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University of
St Andrews

CS5002 – Programming Principles and Practice

Assignment 4

DATA and the DOM

REPORT

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Introduction

The aim of the assignment is creating functions that are directed by the various commands to display the selected nationality and year and their details next to them. The necessary features of these functions are being able to display the album details when the user selects the year and/or nationality from the drop-down menu. In other words, the user should be enabled to filter the albums according to more than one detail. The requirements start with loading JSON data of top selling albums in The United States for the last 60 years from a local file. In order to load the data, a small database for the albums is provided. According to the same requirements, after loading the data, a table on a webpage that includes those albums and other attributes, dropdown menus and their elements that filter the contents of the table has to be built.

This report deeply explains the method of creating functions in JavaScript that retrieve that from JSON, the additional filtering criteria and element, the drawbacks of the selected codes and difficulties in implementing. Also, it supports the provided arguments by giving necessary evidence including screenshots of the tests that are done on the browser.

Design

The assignment requires users to be allowed to reach the albums by filtering functions, also in order to do this, it requires to put drop-down menus just for the years and the nationality of the albums. In order to meet the extension requirements, as it can be seen in the screenshot, in addition to basic requirements, filtering by album name, artist name and genre options are added. Also, each album is provided with its album cover and a link that lead the user to the Wikipedia page of that specific album when it is clicked on. However, filtering by the image is not allowed through a drop-down menu. By adding a link on to the album names, searching the album for more information is eased for the users by leading them directly to Wikipedia page.

The user is enabled to filter the albums according to his/her preference by more than one criterion. For example, if the user wants to see the albums that were made in the United Kingdom in the year 1982 s/he can select the United Kingdom among the countries in the nationalities bar and 1982 among the years in the year's bar. Also, if the result is going to be more than one album, s/he can filter them by genre, artist name and album name.

Top Selling Albums in The United States for The Last 60 Years.

Years: Artists: Nationalities: Albums: Genres:

Year	Artist	Nationality	Album	Genre	Album Cover
1956	Harry Belafonte	United States	Calypso	Mento	
1957	Original Broadway Cast	null	My Fair Lady	Show Tunes	

The design is supported by an external HTML, CSS, and images files to draw a more preferable looking and while at the same time, allowing developers to read the codes and use them easily in the future.

Implementation

For implementing the codes in JavaScript file for the functions, firstly, the ids that indicate which property (dropdown menu) is going to be used, were called back from the HTML file by using DOM method. After that, the elements of the dropdown menu were received from the JSON file by indicating the objects (year, nationality, album name, artist name, genre) of it and inserted into the drop-down menus. Since URL can be reached by clicking on the album name and putting images into the drop-down list is not going to be seen good, they were excluded from having ids in HTML. In the first half of the JavaScript codes, the functions were created as showing all of the years of years section, countries of nationality section, the artist name of artist names section, album names of album names section and genres of genres section to the user when “All” is selected. While the rest of the objects have the same codes to be inserted as an element, the year has different codes because it was taken as a base for the “insertElements” function. For the filtering function, all of the objects except image and URL, have same codes that give if statements to indicate that if the user does not select “All” element

from the menu, the objects will be filtered by the selected element in the menu with the same name of objects. The second part of the JavaScript file, there are functions that allow the system to add rows for image and “URL”. Since they are not filtered by the menu bar, they had to be coded with a different function than the other objects. Lastly, the system is allowed to take out the objects from being filtered and show all of the headers with an id of “hitsTable” when the selection of the elements is changed by the user.


Testing



60 Years of the Official Albums Chart

Top Selling Albums in The United States for The Last 60 Years.

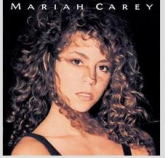

Years: All Artists: Original Broadway Cast Nationalities: All Albums: All Genres: All

Year	Artist	Nationality	Album	Genre	Album Cover
1957	Original Broadway Cast	null	My Fair Lady	Show Tunes	
1958	Original Broadway Cast	null	My Fair Lady	Show Tunes	

User can filter the artists by selecting artist name from the dropdown menu for artist. All of the other details of artist including his/her album, the year of his/her album, the nationality of his/her album, the name of his/her album, the genre of his/her album and the cover of this/her album.

Top Selling Albums in The United States for The Last 60 Years.

Years: Artists: Nationalities: Albums: Genres:

Year	Artist	Nationality	Album	Genre	Album Cover
1991	Mariah Carey	United States	Mariah Carey	R&B	
2005	Mariah Carey	United States	The Emancipation of Mimi	R&B	

User can apply filtering for more than one criterion. In the screenshot, the albums are filtered that have genre of R&B and sang by Mariah Carey.



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Calypso (album)

From Wikipedia, the free encyclopedia



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Calypso is the third studio album by recording artist **Harry Belafonte**, released by **RCA Victor** (LPM-1248) in 1956. The album became his second consecutive number-one album on the *Billboard Top Pop Albums* chart, where it peaked for 31 weeks.

In 2018, it was selected for preservation in the **National Recording Registry** by the **Library of Congress** as being "culturally, historically, or artistically significant."^[1]

Contents [hide]

- Album information
- Reception
- Popular culture
- Track listing
- Personnel
- References

Calypso



Studio album by **Harry Belafonte**

Released 1956

Recorded August 18–October 20, November

[Calypso](#)

All of the album names have links that lead user to Wikipedia of that specific album when the user click on it.

In short, all of the functions that are indicated in both basic requirements and extension part work properly.

Difficulties

The system doesn't allow to filter the genres when the album has more than one genre. To illustrate, if the album has pop, rock, and R&B genres, the dropdown bar takes the value as a whole and doesn't allow user to reach that album when s/he clicks on rock. In other words, the functions don't support filtering the genres by analysing the word of "rock" to provide the albums which include rock and other genres, it just shows the albums that have only one genre called "rock".

Conclusion

All of the basic requirements including the data in the JSON file is read by using JavaScript and HTML to populate the table of albums, allowing user to filter more than one criteria by updating the table to show only the album for that criteria, enabling table to show all albums and their details on one page when the all elements of the dropdown bars are selected by the user. The property names of the objects in JSON are increased by adding "image" and "URL" that include image names of the albums in the images section under the overall folder and hyperlinks of the Wikipedia websites of the albums that aren't stored in the folder. Also, in addition to the given headers of the albums' attributes, genres are added as another information about each album to the JSON data and allowed users to filter based on that. In order to provide a better view, CSS codes are implemented to the objects of JSON, to the table and to the overall webpage.