

Lab 2 : 2D Graphics – HTML Canvas and SVG

Bouncing ball animation. [Lab2_1_bouncingball.html]

Complete the following tasks for the bouncing ball animation. There are some questions in the tasks, please write down your answers in another document.

1. **Modify** the code so that when the ball hits a wall, its size is changed. When the ball hits the left or right walls, the size is increased. Otherwise, the size is decreased.
2. **Explain** how you modify the code to change the ball size. (Please explain in detail how each piece of code, not the whole function, works.)
3. The ***animate()*** function play a key role in handling repainting the next frame. https://www.w3schools.com/jsref/met_win_requestanimationframe.asp.
Modify the code so that there are **3** bouncing balls in the animation. **Save** your modified code in '**bouncingball3.html**'.
4. **Explain** how you modify the code to add more balls in the animation. (Please explain in detail how each piece of code, not the whole function, works.)

* Note that you will not get any score if you change the whole code when modification is asked.

* You are allowed to use any A.I. tools to assist in your writing but please do not copy the whole answers from the tools. Please make the answers in your own words and codes.

Bouncing box animation. [Lab2_2_bouncingbox.html]

Complete the following tasks for the bouncing box animation. There are some questions in the tasks, please write down your answers in another document.

1. **Explain** in detail about the ***drawBox()*** function. What does it do for each line of code?
2. **Modify** the code so that when the box rotates every 30 degrees, its color changes.
3. **Explain** how you modify the code to change the box's color. (Please explain in detail how each piece of code, not the whole function, works.)
4. Now, let's make it a little more complicated. **Modify** the code so that there are 3 bouncing boxes in the animation. Save your modified code in '**bouncingbox3.html**'.

* Note that you will not get any score if you change the whole code when modification is asked.

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SVG Clock. [Lab2_3_svg-clock.html]

Complete the following tasks for the bouncing box animation. There are some questions in the tasks, please write down your answers in another document. Note that in this problem, please use the SVG concept as much as possible.

1. The provided code has only 1 clock displayed when executed. **Modify** the code so that there are 3 clocks in 3 different time zones. **Do not forget** to add text under each clock stating which time zone or city the clock is displaying. **Save** the modified code in '**svg-clock-3times.html**'.
2. **Add** another clock but this clock is displaying **day_hand** and **month_hand**. The clock face is a circle shape with day markers (1-31) and month markers (1-12). Save the code in '**svg-clock-3times-day-month.html**'.

* Note that you will not get any score if you change the whole code when modification is asked.

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