JavaScript Assignment 1 (100 Exercises)

Variables (10 Exercises)

1. Declare a variable to store your name and log it to the console.
2. Create two variables to store your age and a friend's age, then log the sum.
3. Declare a constant to store the value of Pi (3.14159).
4. Store your favorite color in a variable and display it in a sentence.
5. Swap the values of two variables without creating a third variable.
6. Declare a variable with no initial value, then assign a number to it.
7. Create a variable that holds the result of multiplying two numbers.
8. Store the result of dividing two numbers and log whether the result is an integer.
9. Declare variables for first name, last name, and age. Log a sentence combining them.
10. Declare a Boolean variable to indicate whether today is sunny. Log the value.

Operators (10 Exercises)

1. Use the addition operator to add two numbers and display the result.
2. Use the modulus operator to check if a number is even or odd.
3. Write a program to compare two numbers and log which is larger.
4. Use the increment operator to increase a variable by 1.
5. Use the decrement operator to decrease a variable by 1.
6. Write a program to calculate the area of a rectangle (length × width).
7. Use the `+=` operator to add 10 to a variable.
8. Write a program to calculate the simple interest (P × R × T) / 100.
9. Create a program to find the remainder when dividing 25 by 4.
10. Check whether two strings are equal using the equality operator.

IF-ELSE Conditions (10 Exercises)

1. Write a program to check if a number is positive, negative, or zero.
2. Check if a person is eligible to vote based on age.
3. Write a program to check whether a number is divisible by 5 and 11.
4. Check whether a given year is a leap year.
5. Write a program to display the largest of three numbers.
6. Check if a person is a child (age < 12), teenager (12–18), or adult (18+).
7. Write a program to determine if a character is a vowel or a consonant.

8. Check if a number is even or odd using an if-else statement.
9. Write a program to determine if a grade is pass or fail (pass >= 40).
10. Write a program to determine whether a person is tall enough to ride a roller coaster (height ≥ 120 cm).

Switch Statement (10 Exercises)

1. Write a program to display the name of a day based on a number (1 for Monday, etc.).
2. Create a program that takes a month number and logs the number of days in that month.
3. Use a switch statement to classify a character as a vowel or consonant.
4. Write a program to assign grades based on marks (A, B, C, D, F).
5. Create a calculator using a switch statement for operations (+, -, *, /).
6. Use a switch statement to determine the type of triangle based on side lengths.
7. Write a program to print the season name based on a month number.
8. Create a program to identify the type of food (fruit, vegetable, grain) based on input.
9. Use a switch statement to return the corresponding zodiac sign based on a birth date.
10. Write a program to determine the type of fuel based on the user's selection (petrol, diesel, etc.).

Loops (for, while, do...while) (10 Exercises)

1. Write a program to print numbers from 1 to 10 using a `for` loop.
2. Use a `while` loop to print the first 10 even numbers.
3. Write a program to calculate the factorial of a number using a `for` loop.
4. Print the multiplication table of a given number using a loop.
5. Write a program to reverse a number (e.g., 123 → 321).
6. Use a `do...while` loop to display numbers from 1 to 5.
7. Write a program to calculate the sum of all numbers from 1 to 50.
8. Generate and display Fibonacci series up to 10 terms using a loop.
9. Use a nested `for` loop to display a multiplication table from 1 to 5.
10. Write a program to check if a number is prime.

Mixed Challenges (10 Exercises)

1. Write a program to calculate the sum of even and odd numbers separately from 1 to 20.
2. Use a loop to display a pattern like:

```
*
**
***
****
```

3. Write a program to find the largest number in an array.
4. Write a program to find the smallest number in an array.
5. Check if a number is a palindrome (e.g., 121 → palindrome).
6. Write a program to count the number of vowels in a string.
7. Create a program to calculate the sum of digits in a number.
8. Write a program to sort an array in ascending order.
9. Use nested loops to display a right-angled triangle of numbers:

```
1
12
123
```

10. Write a program to generate random numbers until a certain condition is met (e.g., number > 50).

Basic Function Creation (10 Exercises)

1. Write a function that prints "Welcome to JavaScript!" to the console.
2. Create a function that takes a number and returns the number doubled.
3. Write a function that returns the square of a given number.
4. Create a function that takes two numbers and returns their sum.
5. Write a function that logs a greeting message with a name passed as a parameter.
6. Create a function that takes a string and returns it in uppercase.
7. Write an arrow function that subtracts one number from another.
8. Create an arrow function that returns the product of two numbers.
9. Write a function to calculate the area of a rectangle (length × width).
10. Create an arrow function that divides one number by another and returns the result.

Functions with Conditional Logic (10 Exercises)

1. Write a function to check if a number is positive or negative.
2. Create a function that returns true if a number is even and false if it's odd.
3. Write an **arrow function** that checks if a string contains the word "hello".
4. Create an **arrow function** that takes a number and returns whether it's greater than 10.
5. Write a function that calculates whether a student passed or failed based on a grade (pass >= 40).
6. Create a function that checks if a given year is a leap year.
7. Write a function that checks if a string is longer than 5 characters.
8. Create a function that takes a number and returns "small" if it's less than 50 and "large" otherwise.
9. Write a function to determine if a character is a vowel.
10. Create an **arrow function** that checks if a given age qualifies for a senior citizen discount (age >= 60).

Working with Arrays (10 Exercises)

1. Write a function that returns the first element of an array.
2. Create a function that returns the last element of an array.
3. Write a function that adds an element to the end of an array and returns the new array.
4. Create a function that adds an element to the beginning of an array.
5. Write an **arrow function** that removes the last element from an array.
6. Create a function that removes the first element from an array.
7. Write a function to find the largest number in an array of numbers.
8. Create an **arrow function** to calculate the sum of all numbers in an array.
9. Write a function that checks if an array contains a specific number.
10. Create an **arrow function** that reverses an array and returns it.

String Manipulation with Functions (10 Exercises)

1. Write a function to concatenate two strings.
2. Create a function that returns the first character of a string.
3. Write an **arrow function** to check if a string starts with a specific letter.
4. Create a function that returns the length of a string.
5. Write a function that converts a string to lowercase.
6. Create an **arrow function** to check if a string ends with a specific word.
7. Write a function to replace all spaces in a string with underscores.
8. Create a function that counts the number of vowels in a string.
9. Write a function to extract the first 3 characters from a string.

10. Create an **arrow function** that checks if two strings are equal.

Numbers and Math in Functions (10 Exercises)

1. Write an arrow function to add 5 to a given number and return the result.
2. Create a function to calculate the square root of a number.
3. Write a function to find the remainder when dividing one number by another.
4. Create a function that multiplies three numbers together.
5. Write an arrow function to round a number to the nearest integer.
6. Create a function to find the absolute value of a number.
7. Write an arrow function to generate a random number between 0 and 100.
8. Create a function to find the maximum of two numbers.
9. Write an arrow function to calculate the percentage of a number.
10. Create a function to check if a number is divisible by another number.