Storing more than strings? Use JSON!

INTRODUCTION

Storing strings is all nice, but quickly limiting: you may want to store more complex data with at least a modicum of structure.

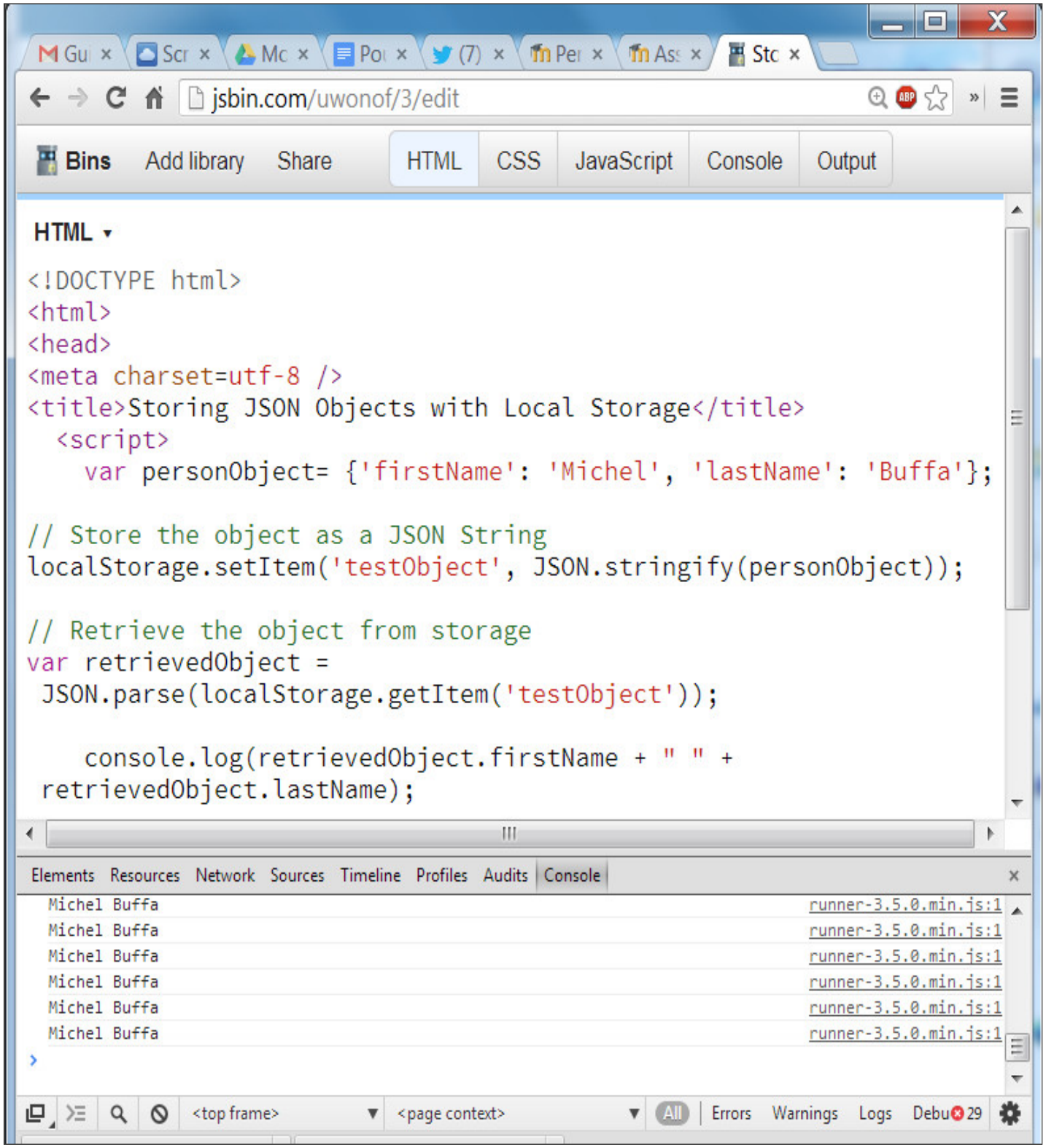
There are some simple approaches, such as creating your own minimal record format (e.g. a string with fields separated with a given character, using join() on store and split() upon retrieval) or using multiple keys (e.g.post_17_title, post_17_content, post_17_author, etc.). But these are really hacks. Thankfully, there's a better way, JSON.`stringify()` and JSON.`parse()` methods.

JSON provides a great way of encoding and decoding data that is a really good match for JavaScript. You have to be careful not to use circular data structures or non-serializable objects, but in the vast majority of cases, plugging JSON support into your local store is straightforward.

TYPICAL USAGE

```
locaStorage.key = JSON.stringify(object); // or...
localStorage.setItem(key, JSON.stringify(object));
```

Let's try a simple toy example (online at JS Bin). Here, this example saves a JavaScript object in JSON, then restores it and checks that the object properties are still there!



Source code:

```
<!DOCTYPE html>
<html>
```

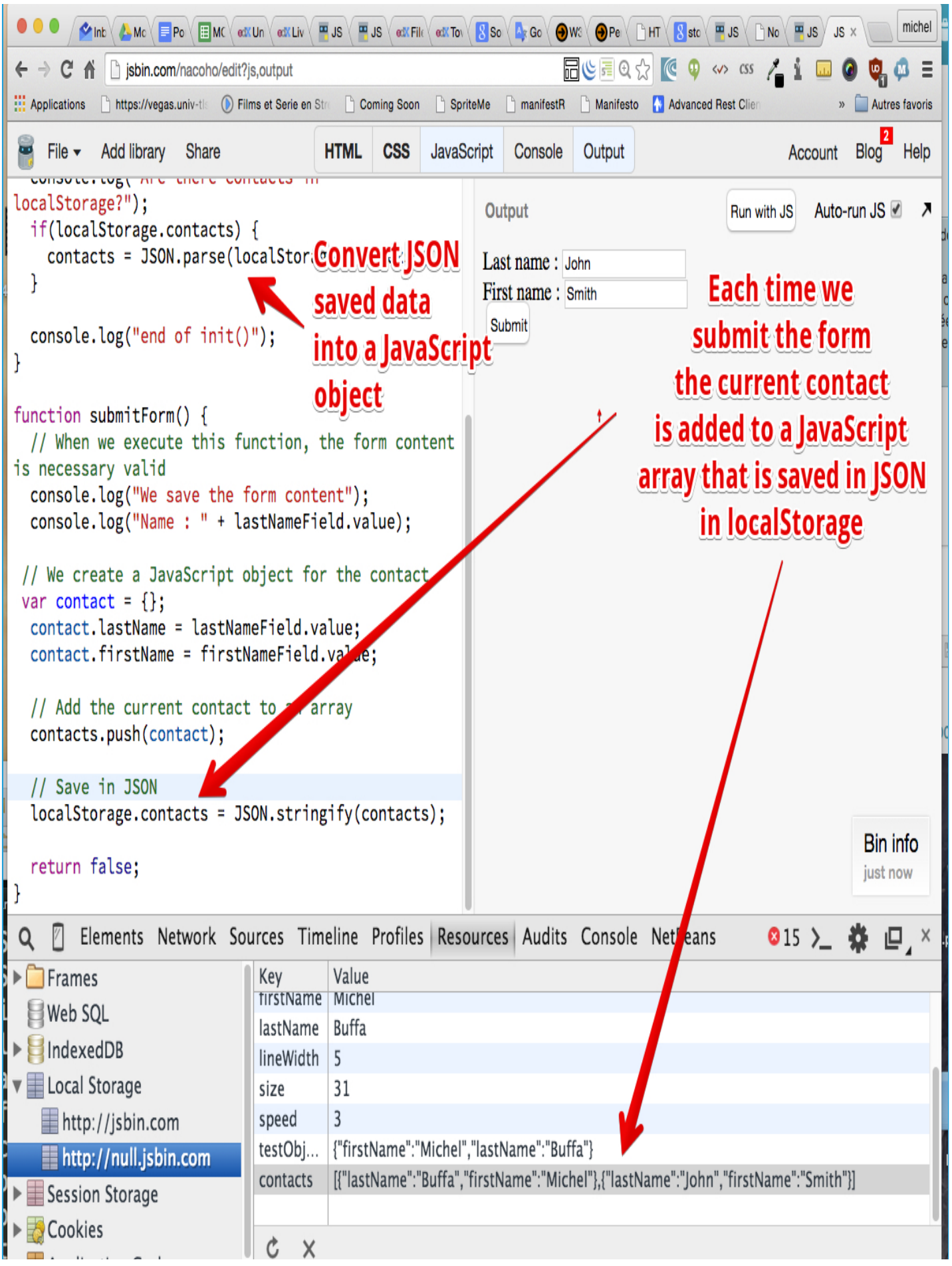
```
<head>
<meta charset=utf-8 />
<title>Storing JSON Objects with Local Storage</title>
 <script>
    var personObject= {'firstName': 'Michel','lastName': 'Buffa'};
    // Store the object as a JSON String

 localStorage.setItem('testObject',JSON.stringify(personObject));
    // Retrieve the object from storage

  var retrievedObject =JSON.parse(localStorage.getItem('testObject'));
    console.log(retrievedObject.firstName + "
" +retrievedObject.lastName);
   // then you can use retrievedObject.firstName,
retrievedObject.lastName...
 </script>
</head>
<body>
</body>
</html>
```

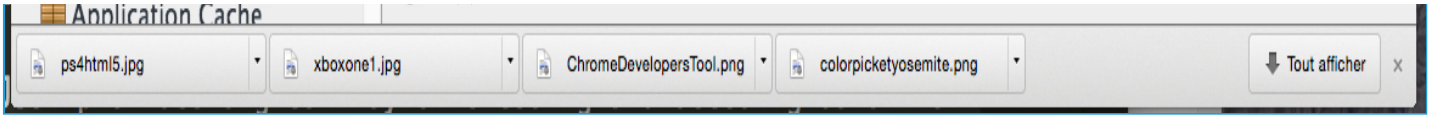
Explanations:

- **Line 7:** we built a JavaScript object that contains a person.
- **Line 10:** we store it in `localStorage` as a JSON string object, with a key equal to `testObject`.
- **Line 13:** we restore it from `localStorage` as a string, and the `JSON.parse` methods turns it back into a JavaScript object.
- **Line 15:** we print the values of the object properties.

MORE COMPLETE EXAMPLE THAT SHOWS HOW WE CAN SAVE A FORM'S CONTENT IN JSON

Online example on JS Bin that saves in localStorage an array of contacts in JSON

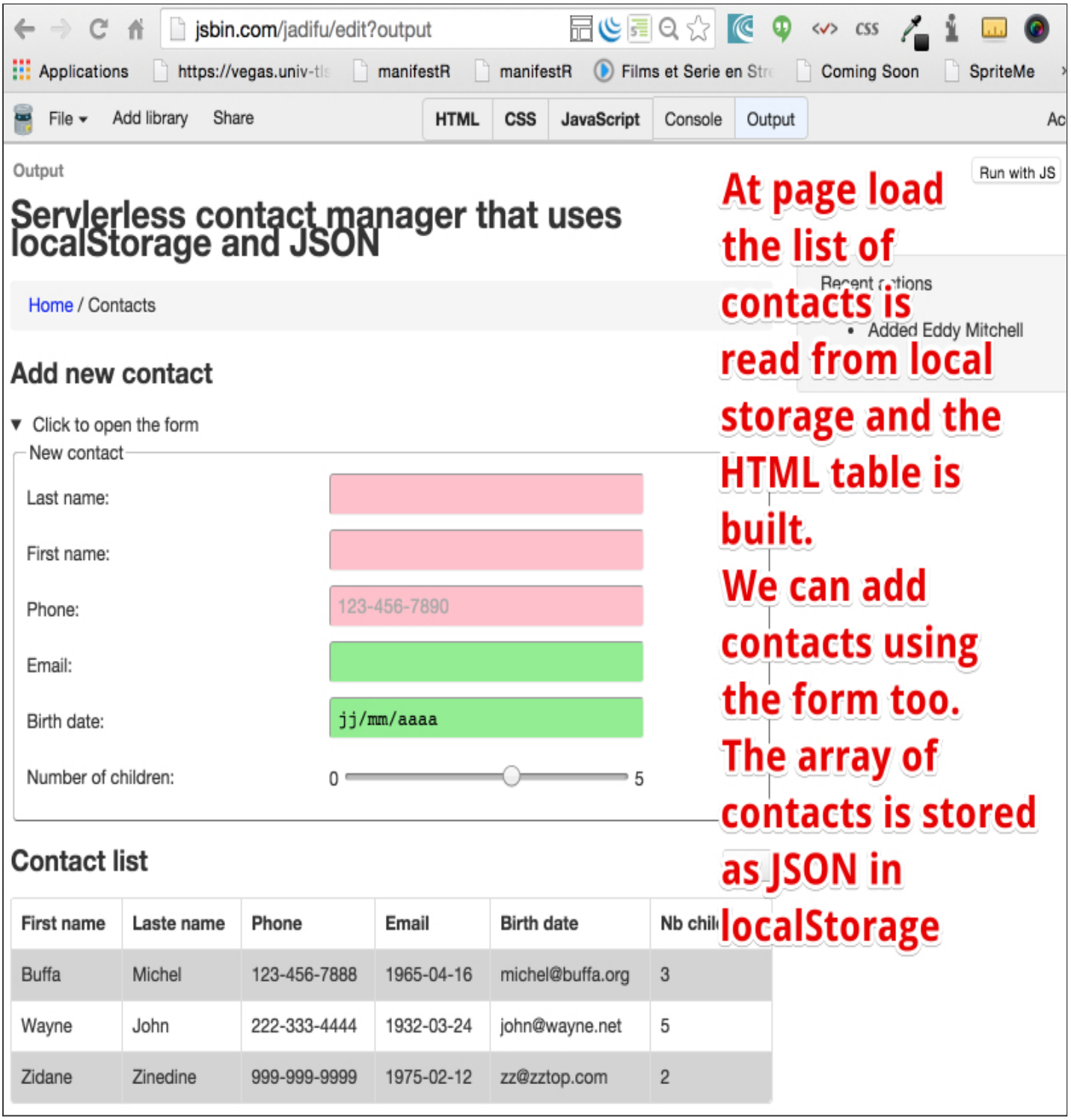

jsbin.com/nacoho/edit?js,output
File
Add library
Share
HTML
CSS
JavaScript
Console
Output
Account
Blog
Help
localStorage?");
if(localStorage.contacts) {
contacts = JSON.parse(localStor
}
console.log("end of init()");
}
function submitForm() {
// When we execute this function, the form content is necessary valid
console.log("We save the form content");
console.log("Name : " + lastNameField.value);
// We create a JavaScript object for the contact
var contact = {};
contact.lastName = lastNameField.value;
contact.firstName = firstNameField.value;
// Add the current contact to
array
contacts.push(contact);
// Save in JSON
localStorage.contacts = JSON.stringify(contacts);
return false;
}
Convert JSON saved data into a JavaScript object
Output
Run with JS
Auto-run JS
Last name : John
First name : Smith
Submit
Each time we submit the form the current contact is added to a JavaScript array that is saved in JSON in localStorage
Bin info
just now
Elements
Network
Sources
Timeline
Profiles
Resources
Audits
Console
NetBeans
15
Frames
Web SQL
IndexedDB
Local Storage
http://jsbin.com
http://null.jsbin.com
Session Storage
Cookies
Key
Value
firstName
Michel
lastName
Buffa
lineWidth
5
size
31
speed
3
testObj...
{"firstName":"Michel","lastName":"Buffa"}
contacts
[{"lastName":"Buffa","firstName":"Michel"},{"lastName":"John","firstName":"Smith"}]



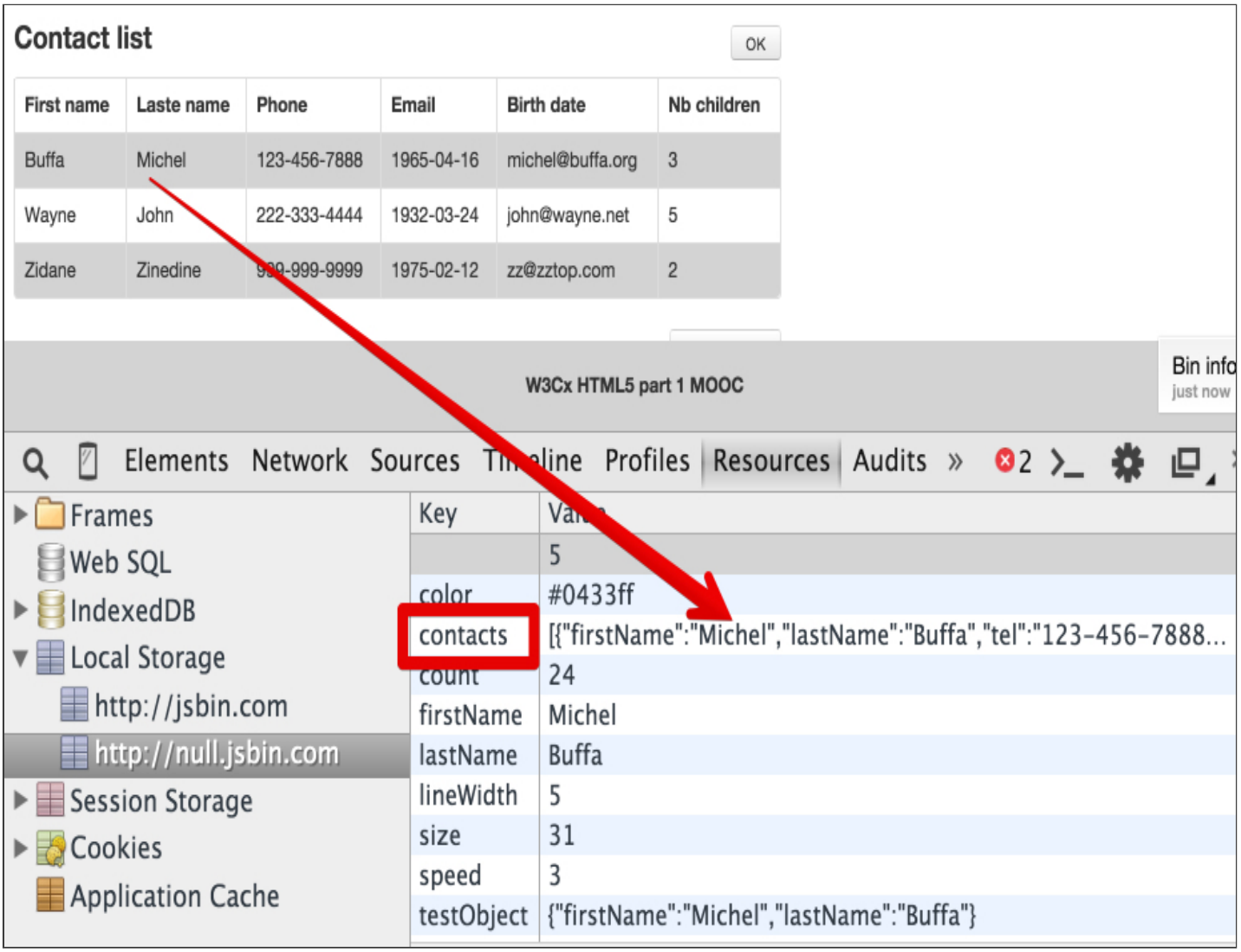
MORE COMPLETE EXAMPLE: A FORM AND A TABLE THAT DISPLAYS THE CONTACTS STORED IN LOCALSTORAGE

Example on JS Bin (uses summary/details so use a browser that supports it or add a polyfill, as seen in Week 1).

Add contacts using the form, see how the HTML table is updated. Try to reload the page: data are persisted in localStorage.



Examine the localStorage:



The source code of this example is a bit long, we propose that you examine it in the JS Bin tool, we extensively commented it. It uses:

- Well structured page with the new elements seen during Week 1 (section, article, nav, aside, etc.)
- HTML5 form elements with builtin and custom validation (the date cannot be in the past, the firstName and lastName fields do not accept &, #, ! or $ characters),
- localStorage for saving / restoring an array of contacts in JSON
- It shows how to use the DOM API for updating dynamically the page content (build the HTML table from the array of contacts, add a new line when a new contact is submitted, etc.)