Name: Rishi Raj Das
StudentID: 165212234

Reflection

Working on this word frequency and bigram analysis project was a valuable experience that helped me deepen my understanding of text processing, hashing, and algorithmic problem-solving in Python. At the core of the program, I designed a series of functions that work together in stages: reading a text file, cleaning the data, counting word occurrences using a dictionary as a hash table, and finally extending the logic to identify and analyze bigrams. Breaking the problem into phases allowed me to approach each task more methodically. I started by focusing on simple operations such as reading and preprocessing the text, and then gradually built toward more complex ideas like frequency tables and tuple-based bigrams.

The logic mostly came from understanding how hashing works and how dictionaries naturally support fast lookups and frequency accumulation. Thinking in terms of data flow (file -> words -> counts -> sorting) helped me stay organized and avoid feeling overwhelmed. One of the challenges I faced was researching the best way to clean the text without relying on unnecessary libraries. Learning to manipulate strings manually pushed me to better understand character-wise iteration and filtering. Another challenge was understanding how bigrams should be stored and counted efficiently, which required thinking differently about sequences and pairing consecutive elements.

Overall, this project strengthened my confidence in structuring programs, breaking problems into smaller pieces, and applying fundamental data-structure concepts in a practical setting. It also gave me a clearer sense of how real-world text-analysis tasks are built from simple but well-organized logical steps.