Exercise 8

1. Data Creation and Deletion using Local Storage：
   請開發一個可加入書籍資料至 Local Storage，並可清除所有新增資料之小程式。
   在開發過程中，請務必開啟 Chrome 開發人員工具的 Local Storage 瀏覽器：[F12]->[Application]->[Storage]->[Local Storage]->[files://]。

   (1) 初始介面如下：
       包含四個要輸入的欄位：Book Title、Author(s)、Year、Book URL，其中 Book Title 和 Author(s)欄位型態是 text、Year 欄位型態是 number、Book URL 欄位型態是 URL。

   Book Title: [_____] Author(s): [_____] Year: [_____] Book URL: [_____]

   [Add New Item] [Remove All Items]

Title	Author	Year	URL

   (2) 若使用者已輸入資料，並按下[Add New Item]，則將使用者輸入之資料以 JSON 存入到
       Local Storage，並以下方的表格呈現(網址需要能連結，會在新視窗開啟連結)。
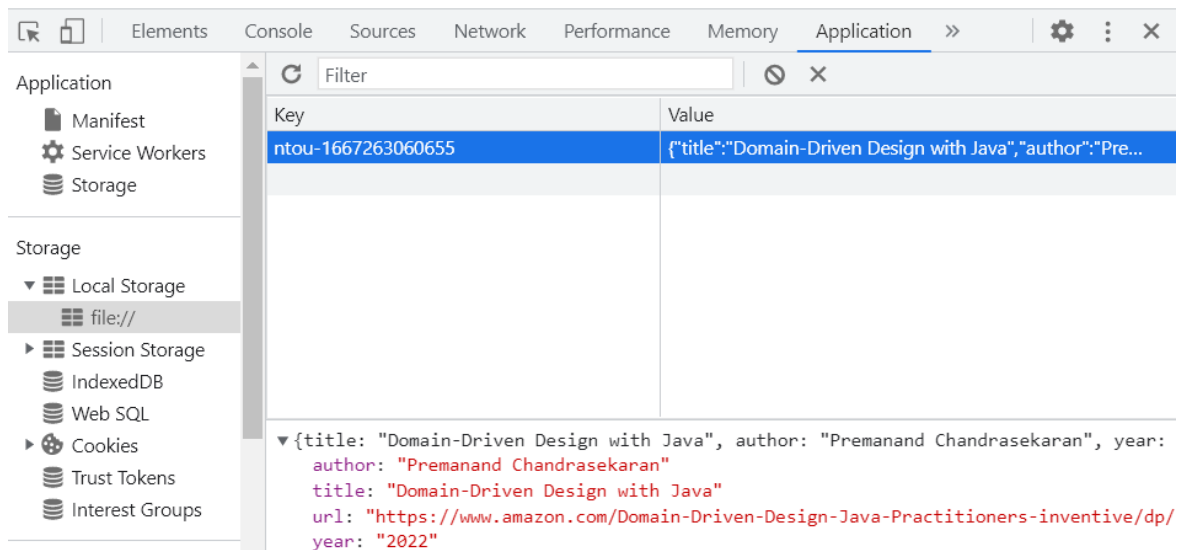   *key*：以新 Date()物件之 getTime()功能取得 1970/1/1 至今的毫秒數，再加上 prefix(前綴字): "ntou-"。
       value：將上述四個欄位的值轉為 JSON 物件，例如：
       {"title":"Domain-Driven Design:Tackling Complexity in the Heart of Software",
       "author":"Ross Venables",
       "year":"2003",
       "url":"https://www.amazon.com/-
       /zh_TW/dp/0321125215/ref=sr_1_4?dchild=1&keywords=DDD&qid=1605534390&sr=8-4"}

   Book Title: [_____] Author(s): [_____] Year: [_____] Book URL: [_____]

   [Add New Item] [Remove All Items]

Title	Author	Year	URL
Domain-Driven Design with Java	Premanand Chandrasekaran	2022	https://www.amazon.com/Domain-Driven-Design-Java-Practitioners-inventive/dp/1800560737

   右方開發人員工具之 Local Storage 瀏覽器應會顯示對應之資訊。請留意，若有非以
   "ntou-"開頭之 item，將不會顯示於這個頁面上。

(3) 將瀏覽器關閉後重開，再載入此網頁，仍要能看到儲存之資料(因已存入瀏覽器的 Local Storage)。請留意，若非此頁面加入之 item，請勿顯示。

(4) 若使用者按下[Remove All Items]，則實際清除 Local Storage 中此網頁加入的所有資料(亦即 key 開頭為"ntou-"之資料)，需顯示 *All items were removed!* 之訊息，並顯示空表格。

Hint:

(1) Local Storage 之用法請參考講義範例 Fig. 11.17。

(2) CSS 請參考講義範例 Fig. 8.6。

(3) 要判斷字串之開頭為何，可用字串 API: startsWith()。

(4) 要能擷取部分字串，可用字串 API: substring()。

(5) 物件如何創建、如何讓物件與 JSON 字串間互轉，請參考：

https://www.w3schools.com/js/tryit.asp?filename=tryjs_object_create_new

https://www.w3schools.com/js/js_json_stringify.asp

https://www.w3schools.com/js/js_json_parse.asp

(6) 請善用 Chrome 開發人員工具之 Console 功能與 Local Storage 瀏覽器進行除錯。

2. Keyword Extraction for an Article:

此網頁可讓使用者輸入一段文字後，自動將此段文字轉為全小寫、進行切字、過濾掉停止字(stop word)、過濾掉純數字或過短詞彙(長度<=2)，最後僅留著字頻(word count) >=2 的關鍵字，並將關鍵字依字頻排序，且將關鍵字連同字頻輸出，如 olympic (20)。

初始畫面如下：

Keyword Extractor

```
Please input text here!
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Extract Keywords

Extracted Keywords:

使用者輸入一段文字，並按下"Extract Keywords"之後：(此為部分畫面，底下仍有多個 keyword) (範例文字如 text.txt)

Keyword Extractor

```
and the 2020 Olympics were postponed until 2021 as a result of the COVID-19 pandemic. The Olympic Movement consists of
international sports federations (IFs), National Olympic Committees (NOCs), and organising committees for each
specific Olympic Games. As the decision-making body, the IOC is responsible for choosing the host city for each Games,
and organises and funds the Games according to the Olympic Charter. The IOC also determines the Olympic programme,
consisting of the sports to be contested at the Games. There are several Olympic rituals and symbols, such as the
Olympic flag and torch, as well as the opening and closing ceremonies. Over 14,000 athletes competed at the 2016
Summer Olympics and 2018 Winter Olympics combined, in 35 different sports and over 400 events. The first, second, and
third-place finishers in each event receive Olympic medals: gold, silver, and bronze, respectively. The Games have
grown so much that nearly every nation is now represented. This growth has created numerous challenges and
controversies, including boycotts, doping, bribery, and a terrorist attack in 1972. Every two years the Olympics and
its media exposure provide athletes with the chance to attain national and sometimes international fame. The Games
also provide an opportunity for the host city and country to showcase themselves to the world.
```

Extract Keywords

Extracted Keywords:

olympic (20)
games (20)
olympics (9)
sports (7)
ioc (7)

請基於 ex-8-2-partial.html，完成[TODO]部分的程式即可。

Hint:

(1) "字頻(term frequency)"為某個字或詞在文件中出現的次數(此為較簡單之定義)。

(2) "停止字(stop word)"是指要忽略的字或詞。

(3) 若要取得不重複的 token，可善用 Set 結構(範例中已包含)：
https://www.w3schools.com/js/tryit.asp?filename=tryjs_set_add_equals

(4) 要新增陣列元素，可參考 https://developer.mozilla.org/zh-TW/docs/Web/JavaScript/Reference/Global_Objects/Array/push。

(5) 建議可將儲存有關鍵字與字頻的"物件"儲存至陣列中，以方便進行排序。(此非唯一的解法)。

(6) 陣列排序方法可參考 https://developer.mozilla.org/zh-TW/docs/Web/JavaScript/Reference/Global_Objects/Array/sort。