Creating a database

Online example at JSBin that shows how to create and populate an object store named "CustomerDB". This example should work on both mobile and desktop versions of all major post-2012 browsers.

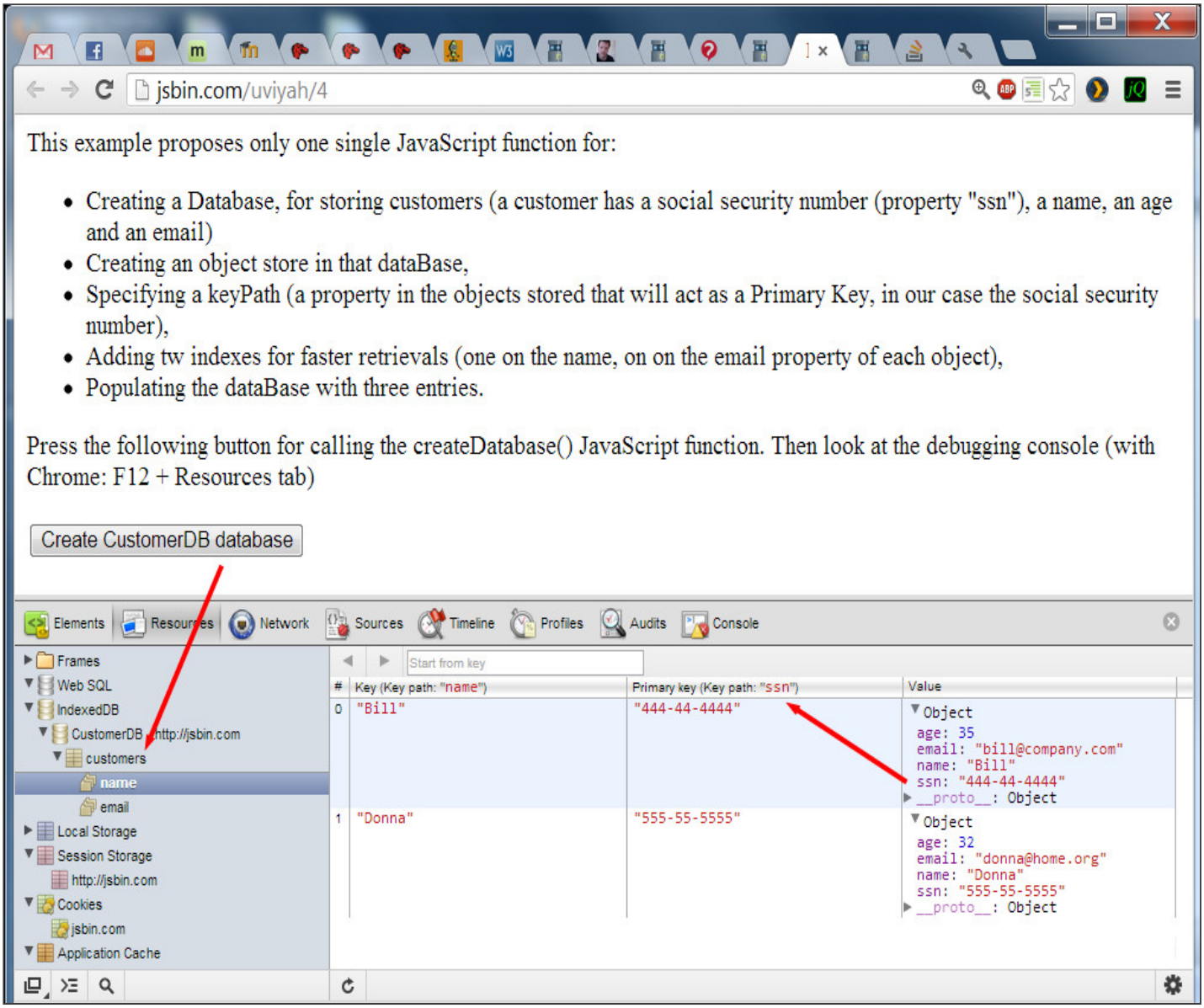
We suggest that you follow what is happening using the developer tools from the Google Chrome browser. Other browsers also offer equivalent means for debugging Web applications that use IndexedDB.

With Chrome, please open the JSBin example and activate the Developer tool console (F12 or cmd-alt-i). Open the JavaScript and HTML tabs on JSBin.

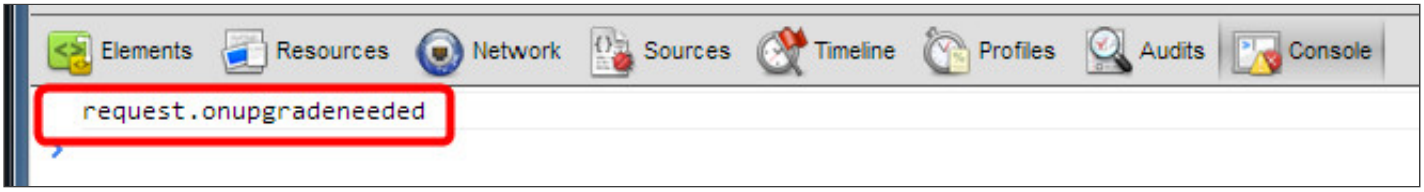
Then, click the "Create CustomerDB" button in the HTML user interface of the example: it will call the `createDB()` JavaScript function that:

1. creates a new IndexedDB database and an object store in it ("customersDB"), and
2. inserts two javascript objects (look at the console in your devtools - the Web app prints lots of traces in there, explaining what it does under the hood). Note that the social security number is the "Primary key", called *a key path* in the IndexedDB vocabulary (red arrow on the right of the screenshot).

Chrome DevTools (F12 or cmd-alt-i) shows the IndexedDB databases, object stores and data:



Normally, when you create a database for the first time, the console should show this message:



This message comes from the JavaScript`request.onupgradeneeded` callback. Indeed, the first time we open the database we ask for a specific version (in this example: version 2) with:

```
    var request = indexedDB.open(dbName, 2);
```

...and if there is no version "2" of the database, then we enter the`onupgradeneeded` callback where we really create the database.

You can try to click again on the button "CreateCustomerDatabase", if database version "2" exists, this time the `request.onsuccess`callback will be called. This is where we will add/remove/search data (you should see a message on the console).

Notice that the version number cannot be a float: "1.2" and "1.4" will automatically be rounded to "1".

JavaScript code from the example:

```
    var db; // the database connection we need to initialize

    function createDatabase() {
      if(!window.indexedDB) {
         window.alert("Your browser does not support a stable
    version
                      of IndexedDB");
      }
      // This is what our customer data looks like.
11.   var customerData = [
        { ssn: "444-44-4444", name: "Bill", age:35, email:

     "bill@company.com" },
        { ssn: "555-55-5555", name: "Donna", age:32, email:
                                              "donna@home.org" }
      ];
      var dbName = "CustomerDB";
      // version must be an integer, not 1.1, 1.2 etc...
      var request = indexedDB.open(dbName, 2);
      request.onerror = function(event) {
23.      // Handle errors.
         console.log("request.onerror" +event.target.errorCode);
```

```
  };
  request.onupgradeneeded = function(event) {
      console.log("request.onupgradeneeded, we are creating a
                  new version of the dataBase");
      db = event.target.result;
      // Create an objectStore to hold information about our
      // customers. We're going to use "ssn" as our key path
because
      //  it's guaranteed to be unique
      var objectStore =db.createObjectStore("customers",

 { keyPath: "ssn" });
      // Create an index to search customers by name. We may
have
      // duplicates so we can't use a unique index.
      objectStore.createIndex("name", "name",
{ unique: false });
      // Create an index to search customers by email. We
want to
      // ensure that no two customers have the same email, so
use a
      // unique index.

objectStore.createIndex("email","email", { unique: true });
46.
      // Store values in the newly created objectStore.
      for (var i in customerData) {
          objectStore.add(customerData[i]);
      }
  }; // end of request.onupgradeneeded
  request.onsuccess = function(event) {
     // Handle errors.
     console.log("request.onsuccess, database opened, now we
can add
                  / remove / look for data in it!");
57.
     // The result is the database itself
     db = event.target.result;
  };
} // end of function createDatabase
```

Explanations:

All the "creation" process is done in the `onupgradeneeded` callback (lines 26-50):

- *Line 30*: get the database created in the result of the dom event:`db = event.target.result;`
- *Line 35*: create an object store named "`customers`" with the primary key being the social security number ("`ssn`" property of the JavaScript objects we want to store in the object store): `var objectStore = db.createObjectStore("customers", {keyPath: "ssn"});`
- *Lines 39 and 44*: create indexes on the "`name`" and "`email`" properties of JavaScript objects:`objectStore.createIndex("name", "name", {unique: false});`
- *Lines 47-49*: populate the database: `objectStore.add(...)`.

> Note that we did not create any transaction, as the`onupgradeneeded` callback on a create database request is always in a default transaction that cannot overlap with another transaction at the same time.

If we try to open a database version that exists, then the`request.onsuccess` callback is called. This is where we are going to work with data. The DOM event result attribute is the database itself, so it is wise to store it in a variable for later use: `db = event.target.result;`