Exercise 173: Run-Length Decoding

(33 Lines)

Run-length encoding is a simple data compression technique that can be effective when repeated values occur at adjacent positions within a list. Compression is achieved by replacing groups of repeated values with one copy of the value, followed by the number of times that the value should be repeated. For example, the list `["A", "A", "A", "A", "A", "A", "A", "A", "A", "A", "A", "A", "B", "B", "B", "B", "A", "A", "A", "A", "A", "A", "B"]` would be compressed as `["A", 12, "B", 4, "A", 6, "B", 1]`. Decompression is performed by replicating each value in the list the number of times indicated.

Write a recursive function that decompresses a run-length encoded list. Your recursive function will take a run-length compressed list as its only parameter. It will return the decompressed list as its only result. Create a main program that displays a run-length encoded list and the result of decoding it.