CP1295
Advanced JavaScript
Assignment 03 v1

CP1295 Assignment 03

Contents

A. Brief Description

Specifications of this assignment are based on Native Java Script.

Solution for this assignment must use only javaScript. (jQuery will not be graded)

The CNA rail system will return later in the course.

This assignment will focus on Use of Timers to control events.

The Story Line.

The CNA automotive research group require a basic Web Page to display battery performance for varous operating conditions.

For this assignment a simple form will allow input for speed in Km/h. The form is dynamic. A timer will tick every two seconds. This tick represents 1 minute in real time.

A primer for this assignment occurred on June 10 to explain how the batery monitoring system works.

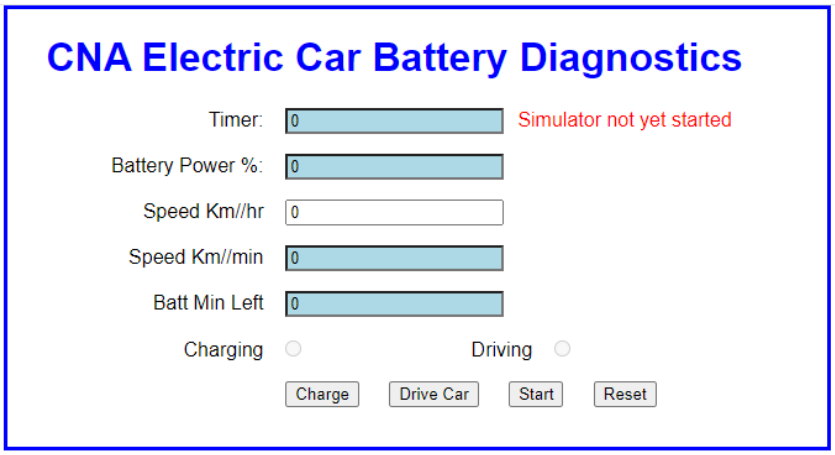
Details will be provided in the assignment. A spreadsheet is provided to verify the program results.

Starter code is provided. It includes HTML, CSS, and JavaScript code. It is not complete. This code was in the demonstration on June 10. You may delete all and use your own HTML, CSS and JavaScript.

The focus of this assignment is in on the use of timers and associated code to control events in the HTML document.

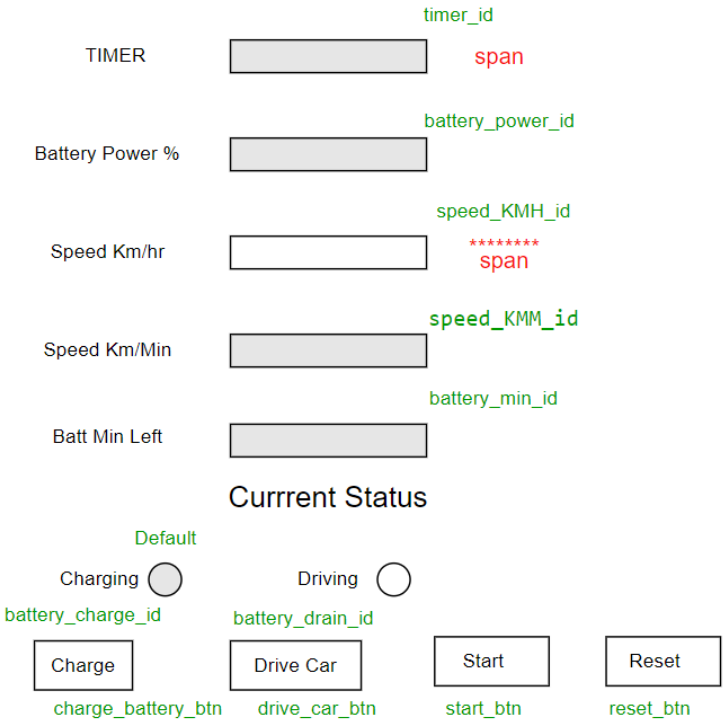
B. Form Layout

A single form is used.

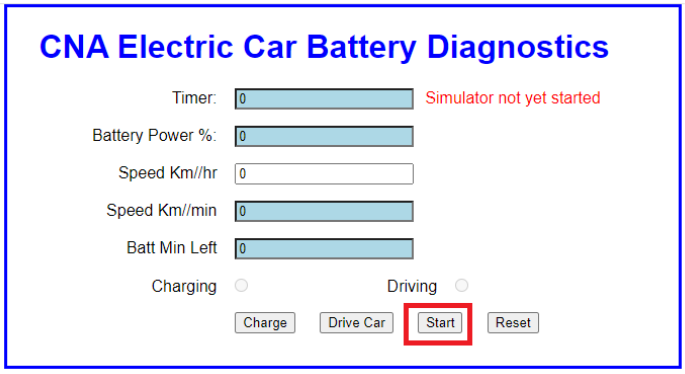


Initial Screen to be displayed when program starts

Corresponding field labels for the provided form.



C. Operational Instructions for the form.



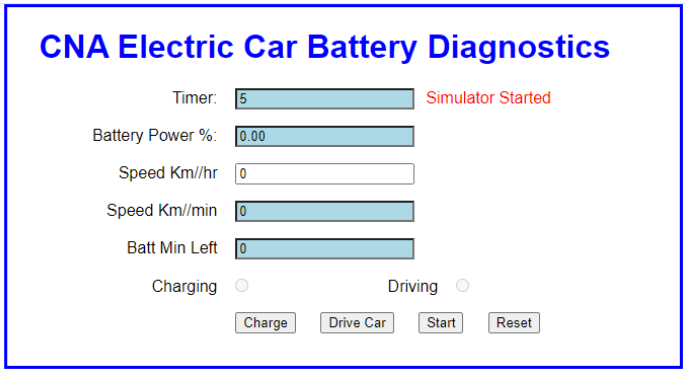
This is the default initial start of the program.

Nothing happens until you first click on

Start.

This starts the timer that ticks at a rate of 2000 milliseconds. (2 seconds between ticks). Interval for timer is 2000.

The timer will tick and add 1 to the Timer per tick cycle.

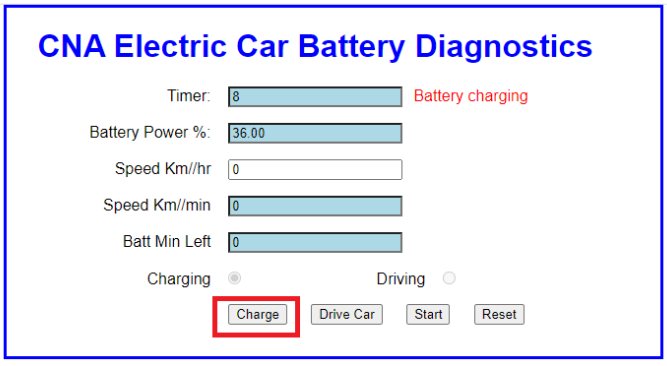


The timer is ticking at a rate of 1 tick per every 2 seconds. I will refer to this as a per cycle.

Per Cycle the Timer will advance by 1.

This represents 1 minute of time.

Notice that the battery has no charge.

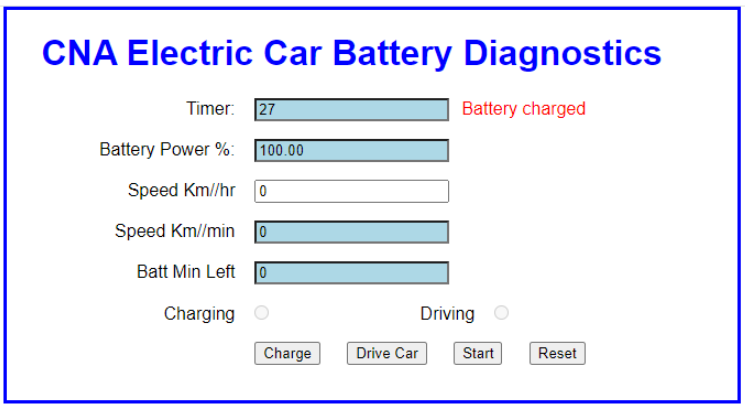


Next activity is to charge up the battery.

Click on charge. Notice that the Charging indicator is now indicated. The two radio buttons should be set to disabled. They are under program control.

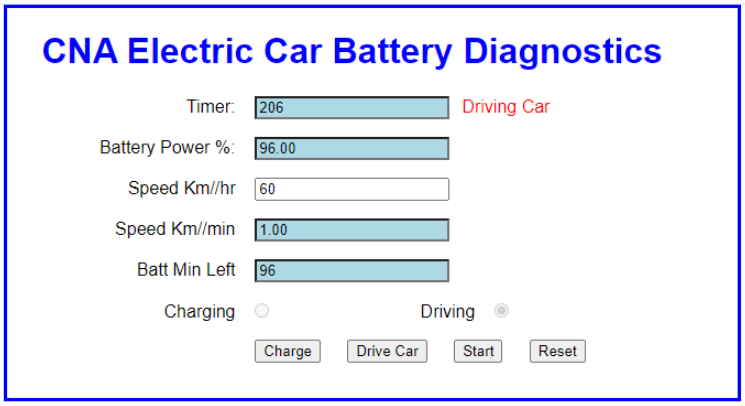
When the car is in charging mode the battery power is increasing at a rate of 12% per cycle. After 9 cycles, the battery should be fully charged. Only one of the two radio buttons can be showing. It is possible that both may be off.

When the battery is fully charged, the charge indicator will not indicate charging.



When the battery is fully charged, a message will indicate this fact.

Notice that the Battery Power is at 100% and the Charging indicator is not lit.



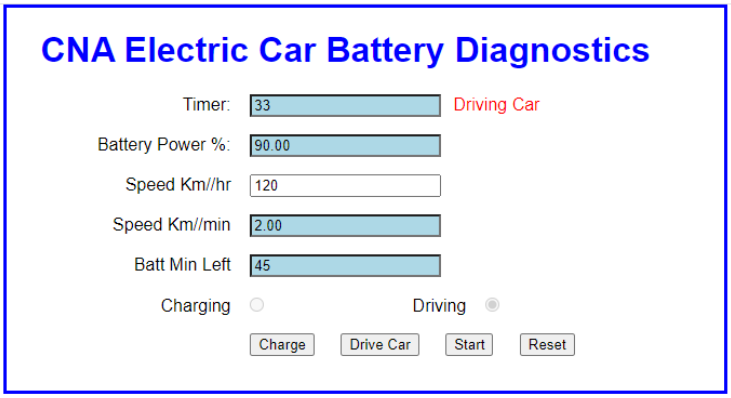
Driving the car.

Enter the Speed in Km/hr.

60 Km/hr is the same as 1 Km/min.

Notice that the Speed Km/min is updated. (division by 60).

The battery will lose 1% of its charge per cycle(minute) at this speed. There will be 96 minutes of battery time left.



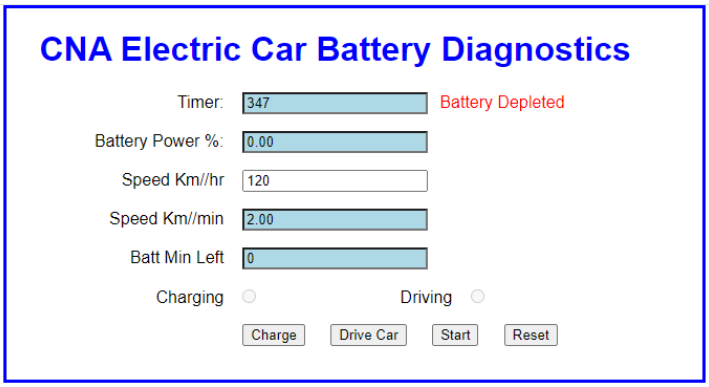
Screen shot was taken 5 cycles after driving started.

120 Km/hr is 2 Km/min.

Battery is losing power at a rate of 2% per minute. 5 Cycles shows that 10% power has been lost.

45 cycles (45 min) left to use up the remaining 90% of remaining power.

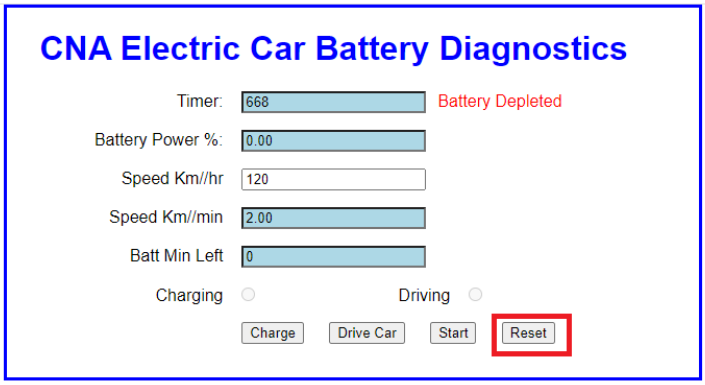
'Driving Car' message displayed



The car will continue to run until the battery is depleted. A message will appear at this time.

The driving indicator will no longer be lit.

Use can select 'charge' to top up the battery again.



Reset buton will

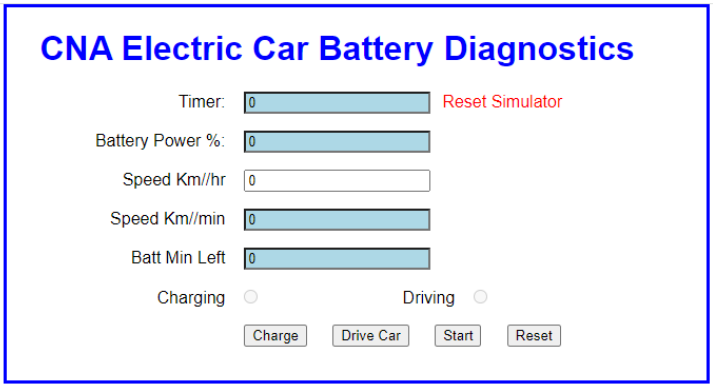
(1) reset all of the text fields

(2) will reset the timer to 0 and stop counting up.

(3) will turn off Charging and Driving indicatators.

To use the simulator, the start button will have to be selected.

Screen shot (after Reset Selected – below)

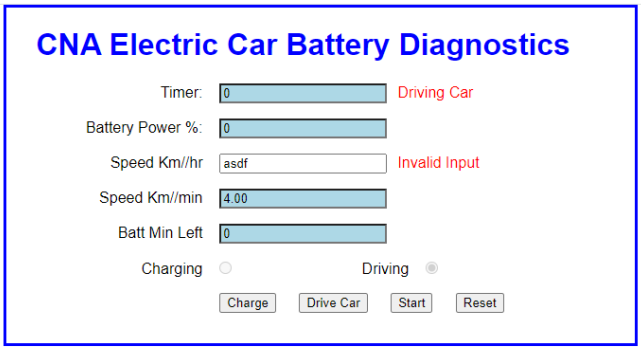


The display will show the Reset message with all control appearing as they would during initial startup of the program.

D. Error Control

Error Control.

Only 1 text field is used.



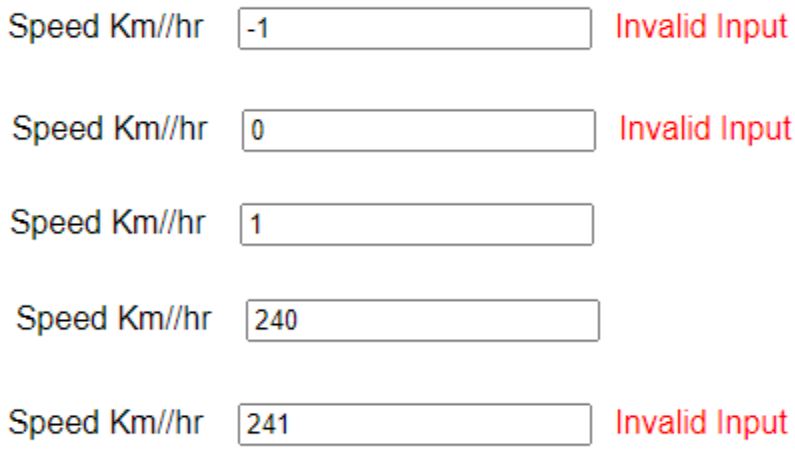
Input field testing

(1) numeric error test

(2) range testing accept (1 to 240)

Note: the radio buttons are set as diabled. They will appear dim. Do not spend effort in making them brighter.

Range must be between 1 and 240 (inclusive).



E.Provided Code

You are provided with the following starter code

(1) HTML Code that matches description in section B

(2) CSS sheet

(3) JavaScript (starter code that will require completion)

F. Grading Rubric

To maximize your grade be sure to consider the Grading Rubric as part of the of list of requirements.

Items missed are marks that you will not receive.

Assignment 3
Grading Rubric

Functional Objectives

		20
A	Initial Screen	
A1	Initial Screen matches expected	1
B	Start Button	
B1	Timer Initiated and will count up	1
B2	Timer Message will disappear	1
C	Charge Button	
C1	Will add 12% to cycle per cycle	1
C2	Will turn on charging indicator	1
C3	Will stop when 100% reached	1
C4	Will display message 'Battery charged' when 100% reached	1
C5	Charging indicator will be turned off when 100% reached	1
D	Driving	
D1	Range Testing for numeric	1
D2	Range Testing 0 (error test)	1
D3	Driving Car Message displayed	1
D4	Range Testing 241 (error test)	1
D5	Speed Km/min updated. Formula Speed Km_min = Speed Km_hr / 60	2

D6	Batt Min Left Formula Bat Min Left = Battery Power % / Speed Km_min	2
D7	Batt Loss per Cycle correct	1
E	Depleted Battery	
E1	Depleted Battery message	1
E2	Driving Indicator turned off	1
E3	Battery Power stays at 0%	1

G. Submission Requirements

Generate a word document called Assignment 02 – Your name and student number.

Page 1

a. Add Course Number

b. Your Name

c. Your Student Number

Page 2

Screen Shot of initial FORM prior to pressing the start button.

Page 3

Screen Shot showing the battery fully charged

Page 4

Screen Shot showing a driving test after the battery is fully deleted.

Start the program. (1) fully charge the battery (2) set the speed of the car to 200 km/h (3) select drive. (4) run the car until the battery is depleted. (5) Take the screen shot of this page.

Page 5

Copy and paste the code for your index.html (Not screen shots)

Page 6

(or next blank page thereafter)

Copy and paste the code for your CSS documents. (Not screen shots)

Page 7

(or next blank page thereafter)

Copy and paste the code for the JavaScript code.

H. Code Requirements

The assignments are based course outline requirements.

Code used for the completion of this assignment must follow the following guidelines.

Inclusions

(1) Code must be based on code demonstrated in this course or its pre-requisite course(s)

Course Text Book

Course Notes

Course Handouts

getElementByID (by popular demand)

(2) Where DOM element selection is required use only
i. document.querySelector(sel)
ii. document.querySelectorAll(sel)

Exclusions

Code must follow the following exclusion rule(s)

(1) innerHTML, outerHTML are not permitted in this course.

(2) Use of jQuery. **This assignment is only JavaScript.**
(future assignments will support limited use of jQuery)

End of Assignment