Debounce and Throttle by Vegetable vendor

A Part of Javascript around us (JAS) series - ***Sarathy R***

The first step in any language to have a in-depth understanding of the concepts. **Javascript around us** (JAS) is series of articles, where the complex Javascript concepts are explained in a simple manner ,inspired by the events around our day-to-day lifestyle.

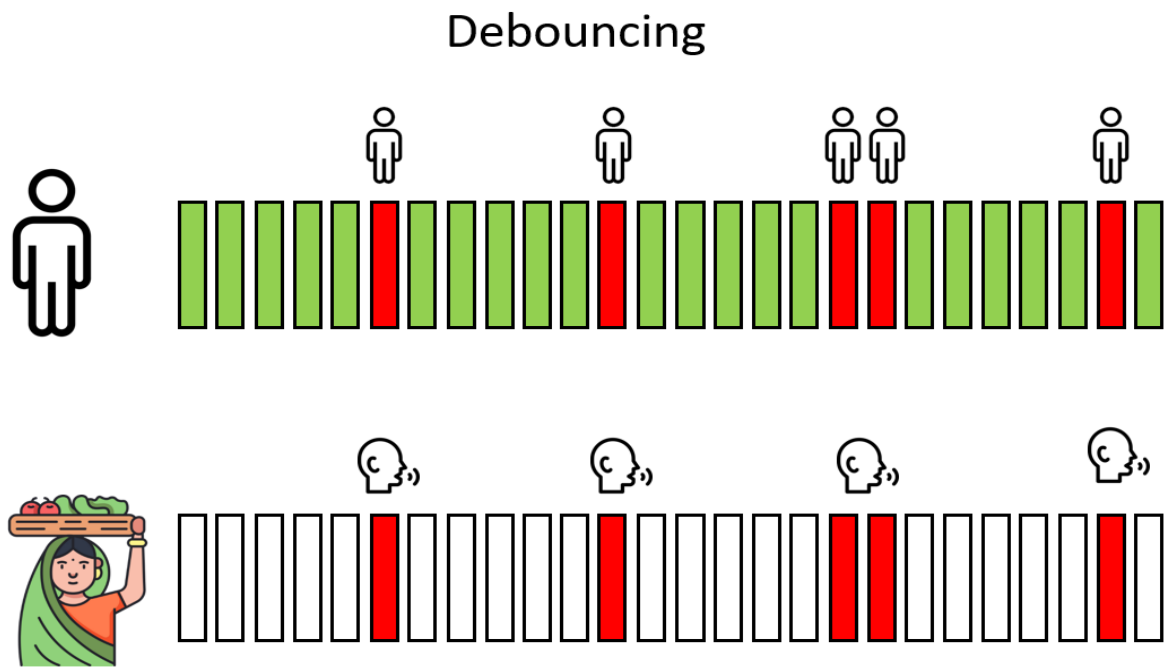
This article dives in the concept of "Debouncing and Throttling" in Javascript. Unlike standard way of pointing down the statements of two concept, lets understand with help of a vegetable vendor.

During this lockdown days, we must have seen a lot of vegetable vendor carts in the streets. The vendors usually shouts (a phrase like "Come and buy vegetables ! vegetables ! ") to grab the attention of buyers. In order to maximize their efficiency ,they use concepts of Debouncing and Throttling while they shout. Sounds interesting ?

These vendors won't shout continuously for a long period. Due to continuous pitching on the streets, they might run short of energy to keep up all day. In order to save their energy ,and also not to compromise their sales numbers, they use javascript concepts of debouncing and throttling.

Debouncing

Consider a less populated streets/areas, , probability of the potential buyers is low. So initially the vendors displays a continuous shouts to sell vegetables. But soon after sometime , they will shout only on noticing any potential buyers (who might peep out through balcony or corridors). In this way, the person saves the energy and grabs the attention of the buyers.



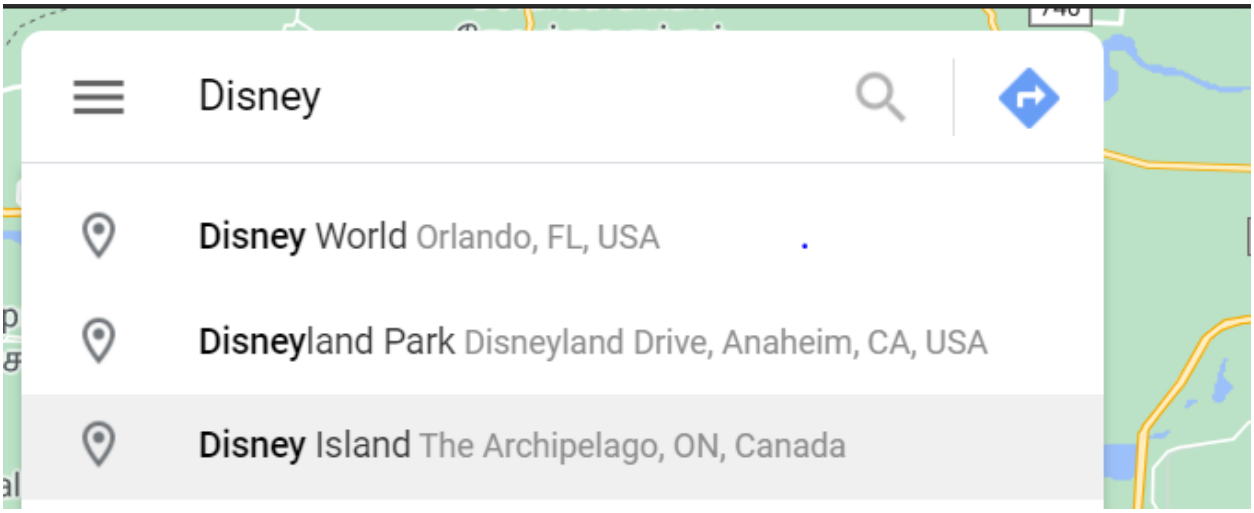
This way of executing an event , only on a potential trigger is called "Debouncing" in javascript.

Real- time usecase

Handling search related operations

In applications such as Google Maps or Flipkart , the search box is designed using the concept of Debouncing.

Lets drill down a bit , When the user types a key stroke in Google Maps, it will auto-suggest few locations that matches your keystrokes. In the back ground, an API call is made for fetching the data from the server.



Making an API call for every key stroke directly affects application's performance and speed. In our case, the word "Disney" will make 5 API calls since it consist of 5 alphabets.

Using debouncing method can eliminate the performance issues. Instead of calling the API for each key stroke, it can trigger the API when user gives a pause in-between the key strokes. In that case, when a user pauses (even milliseconds) after typing "Disney", API will be called once.

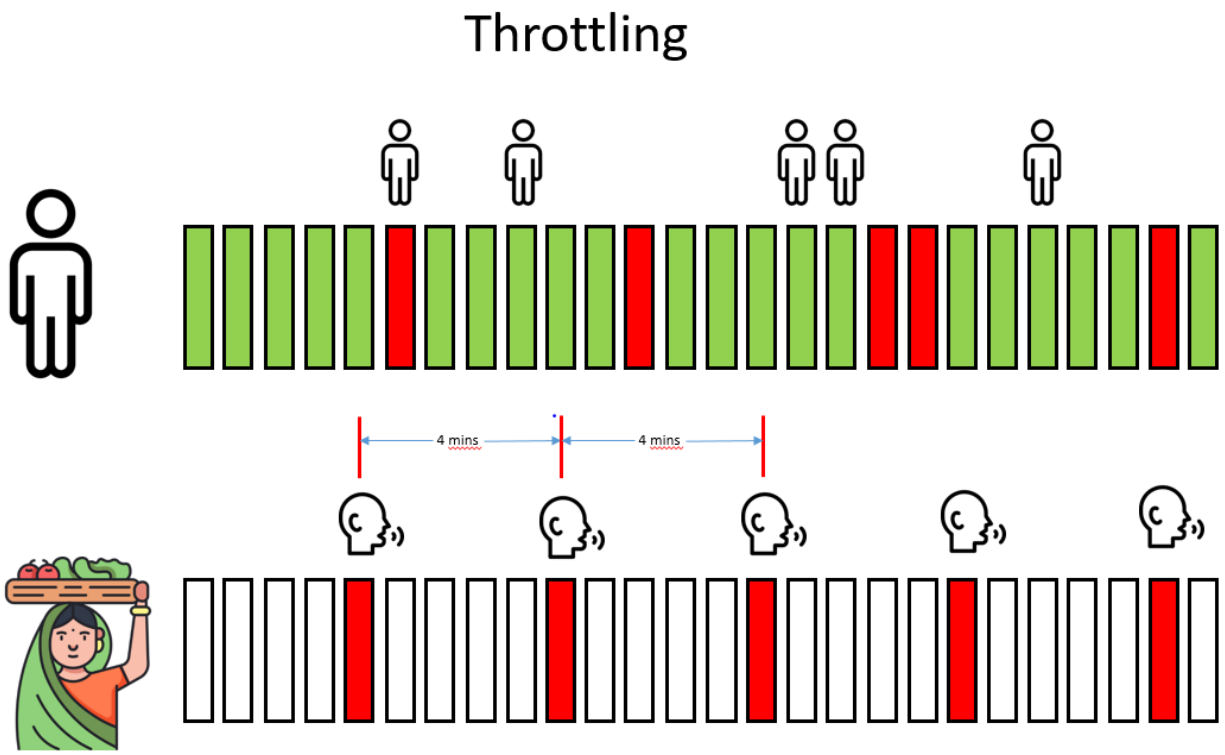
Thus Debouncing can reduce the API calls and improves the performance of the application.

Throttling

On the other hand, high populated areas, the probability of potentials buyers is high. Debouncing might not be the suitable technique for the sales.

In this scenario, the vendor can grab the attention of the more potential buyers. Again , the vendor cannot waste the energy by shouting all time. Rather they shout at regular intervals , irrespective

of waiting for a buyer to turn out or notice them. The interval range from 2 to 3 minutes depending upon the scenario. In this way, less energy is consumed and more announcement can be made.



This way of executing an event at a fixed interval of time (irrespective of any trigger) is called "Throttling" .

Real- time usecase

Handling GPS related operations

Consider the same Google Map application. To Update the current loacation of the user , the application uses throtte process where it makes a API call at regular interval of time , irrespective of any triggers.

Thanks for you time !