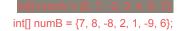
Algorithm Assignment - 1

Similar to previous assignments, you should start by initializing a new Git repository and adhering to best practices. For this assignment, you are required to implement ten algorithms. Each one should be written in a separate file named " ", where X represents the algorithm's number. After finalizing each algorithm, please commit the file.

- 1. Prompt the user to input a number. Ensure it's a positive number. If validated, generate the Fibonacci sequence up to that number using a downtoop.
- 2. Given the array my man (a, 2, 7, 10, 66, 7, 8, 200);, determine the smallest and largest numbers in this set.
- 3. Given the array with the elements of the original array, but in the opposite sequence. Then assign the memory location of the new array to nums and print out the nums array.
- 4. Using the aforementioned array, invert the order of its elements directly within the same array. You must not create any additional arrays for this task. Once finished, print out the nums array.
- 5. Prompt the user to enter a text (ASCII only). Ensure the input is not empty. If the input is valid, invert the sequence of characters and display the reversed text.
- 6. Prompt the user to enter a sentence (using ASCII characters). Check to ensure the input isn't empty. If the input passes validation, invert the order of the words and then display the resulting sentence.
- 7. Prompt the user to provide a sentence. Ensure the input isn't empty. If valid, identify and display the shortest and longest words from the sentence, along with their respective lengths.
- 8. Given two arrays:



Determine and print the following:

- 1. numA ∩ numB
- 2. numA U numB
- 3. numA / numB

- 4. numB / numA
- 5. numA \triangle numB
- 9. Ask the user to input a single word. If they enter a sentence or multiple words, prompt them again. After receiving a valid word, determine if it's a palindrome. For verification, use the words "noon," "civic," "racecar," and "level." These should be recognized as palindromes.