PYTHON

Assignment

1. **Write a recursive function to calculate the factorial of a given number.**
2. **Create a recursive function that returns the nth Fibonacci number.**
3. **Write a recursive function to calculate the sum of digits of a given integer.**
4. **Implement a recursive function to reverse a given string.**
5. **Create a recursive function to check if a given string is a palindrome.**
6. **Write a Python program that checks whether two sentences are anagrams of each other. Your program should ignore spaces, punctuation, and capitalization.**
7. **Write a recursive function to perform a binary search on a sorted list.**
8. **Write a recursive function to flatten a list of lists (with arbitrary nesting).**
9. **Implement a recursive function to generate all permutations of a given string.**
10. **Create a recursive function to count the number of vowels in a given string.**
11. **Write a recursive function to find the minimum element in a list of numbers.**
12. **Implement a recursive function to count the occurrences of a specific element in a list.**
13. **Implement a recursive function to calculate the sum of all even numbers in a list.**
14. **Implement a recursive function to calculate the sum of all elements in a nested list structure.**
15. **Write a recursive function to determine if a given number is prime.**