1. Create three variables using var, let, and const.

Try to:

* Redeclare and reassign the var variable.
* Redeclare and reassign the let variable.
* Redeclare and reassign the const variable.
* Explain what happens in each case.

2. Using const with objects and arrays

* Create a constant object and a constant array.
* Try modifying the contents of the object and array (add or remove properties/items).
* Explain why these changes are allowed even though const is used.

3.Declare two variables, a and b, and assign them values (e.g., a = 10 and b = 5).

* Use the following arithmetic operators on a and b:
* Addition (+)
* Subtraction (-)
* Multiplication (\*)
* Division (/)
* Modulus (%)

4. Increment and Decrement Operators

* Declare a variable x with an initial value (e.g., x = 10).
* Use the increment (++) and decrement (--) operators to increase and decrease the value of x, both in pre-increment and post-increment forms.

5. Declare two variables, a and b, with different numerical values.

* Compare the two variables using the following comparison operators:
* Equal to (==)
* Strict equal to (===)
* Not equal to (!=)
* Strict not equal to (!==)
* Greater than (>)
* Less than (<)
* Greater than or equal to (>=)
* Less than or equal to (<=)

Print the result of each comparison.

6. Comparison between different data types

* Declare a variable x with a value of 5 (number).
* Declare a variable y with a value of '5' (string).
* Compare x and y using both == and ===. Explain the difference between the two results.

7. Compare using null and undefined

* Declare two variables, a as null and b as undefined.
* Compare them using both == and === and note the difference in the results.

8.Compare arrays and objects

* Declare two empty arrays, arr1 and arr2, and compare them using == and ===.
* Declare two empty objects, obj1 and obj2, and compare them using == and ===.
* Explain why the comparisons return the result they do.

9.Declare a string variable text with any sentence.

* Find and print the length of the string.
* Access and print the first and last characters of the string.

10.Declare a string variable text with mixed case letters.

* Convert and print the string in all uppercase
* Convert and print the string in all lowercase

11.Declare a string variable sentence containing at least 10 words.

* Use the all the methods of strings to extract a portion of the string and print the result

12.Find and Replace a Word

* Declare a string variable sentence with a sentence of your choice.
* Use the method to find the position of a word in the sentence. and
* Replace the word print the updated sentence.

13.Declare a string variable str with extra spaces at the beginning and end.

* Use the string method to remove the extra spaces and print the trimmed string.

14.Declare a string variable words containing a list of comma-separated values(eg let words = "apple,banana,orange,grape";)

* Use the string method to convert the string into an array of words, and print the resulting array.

15.Declare a string variable text with a sentence.

* Use the string method to check if a specific word exists in the string and print true or false.

16.Declare two string variables str1 and str2.

* Concatenate the two strings using the string method and print the result.
* Also, try concatenating the strings using the + operator and compare the results.

17.Declare a string variable strNumber with a value of "123.456".

* Convert the string to a number using:
* Number()
* parseInt()
* parseFloat()

Print the results and compare the outputs.

18.Declare a boolean variable isTrue with a value of true.

* Convert isTrue to a string and print the result.
* Convert isTrue to a number and print the result.

19.Declare a number variable num with a value of 456.

* Convert the number to a string using all the possible ways

20.Declare the following variables with different values:

* A number num1 with a value of 0.
* A number num2 with a value of 1.
* A string str1 with a value of "" (empty string).
* A string str2 with a value of "Hello!".
* A null value.
* An undefined value.
* Convert each variable to a boolean using Boolean() and print the results.

21. Declare an array arr with values [1, 2, 3].

* Convert the array to a string using String() and print the result.
* Convert the array to a number using Number() and print the result.
* Declare an object obj with properties {name: "abc", age: 30}.
* Convert the object to a string and a number, then print both results.

22.Declare an array fruits with values ["apple", "banana", "mango"].

* Use the array method to add a new fruit "orange" to the end of the array, and print the updated array.
* Use the array method to remove the last fruit from the array, and print the updated array.
* Use the array method to remove the first fruit from the array, and print the updated array.
* Use the array method to add "grape" to the beginning of the array, and print the updated array.

23.Declare an array numbers with values [10, 20, 30, 40, 50].

* Print the length of the array.
* Access and print the first and last elements of the array using index notation.

24.Declare an array colors with values ["red", "green", "blue", "yellow", "purple"].

* Use the array method to remove the color "blue" from the array, and print the updated array.
* Use the array method to add "orange" and "pink" after "green".
* Use the array method to create a sub-array with the first three colors and print it.

25.Declare an array words with values ["Hello", "world", "this", "is", "JavaScript"].

* Use the array method to join the words into a single sentence with spaces, and print the result.

26.Write a function checkVotingEligibility that:

* Takes an age as input.
* check if the person is eligible to vote (age 18 or older).
* Returns "Eligible to vote" if age is 18 or above, otherwise returns "Not eligible to vote".

27.Write a function temperatureStatus that:

* Takes a temperature value as input.
* Uses an statement to categorize the temperature:
  + "Cold" if temperature is below 15°C
  + "Warm" if temperature is between 15°C and 30°C
  + "Hot" if temperature is above 30°C
* Returns the appropriate category based on the temperature.

28.Write a function isLeapYear that:

* Takes a year as input.hoisting
* Uses an if-else statement to determine if the year is a leap year.
* Returns "Leap Year" if it is, otherwise return "Not a Leap Year".
* A year is a leap year if it is divisible by 4, except for years divisible by 100 unless they are also divisible by 400.

29.Write a function calculateDiscount that:

* Takes a total purchase amount as input.
* Uses an statement to determine the discount percentage:
  + 0% for amounts less than $50
  + 10% for amounts between $50 and $100
  + 20% for amounts between $100 and $200
  + 30% for amounts above $200
* Returns the final amount after applying the discount.

30.Write a function weatherAdvice that:

1. Takes a weather condition (as a string: "sunny", "rainy", "snowy", "cloudy") as input.
2. Uses a switch statement to provide advice:
   * Sunny: "Wear sunglasses."
   * Rainy: "Take an umbrella."
   * Snowy: "Wear a heavy coat."
   * Cloudy: "Might rain; carry an umbrella."
   * Default: "Weather condition not recognized."

31.Write a function determineGameLevel that:

* Takes a score as input.
* Uses if-else if-else statements to determine the game level:
  + "Beginner" for scores 0-49
  + "Intermediate" for scores 50-79
  + "Advanced" for scores 80-100
* Return the level along with a motivational message.

32.Write a function validatePassword that:

* Takes a password string as input.
* Uses statements to validate the password:
* At least 8 characters: "Valid"
* Contains uppercase letters: "Valid"
* Contains lowercase letters: "Valid"
* Contains numbers: "Valid"
* Contains special characters: "Valid"
* Return "Password is strong" if all criteria are met; otherwise, return a message indicating which criteria are not met.

33.Write a function advancedCalculator that:

* Takes two numbers and an operator (as a string: "+", "-", "\*", "/", "%") as input.
* Uses a switch statement to perform the appropriate calculation.
* Return the result of the calculation, and handle division by zero with an appropriate message.

34.Write a function calculateFinalPrice that:

* Takes the total price and membership type (as a string: "regular", "silver", "gold") as inputs.
* Uses an statement to apply different discounts:
  + Regular: 0%
  + Silver: 10%
  + Gold: 20%
* Return the final price after applying the discount.

35.Write a function calculateInvestmentReturn that:

* Takes the principal amount, interest rate, and number of years as inputs.
* Uses statements to determine the type of investment:
* "Low risk" if interest rate <= 5%
* "Medium risk" if 5% < interest rate <= 10%
* "High risk" if interest rate > 10%
* Calculate and return the total amount after the specified number of years using simple interest:
* Total Amount = Principal + (Principal \* Interest Rate \* Years)

36.Write a function suggestClothing that:

1. Takes a temperature in Celsius as input.
2. Uses statements to suggest clothing:
   * Below 0: "Wear a heavy coat and thermal wear."
   * 0 to 15: "Wear a jacket."
   * 16 to 25: "Wear a light sweater."
   * Above 25: "Wear shorts and a t-shirt."
3. Return the clothing suggestion.

37.Write a function convertCurrency that:

* Takes an amount and a currency type (as a string: "USD", "EUR", "GBP") as inputs.
* Uses a statement to convert to a target currency:
  + USD to INR: 75
  + EUR to INR: 90
  + GBP to INR: 100
  + Default: "Invalid currency type"
* Return the converted amount.

38.Write a function that generates the Fibonacci sequence up to a specified number.

39.Create a function that calculates the factorial of a given number.

40.Write a function that checks if a given number is prime.

41.Create a function that reverses a string.

42.Write a function that calculates the sum of all elements in an array

43.Write a function that counts the number of properties in an object

44.Write a function that finds the maximum value in an array

45.Write a function that finds the Minimum value in an array

46.Write a function that counts down from a specified number to zero and logs each number.

47.Create a function that checks if a string is a palindrom

48.rite a function that calculates the sum of all odd numbers in an array

49.Create a function that generates a triangle pattern using nested for loops.

50.Write a function that finds the intersection of two arrays

51.Create a function that returns an array of unique elements from an array

52.Create a function that removes duplicate values from an array

53.Write a function that finds the longest word in a given sentence

54.Write a function that counts the occurrences of each character in a string and stores them in an object

55.Write a function that finds the second largest number in an array

56.Write a function that finds the second minimum number in an array

57.Create a function that removes all falsy values (0, "", false, null, undefined, NaN) from an array