
```

Summary

- Use the `history.pushState()` method to add an entry to the web browser's session history stack.