**Array Basics:**

**a. Create an array named fruits containing the following fruits: "apple", "banana", "orange", "grape", "kiwi".**

**b. Print the third element of the array.**

**c. Add "mango" to the end of the array.**

**d. Remove the first element of the array.**

**e. Print the modified array.**

**Array Manipulation:**

**a. Create an array named numbers containing 5 random integers.**

**b. Iterate through the array and print each element.**

**c. Find the sum of all elements in the array.**

**d. Find the largest number in the array.**

**e. Sort the array in ascending order.**

**f. Print the sorted array.**

**Array Operations:**

**a. Create two arrays named arr1 and arr2 with different lengths.**

**b. Concatenate the two arrays into a new array named concatenatedArray.**

**c. Check if the value "apple" exists in concatenatedArray.**

**d. If "apple" exists, find its index, otherwise, print "apple not found".**

**e. Remove the last element from concatenatedArray.**

**f. Print the final concatenatedArray.**

**Nested Arrays:**

**a. Create a nested array named matrix containing 3 arrays, each with 3 elements (a 3x3 matrix).**

**b. Print the element in the second row and third column.**

**c. Replace the element in the first row and second column with a new value.**

**d. Print the modified matrix.**

**Array Methods:**

**a. Create an array named animals containing "dog", "cat", "rabbit", "hamster", "bird".**

**b. Use the slice() method to create a new array named pets containing the first three elements of animals.**

**c. Use the indexOf() method to find the index of "rabbit" in animals.**

**d. Use the join() method to join all elements of pets into a single string separated by commas.**

**e. Print the result.**

**Array Iteration:**

**a. Create an array named grades containing random grades between 0 and 100 (inclusive).**

**b. Use a loop to iterate through the array and categorize each grade into "Pass" (>= 50) or "Fail" (< 50).**

**c. Count the number of "Pass" and "Fail" grades.**

**d. Print the count of "Pass" and "Fail" grades.**