**List of JavaScript Programs to be Implemented**

| **Conditional Statements [Submission Date: April :Week 4]** | |
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| **1.** | **Programs to be done by learner’s to demonstrate their readiness with “Conditional statements”**   * 1. Write a program to accept a number N and print whether the number is EVEN or ODD.   2. Write a program to accept two numbers and print whether their sum is EVEN or ODD |
| **Looping or iterative Statements [Submission Date: April :Week 4]** | |
| **2.** | **Programs to be done by learner’s to demonstrate their readiness with “Looping constructs”**   * 1. Write a program to print all numbers from 1 to 100 i.e. 1 2 3 4 5 6 7 . . . 98 99 100   2. Write a program to print alternate numbers starting from 1 to 99 i.e. 1 3 5 7 9 11 13 . . . 95 97 99   3. Write a program to print alternate numbers starting from 0 to 100 i.e. 0 2 4 6 8 10 12 . . . 96 98 100   4. Write a program to print all numbers backwards from 100 to 0 i.e. 100 99 98 97 96 . . . 4 3 2 1 0   5. Write a program to print numbers backwards from 100 to 1 by skipping 2 numbers i.e. 100 97 94 91 88 85 82 79. . . 22 19 16 13 10 7 4 1 |
| **3.** | **Print the below shape on a browser window [10 rows right-angled left justified numbers]**  1  12  123  1234  12345  123456  1234567  12345678  123456789  12345678910 |
| **4.** | **Print the below shape on a console window [10 rows right-angled right-justified stars]**  **\***  **\*\***  **\*\*\***  **\*\*\*\***  **\*\*\*\*\***  **\*\*\*\*\*\***  **\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\***  **\*\*\*\*\*\*\*\*\*\*** |
| **5.** | **In the Martian land faraway, a new virus has evolved and is attacking the individuals at a fast pace. The scientists have figured out the virus composition, V. The big task is to identify the people who are infected. The sample of N people is taken to check if they are POSITIVE or NEGATIVE. A report is generated which provides the current blood composition B of the person.**  POSITIVE or NEGATIVE ?  If the blood composition of the person is a subsequence of the virus composition V, then the person is identified as POSITIVE otherwise NEGATIVE.  Example:  Virus Composition, V = coronavirus  Blood Composition of the person , B = ravus  The person in question is POSITIVE as B is the subsequence of the V.  The scientists are busy with their research for medicine and request you to build a program which can quickly figure out if the person is POSITIVE or NEGATIVE. They will provide you with the virus composition V and all the people’s current blood composition. Can you help them?  Note: The virus and blood compositions are lowercase alphabet strings. |
| **Functions [Submission Date: May:Week 3]** | |
| **6.** | **Ramesh, a school student, was bored at home in the pandemic. He wanted to play but there was no one to play with. He was doing some mathematics questions including prime numbers and thought of creating a game using the same. After a few days of work, he was ready with his game. He wants to play the game with you.**  **GAME:**  Ramesh will randomly provide you a range **[ L , R ] (both inclusive)** and you have to tell him the maximum difference between the prime numbers in the given range. There are three answers possible for the given range.  1. There are two distinct prime numbers in the given range so the maximum difference can be found.  2. There is only one distinct prime number in the given range. The maximum difference in this case would be 0.  3. There are no prime numbers in the given range. The output for this case would be -1.  To win the game, the participant should answer the prime difference correctly for the given range.  Example:  **Range: [ 1, 10 ]**  The maximum difference between the prime numbers in the given range is 5.  Difference = 7 - 2 = 5  **Range: [ 5, 5 ]**  There is only one distinct prime number so the maximum difference would be 0.  **Range: [ 8 , 10 ]**  There is no prime number in the given range so the output for the given range would be -1.  Can you win the game? |
| **Switch Case [Submission Date: May:Week 3]** | |
| 7 | **Based on the ColorCode entered display corresponding color, below are the code and colors given**  R-> Red  B-> Blue  G-> Green  O-> Orange  Y-> Yellow  W-> White  others-> Invalid Input |
| **Arrays** **(Execute with and without using array methods.)**  **[Submission Date: May:Week 3]** | |
| 1. | Write a JavaScript program to sort the items of an array.  *Sample array*: var arr1 = [ 4, 6, 7, 8, 2, 1, -2 ];  *Sample Output*: -2, 1, 2, 4, 6, 7, 8 |
| 2. | Write a JavaScript program to find the most frequent item of an array  *Sample array*: var arr1= [1, 'a', 'a', 2, 3, 'a', 3, 'a', 2, 4, 9, ‘a’];  *Sample Output*: a (5times) |
| 3. | 1. Write a JavaScript program that compares two arrays and returns true if they are identical. 2. Write a JavaScript method that splits an array into parts of determined size. 3. Write a JavaScript method that returns a duplicate-free array. 4. Write a JavaScript method that reverts the input array |
| 4. | 1. Write a JavaScript program to find the leap years in a given range of years. 2. Write a JavaScript Program to Print the Fibonacci Sequence. 3. Write a JavaScript Program to add elements to the existing array at specific positions. 4. Write a JavaScript Program to delete elements from the existing array at a specific position. |
| 5. | Demonstrate the difference between let, var and const. |
| **Functions and Strings**  **[Submission Date: June Week 1,2]** | |
| 1 | Write an arrow function that accepts an array of numbers as input and returns the average of those numbers. |
| 2 | Write an arrow function that accepts an array of numbers as input and returns the sum of the even numbers in the array. |
| 3 | Write a JavaScript code to multiply each number in the array by 10 and return the result using the map() function with arrow notation. |
| 4 | Write an arrow function that will take one parameter weight in Kg. This arrow function will convert Kg to Lbs. Formula is kg\*2.2  If LBS is > 150, then the function should return "obese"  If LBS is between 100 to 150, the function should return "you are ok"  If LBS is < 100, then the function should return "underweight" |
| 5 | Demonstrate the concepts of pass by value and pass by reference using Arrow Functions. |
| 6 | Write a JavaScript function.  a. to capitalize the first letter of each word in a string.  b. to insert a string within a string at a particular position  c. to check whether an `input` is a string or not  d. to split a string and convert it into an array of words. |
| 7 | Write a JavaScript code to print all the Disarium numbers between 1 and 100. |
| 8 | Write JavaScript code to encrypt the text using Caesar Cipher technique. Display the encrypted text. Prompt the user for input and the shift pattern. |
| 9 | Implement all string methods using prompt and alert. |
| 10 | Write a JavaScript code to perform Jump Search for a given key and report success or failure. Prompt the user to enter the key and a list of numbers |
| 11 | Write an arrow function that accepts an array of strings as input and prompt the message which shows “Enter the Length of the String:” Output: Function should return the entered length strings. |
| **Application Based Programs**  **[Submission Date: June Week 1,2]** | |
| 12 | Write a program that prints two numbers: the numbers of cows and chickens on a farm, with the words Cows and Chickens after them and zeros padded before both numbers so that they are always three digits long using functions  Input(Function Call): printFarmInventory(7, 11);  Expected output:  007 Cows  011 Chickens |
| 13 | Write a JavaScript code to process the name as the sample below.  Sample Input: Rama Krishna Narayan  Sample Output: R. K. Narayan |
| 14 | Write a JavaScript function to extract unique characters from a string.  Example string : "thequickbrownfoxjumpsoverthelazydog"  Expected Output : "thequickbrownfxjmpsvlazydg" |
| 15 | Write an arrow function, check\_palindrome() to check whether the given string is a palindrome or not. The function should return true if it is a palindrome else it should return false.  Assume that all the letters in the given string are all of the same case.  Example: MAN, civic, WOW etc. |
| 16 | Create a HTML page with a drop down containing all string methods and select of any method perform suitable operations and display result on HTML page  Input: select one option (ex: toLowerCase()]  Output: String should be converted to Lowercase |
| 17 | A teacher is in the process of generating a few reports based on the marks scored by the students of her class in a project based assessment.  1: Assume that the marks of her 10 students are available in an array.  2: The marks are out of 25.  Write a JavaScript program to implement the following functions:  **find\_more\_than\_average():** Find and return the percentage of students who have scored more than the average mark of the class.  **generate\_frequency():** Find how many students have scored the same marks. For example, how many have scored 0, how many have scored 1, how many have scored 3….how many have scored 25. The result should be populated in a list and returned.  Sample Input:  list\_of\_marks = [12,18,25,24,2,5,18,20,20,21]  Sample Output:  more than average: 70.0  frequency: [0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 2, 0, 2, 1, 0, 0, 1, 1] |
| **Regular Expression ,Objects**  **[Submission Date: June Week 1,2]** | |
| 1. | Write a JavaScript program to list the properties of a JavaScript object.  Sample object:  var student = {  name : "David Rayy",  sclass : "VI",  rollno : 12 };  Sample Output: David Rayy, VI, 12 |
| 2. | Write a JavaScript program to search a date within a string.  Sample Input: "Albert Einstein was born in Ulm, on 14/03/1879."  Sample Output:14/03/1879. |
| 3. | Write a pattern that matches e-mail addresses. Syntax: localpart@domain  Note: The local part ( The text before @ symbol ) contains the following ASCII characters.  Uppercase (A-Z) and lowercase (a-z) English letters.  Digits (0-9).  Characters ! # $ % & ' \* + - / = ? ^ \_ ` { | } ~  Character . (dot) provided that it is not the first or last character and it will not come one after the other.   | Sample Input | Sample Output | | --- | --- | | JohnDoe.12#4@gmail.com | "Matches the pattern" | | John..Doe12#4@gmail.com | "Not matching" | |
| **Async,Callback,Promises**  **[Submission Date: June Week 1,2]** | |
| 1. | Write a Javascript program where user passes the location and a function is called which returns a promise, if the location passed is Paris Below is the output expected:  "Let's take a trip to Paris"  If the location is other than Paris, show the error message "Invalid Location". |
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| **Application Based Programs**  **[Submission Date: June Week 1,2]** | |
| 1. | Write a JavaScript program to book a hotel only after booking a flight.  [Hint:To achieve this, the promise returned from the bookHotel function is resolved only after resolving the promise from bookFlight function.  If the promise gets rejected from bookflight then it won't execute the second function.] |
| **Web API[Submission Date: June Week 3]** | |
| 1. | Design a login form as shown below and add toggle the visibility of a password input by using plain JavaScript. |
| 2. | Design a textarea as shown below and get the word and character count as and when you enter text inside the textbox |
| **3.** | Write a HTML code to have 2 radio buttons (named Enable and Disable ) and a button. Using plain javascript that changes the status of the button to be active and passive based on the radio button selected as shown below |
| **4.** | Design the Signup page as shown below and add validation to each field using javascript as shown in the figure below |
| 5. | Write a JavaScript program to dynamically display the password strength based on the following:  weak password strength indicates:less than 8 characters only alphabets  medium password strength indicates: 8 or more characters alphabets and numbers  strong password strength indicates: 8 or more characters Combination of alphabets and numbers any special character from !@#$%^&\* |
| 6. | Display the notification with title as "Hello Welcome" and body as "Welcome to Notification API" as shown below: |
| 7. | Create a signup.html page ,upon clicking the "Register" button, store the Username and Password locally using sessionStorage object and display it in a new success.html page.  Write a JavaScript function add() to achieve the above requirements. |
| **Classes** | |
| **7.** | **Create an Employee class extending from a base class Person.**  **Approach to the solution:**   * **Create a class Person with name and age as attributes** * **Add a constructor to initialize the values** * **Create a class Employee extending Person with additional attributes role and contact** * **The constructor of the Employee to accept the name, age, role and contact where name and age are initialized through a call to super to invoke the base class constructor** * **Add a method getDetails() to display all the details of Employee** |