### JavaScript Assignment

Objective: This assignment aims to reinforce your understanding of core JavaScript concepts, including data structures, algorithms, and higher-order functions.

#### Instructions

1. Complete the tasks below using vanilla JavaScript.
2. Submit your solutions as a single .js file.
3. Ensure your code is well-commented and follows best practices.

### Tasks

1. Palindrome Checker: Write a function isPalindrome(str) that checks if a given string is a palindrome, ignoring case and non-alphanumeric characters.
2. Fibonacci Sequence: Create a function fibonacci(n) that returns an array containing the first n numbers in the Fibonacci sequence.
3. Array Chunking: Write a function chunkArray(arr, size) that splits an array into groups of the specified size and returns them as a two-dimensional array.
4. Anagrams: Create a function areAnagrams(str1, str2) that checks if two strings are anagrams of each other.
5. Array Intersection: Write a function arrayIntersection(arr1, arr2) that returns a new array containing the elements that are present in both input arrays.
6. Flatten Deeply Nested Array: Write a function flattenArray(arr) that flattens a deeply nested array.
7. Count Vowels: Create a function countVowels(str) that counts the number of vowels (a, e, i, o, u) in a given string.
8. Prime Number Checker: Write a function isPrime(num) that checks if a given number is a prime number.
9. Factorial Calculation: Create a function factorial(n) that returns the factorial of a given number n.
10. Reverse String: Write a function reverseString(str) that reverses a given string.
11. Sum of Array Elements: Create a function sumArray(arr) that returns the sum of all elements in an array.
12. Remove Duplicates from Array: Write a function removeDuplicates(arr) that removes duplicate elements from an array.
13. Find Maximum Number: Create a function findMax(arr) that returns the maximum number in an array.
14. Merge Sorted Arrays: Write a function mergeArrays(arr1, arr2) that merges two sorted arrays into a single sorted array.
15. Longest Word in a Sentence: Create a function longestWord(sentence) that finds the longest word in a given sentence.
16. Title Case a Sentence: Write a function titleCase(sentence) that converts a given sentence to title case.
17. Generate Random Number: Create a function randomNumber(min, max) that generates a random number between min and max.
18. Sum of Digits: Write a function sumDigits(num) that returns the sum of the digits of a given number.
19. Count Occurrences: Create a function countOccurrences(arr, value) that counts the number of occurrences of a given value in an array.
20. Binary to Decimal Conversion: Write a function binaryToDecimal(binary) that converts a binary number (as a string) to its decimal equivalent.

### Submission Guidelines

* Upload your .js file to the designated submission platform.
* Include your name and student ID at the top of the file.
* Ensure your code is clean and well-documented.

### Evaluation Criteria

* Correctness of solutions
* Code readability and commenting
* Efficient use of JavaScript features

Good luck!