Legend

🚫 Do NOT edit this given resource file.

✏️ Your answer/code goes here into this given resource file.

IMPORTANT

Inside **resources** folder, you will find **Bootstrap** files. **Please do NOT edit these files.**

- ➔ `Bootstrap\`
  - 🚫`bootstrap.bundle.min.js`
  - 🚫`bootstrap.min.css`

Q1. [Vue.js] Big Bang [15 marks]

Given resources:

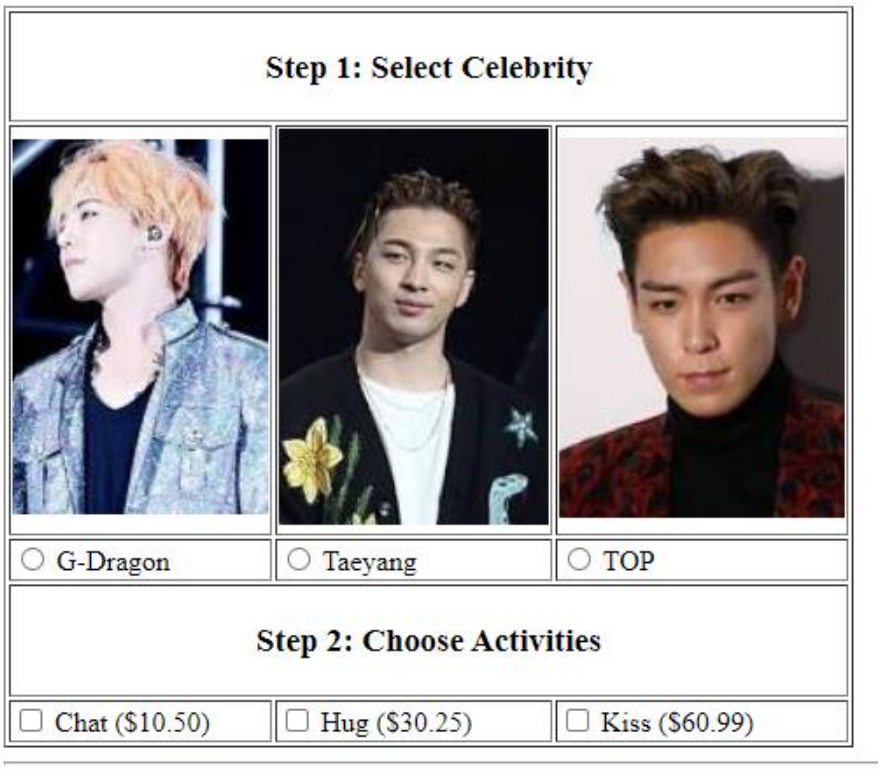
- ✏️ `q1.html`
- ✏️ `q1.js`
- 🚫 `bb_gd.jpg, bb_taeyang.jpg, bb_top.jpg`

Part A

Edit **`q1.html`** to have a webpage that does the following:

1. Contains radio buttons for the selection of **Celebrity** (there are a total of THREE (3) celebrities).
    a. You cannot hard-code their info. You must retrieve it from the Vue instance in **`q1.js`**.
2. Contains checkboxes for the selection of **Activities**.
    a. You cannot hard-code their info. You must retrieve it from the Vue instance in **`q1.js`**.
    b. All prices must be displayed in 2 decimal places.
3. The "Bill Section" (below <hr>) should only be **shown** if the **total_bill** computed property (in the Vue instance) is a non-null value.
    a. Do not modify **total_bill** computed property implementation in this **Part A**.
    b. Use the given implementation as is. HINT: Observe what the computed property returns and think about how you can leverage it from `q1.html`.

Your **`q1.html`** must display as below:



Part B

Edit **`q1.html`** and **`q1.js`** so that **`q1.html`** displays the Bill Table in an HTML table that looks like below.

The "Bill Table" comes from **total_bill** computed property in **`q1.js`**.

1. By default, it returns **null**.
2. Modify the implementation of **total_bill** computed property such that it returns an **HTML table**.
3. Subsequently, modify **`q1.html`** such that the **HTML table** is correctly displayed.
4. **NOTE**:
    a. The "Bill Table" is displayed only if a celebrity is selected <u>AND</u> at least 1 activity is selected.
    b. All prices and the total bill amount must be displayed in 2 decimal places.

Your Bill

Sample Output (q1.html)

Step 1: Select Celebrity		
		
◉ G-Dragon	○ Taeyang	○ TOP
Step 2: Choose Activities		
☐ Chat ($10.50)	☑ Hug ($30.25)	☑ Kiss ($60.99)

Your Bill

Your Fan Request	
	G-Dragon
Hug	$30.25
Kiss	$60.99
Total	$91.24

Q2. [JavaScript] Hiking [25 marks]

Given resources:

- `q2.html`
- `q2.js`
- `q2-D.html`

Ariana keeps track of her hikes by recording down how many steps she takes and whether each step was **up** (U) or **down** (D). A hike starts at **sea level** and ends at **sea level**. Each step **up** or **down** represents ONE (1) unit change in altitude. We define the following terms:

- A **mountain** is a sequence of consecutive steps above sea level, starting with a step up from sea level and ending with a step down to sea level.
- A **valley** is a sequence of consecutive steps below sea level, starting with a step down from sea level and ending with a step up to sea level.

For instance, given a hike path '**DDUUUUDD**':

- She first enters a valley TWO (2) units deep (down).
- After that, she climbs out TWO (2) units high and then continues onto a mountain TWO (2) units high (up). She returns to sea level and ends her hike.

Part A

In **`q2.js`**, complete the implementation of the function `get_level()`. It takes the hiker's hike **path** (e.g. **DDUUUUDD**) as a String from the **textarea** (in **`q2.html`**), and it returns the level at which the hiker is situated (at the end of the hike).

- If the level at which the hiker is situated is ZERO (0), it means the **path** is a **VALID path** (since we define a valid path to be the one where the hiker ends the hike at **sea level**).
- If the level at which the hiker is situated is a NEGATIVE NUMBER, it means the **path** is an **INVALID path**. It means that the hiker is still in a **valley**. The hike did NOT end yet and we declare this an INVALID path.
- If the level at which the hiker is situated is a POSITIVE NUMBER, it means the **path** is an **INVALID path**. It means that the hiker is still on a **mountain**. The hike did NOT end yet and we declare this an INVALID path.

Given a path **DDUUUUDD**, the function must return ZERO (0).
Given a path **DDDDUUU**, the function must return NEGATIVE ONE (-1).
Given a path **UUUUDD**, the function must return POSITIVE TWO (2).

Part B

In **`q2.js`**, complete the implementation of the function `count_valleys()`. It takes the hiker's hike **path** (e.g. **DDUUUUDD**) as a String from the **textarea** (in **`q2.html`**), and it returns the **total number of valleys** she walked through.

Given a path **DDUUU**, the function must return ONE (1).
Given a path **DDDDUUU**, the function must return ZERO (0).
Given a path **DDDUUUDDUU**, the function must return TWO (2).

Part C

In **`q2.js`**, complete the implementation of the function `count_mountains()`. It takes the hiker's hike **path** (e.g. **DDUUUUDD**) as a String from the **textarea** (in **`q2.html`**), and it returns the **total number of mountains** she walked through.

Given a path **UUUDDD**, the function must return ONE (1).
Given a path **UUUUDDD**, the function must return ZERO (0).
Given a path **UUUDDDUUDD**, the function must return TWO (2).

Part D

When page **`q2-D.html`** loads for the first time, it looks like the following:

`q2-D.html`
Counting Valleys & Mountains Path: Count Valleys Count Mountains

The page has:

- A textarea (empty)
- A button which displays "Count Valleys"
- A button which displays "Count Mountains"

Edit **`q2.js`** so that it performs the following:

Sample Output

`q2-D.html` **`(before button click)`**	**`q2-D.html`** **`(after button click)`**
Path: DDDDUUU **Click on either of the two SUBMIT buttons**	**Counting Valleys & Mountains** **Invalid path! Hiker still in valley!** Path: DDDDUUU Count Valleys Count Mountains
Path: DDUUUUD **Click on either of the two SUBMIT buttons**	**Counting Valleys & Mountains** **Invalid path! Hiker still on mountain!** Path: DDUUUUD Count Valleys Count Mountains

Path: DDDUUU Click on “Count Valleys” SUBMIT button	**Counting Valleys & Mountains** Path: DDDUUU Count Valleys Count Mountains **Number of Valleys: 1**
Path: DDDUUU Click on “Count Mountains” SUBMIT button	**Counting Valleys & Mountains** Path: DDDUUU Count Valleys Count Mountains **Number of Mountains: 0**
Path: UUUDDDUUDD Click on “Count Mountains” SUBMIT button	**Counting Valleys & Mountains** Path: UUUDDDUUDD Count Valleys Count Mountains **Number of Mountains: 2**
Path: DDUUDDUUDDDUUU Click on “Count Valleys” SUBMIT button	**Counting Valleys & Mountains** Path: DDUUDDUUDDDUUU Count Valleys Count Mountains **Number of Valleys: 3**

Part E

This time, a hiker's **path** looks like the following (for example):

SDDUU

- The first character 'S' indicates the **start** of a hike, which occurs at **sea level**.
- Next, she enters a valley TWO (2) units deep (down).
- After that, she climbs out TWO (2) units high and reaches **sea level**.
- And, she is done with the hike.

Edit **`q2.js`** such that the function `print_path()` outputs the hike path. The hike path can be retrieved from the **textarea** (in **`q2-D.html`**).

Upon clicking **"Show Hiking Path"** button, **`q2-D.html`** must correctly display the hike path's **altitude change** as the hike progresses (Left to Right).

***IMPORTANT: You MAY ASSUME** that the user input **path** will always be a **VALID HIKE**. Please test your code against the below listed test cases ONLY.*

q2-D.html (before button click)	**q2-D.html (after button click)**
Path: SDDDUUU Show Hiking Path	S U D U D U D
Path: SDDUUDDDUUU Show Hiking Path	S U U D U D U D D U D
Path: SDDUUUUDD Show Hiking Path	U U D S U D D U D