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I. Guidelines:

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\*\*\* Time to submit, by: THU 09/05 by 4pm

Ideally, full solution should be working... however, submit what you've done till then.

This problem needs you to be familiar with:

a) HTML/CSS

b) accessing & updated HTML DOM elements from JS

c) setInterval/setTimer/clearInterval/clearTimer methods of Window object

d) closures - implementing & using it effectively

e) algorithm knowledge - how you implement simplest functions

f) top down approach - how well you can break down a problem into many sub-tasks, solve them & regroup them for final solution

g) detail oriented - how well you cover all details / finishing touches mentioned in the problem step by step

h) ability to read & understand instructions / problem description and translating into work items

i) using Math.random() & figuring out general math calculations

j) how well you'll cleanup runtime resources, coding conventions followed etc.

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II. Problem description:

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**Build a page that has a drop down box for all countries and a button labelled \*Add\* next to it.**

**[select the country to add] [ADD]**

**When user selects a country and presses Add, that country button should appear in the list below that selection/drop-box.**

**e.g.**

**[select the country to add] [ADD]**

**---------------------------------**

**Selected countries are:**

**[INDIA]**

**If user repeats operation for other countries, it should add more buttons below existing ones.**

**e.g.**

**[select the country to add] [ADD]**

**---------------------------------**

**Selected countries are:**

**[INDIA]**

**[USA]**

**[CHINA]**

**If user selects a country whose button is already in the list of buttons below and presses ADD button, that action should be ignored & duplicate buttons should not be added.**

**There should be another drop down that'll help remove already added countries from the list.**

**e.g.**

**[select the country to add] [ADD]**

**[select the country to remove] [REMOVE]**

**-----------------------------------------**

**Selected countries are:**

**[INDIA]**

**[USA]**

**[CHINA]**

**If user selects a country in the drop down in 2nd row and presses REMOVE, that country must be removed from the list below it.**

**i.e. if user selects CHINA and presses REMOVE, it should be updated to look like below,**

**e.g.**

**[select the country to add] [ADD]**

**[select the country to remove] [REMOVE]**

**-----------------------------------------**

**Selected countries are:**

**[INDIA]**

**[USA]**

**Every country button should be in different color (randomly chosen, not predefined).**

Whenever a country is selected and ADD is pressed: Apart from adding the button to the DOM/page, a background population counter for that country should be created.

That counter has following 4 params:

1) Country name

2) Population in Sep 2011

3) Birth rate - yearly number of births for every 1000 persons in population

4) Death rate - yearly number of deaths for every 1000 persons in population

This population counter should be running in the background i.e. continuously tracking population change by every minute (can do every second also, whichever you choose).

Everytime user presses the newly created buttons - its \*current\* population should be displayed next to it

e.g. if user presses USA button: page should be updated as follows

[select the country to add] [ADD]

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Selected countries are:

[INDIA]

[USA] 326,014,127

[CHINA]

If user presses a different country, say INDIA: page should be updated as follows

[select the country to add] [ADD]

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Selected countries are:

[INDIA] 1,281,935,911

[USA]

[CHINA]

As you might have observed, whenever user presses a button - other countries' population (previous updates) are cleared & current update is shown

Whenever a country is removed, its population country \*must\* be killed to avoid resource leaks.

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III. Resources:

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http://www.ecology.com/population-country/

https://www.cia.gov/library/publications/the-world-factbook/rankorder/2054rank.html

https://www.cia.gov/library/publications/the-world-factbook/fields/2066.html

https://www.census.gov/popclock/