CA5213 – Full Stack Laboratory
Lab worksheet #2 - Simple JavaScript Programs

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*(**Due:** 03:30pm Tuesday, April 18, 2023)*

(20 Points)

The objective of this assignment is to give you a chance to set up and get comfortable with JavaScript development environment and some hands-on experience.

Programming assignments

1. Assume your online store also could only deliver a certain number of items to each of the available cities listed below. Unfortunately, you are still on a tight budget and do not have online ordering in place yet. The customer must print out a form, fill in each item number, and snail mail it to you. You want to display a printable form for the customer with enough lines that the customer can order up to the maximum number of items for the city entered. Assign the following values to the item's variable, depending on the name of the city.
   - 15 items if the city is Chennai.
   - 12 items if the city is Coimbatore and Madurai.
   - 8 items if the city is Salem.
   - 6 items if the city is Tiruchirappalli.
   - 2 items if the city is Thoothukudi.

2. In your computer online store, you decide to display the features of each of your computer parts along with the part names that are available. The computer parts and their features to be displayed as, after the part name, display a colon and a space. Between part features, display a comma and a space. At the end of the last part feature, insert a line break. A nested array may be created as shown below with the values.
   - Monitors, LCD Screens, LED Screens, Vibrant Colors,
   - Motherboards, Fast
   - Chips, i9, i7, i5, i3, Core2Duo, Pentium, Very Fast
   - Hard Drives, 2TB, 1TB, 100-500 GB, Fast Reading
   - DVD-ROMs, Burn CDs, Burn DVDs
   - Cases, ATX, AT, Mini, Other Sizes, Choice of Colors.
   - Power Supplies, we can get one for any computer!

3. In the Truth Magazine, Ramakrishnan and his colleagues are engaged in simplifying English into a more regular language called Speak Simplified. The truth magazine it is described that the word can take a variety of prefixes to eliminate the need for the massive number of words we have in English. For example:

Any word – could be negatived by adding the affix *un-*, or could be strengthened by the affix *plus-,* or, for still greater emphasis, *doubleplus*. Thus, for example, *uncold* meant **"warm",** while *pluscold* and *doublepluscold* meant, respectively, **"very cold"** and **"superlatively cold".**

Implement a JavaScript file (`SpeakSimplified.js`) with three functions – exclusion, strengthen and emphasize. The system must take the string as input as, prepend the prefixes "un", "plus", and "double" to that string, respectively, and return the new string. You can test your implementation by loading `SpeakSimplified.html` into the browser.

4. **Pizzacorner** has decided to create a mobileapp for getting orders from the customers through online. For an idea, you are advised to create a small prototype (Form layout) and a simple cost estimator based on the options chosen by the customer. The information you need is as follows:

   - Plain thin-crust pizzas:
     - Small: ₹99
     - Medium: ₹199
     - Large: ₹399
   - For deep pan, add ₹20
   - Extra toppings:
     - mushrooms: add ₹15
     - olives: add ₹10
     - fingernail: add ₹30
     - spicy beef: add ₹20
   - For home delivery, add ₹25

5. Create a colour swapper using a JavaScript. Create 5 different colours as a PNG files. Assume they are stacked over one another. Whenever, the user clicks on a colour the image must be swapped with the next colour (In a cycle).

6. Adithi is planning to start manufacture the vending machine for the stationery supplies and keep it in the schools. For that, she wants to add an interface that is user-friendly to add or track inventory. Implement a JS program that creates an instance for the vending machine with the following specifications.
   - The machine should have a callable sale method that takes the stationery id as an input and return a success message if in stock

or a failed message if out of stock VM will always deduct one (1) from the product id stock after a successful sale.

- VM should also have a callable stock method. It does not take any parameters and should display the total count of available stationery.
- The stationery_items object given as an example has a total of 25 items. After buying 2 four-line notebook, the output of the stock method should 23. it should also output 'Out of stock' if empty.

Below is the typical inventory model for the machines:

```javascript
const stationery_items = {
    1: { name: "Four-line notebook", stock: 2 },
    2: { name: "Two - line notebook", stock: 10 },
    3: { name: "HB pencil", stock: 8 },
    4: { name: "Eraser", stock: 3 },
    5: { name: "Drawing Notebook ", stock: 2 }
};
```

7. Shan energies PVT Ltd wants to create a bill calculator to calculate the amount for the consumed energy by the customer. The interface must take the energy consumed in units and the default subsidy amount is 250. Below you can find the different slabs.

Consumption Unit	Rate of charge
0 - 100	Rs 0 per Unit
101-200	Rs 100 plus Rs 3.75 per Unit exceeding 150 units
201-400	Rs 250 plus Rs 4 per unit exceeding 350 units
401-600	Rs 300 plus Rs 4.25 per unit exceeding 450 units
Above 600	Rs 400 plus Rs 5 per unit exceeding 600 units

The final calculation must be displayed as shown below.

Consumed Units:	580.0
Total Current Charges Rs.	2508.0
Current Charges Rs.	2508.0
Fixed Cost Rs.(+)	50.0
Subsidy Fixed Cost Rs.(-)	0.0
New Subsidy Rs.(-)	250.0
Net Amount Rs.	2308.0

8. Create a Scientific calculator which performs more calculations other than the basic arithmetic calculations that are listed (sin, cos, tan, pow, round, log, log10, abs, n!) and demonstrate the usage of modules. You must use an external JavaScript file. Name your files **scical.html** and **scical.js**.