Address the Problem

- Download Kafka using wget and extract the files using tar.
- Install Java 1.8 using sudo yum install java-1.8.0-openjdk.
- Start Zookeeper using bin/zookeeper-server-start.sh config/zookeeper.properties.
- Open a new terminal for Kafka server.
- Start Kafka server using bin/kafka-server-start.sh config/server.properties.
- Update config/server.properties for public IP:
    a. Approach 1: Manually edit with sudo nano config/server.properties.
    b. Approach 2: Use a command for sed replacement.
- Create a Kafka topic named 'demo_testing2':
    a. Use bin/kafka-topics.sh command with appropriate parameters.
- Python script using KafkaProducer:
    a. Establish connection to Kafka topic 'demo_test'.
    b. Send an initial message with a sample dictionary.
    c. Read data from a CSV file into a pandas DataFrame.
    d. Enter an infinite loop:
        i. Sample a random row from the DataFrame.
        ii. Convert it to a dictionary and send it as a Kafka message.
        iii. Introduce a 1-second delay between messages.
    e. Flush the producer to clear data from the Kafka server.
- Python script using KafkaConsumer:
    a. Establish connection to Kafka topic 'demo_test'.
    b. Connect to an Amazon S3 bucket using S3FileSystem.
    c. Iterate through Kafka messages:
        i. Deserialize JSON values.
        ii. Write them to separate JSON files in the specified S3 bucket.
- Replace placeholders such as <Your_Kafka_Broker_IP>:9092 with actual IP addresses or hostnames.
- Ensure dependencies are installed: kafka, s3fs, kafka-python.
- Follow the outlined steps in a systematic order:
    a. Execute Kafka and Java installation.
    b. Start Zookeeper and Kafka server.
    c. Configure Kafka for public IP.
    d. Create the Kafka topic.
    e. Run the Kafka Producer and Consumer scripts.