

Exercise #4

Submission:

Submit your exercise as a SINGLE ZIP file on Canvas by the due date.
Your submitted ZIP file must have the name:
Exercise_4_Your_LastName.zip

Deliverables:

Your ZIP file for the exercise submission must include the following:

- All source code that you installed, compiled and built on your personal computer.
- Panopto video recording of a live run of your code on your personal development computer.

Requirements Specification:

Download, install, and test-drive Kafka2.6.0.

Environment setup and dependencies

1. Please note that you must first setup your personal development computer environment by the running the script (env-setup-for-kafka-2.6.bat) from the command line window/terminal
2. If you are using Windows, you need to run kafka commands from the directory: C:\Workbench\kafka_2.13-2.6.0\bin\windows
3. Kafka uses /tmp/kafka-logs to writes its log, and ZooKeeper uses /tmp/zookeeper to write its logs. Depending on your machine,
4. Location of the log directoried for kafaka and zookeeper are specified in the following files:
 - 1) C:\Workbench\kafka_2.13-2.6.0\config\server.properties
 - 2) C:\Workbench\kafka_2.13-2.6.0\config\ zookeeper.properties

After you install Kafka on your personal development computer, you will run the demo applications listed on (<https://kafka.apache.org/quickstart>) and (<https://kafka.apache.org/26/documentation/streams/quickstart>)

1. Sanity test your Kafka Installation

1. All required tools must be installed in the directory:

- C:\Workbench

2. Startup Zookeeper

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
. \bin\windows\zookeeper-server-start.bat config\zookeeper.properties

3. Startup Kafka Server

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
. \bin\windows\kafka-server-start.bat config\server.properties

4. Create a topic to store your events

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
. \bin\windows\kafka-topics.bat --create --topic quickstart-events --bootstrap-server localhost:9092

5. Write some events to the topic

- Start a terminal/window on your computer

- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
. \bin\windows\kafka-console-producer.bat --topic quickstart-events --bootstrap-server localhost:9092

6. Read the events

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
. \bin\windows\kafka-console-consumer.bat --topic quickstart-events --from-beginning --bootstrap-server localhost:9092

7. Terminate Kafka

- Stop the producer and consumer clients with Ctrl-C.
- Stop the Kafka broker with Ctrl-C.
- Stop the ZooKeeper server with Ctrl-C.

2. Test-drive WordCountDemo Kafka Application

1. All required tools must be installed in the directory:

- C:\Workbench

2. Startup Zookeeper

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
.bin\windows\zookeeper-server-start.bat config\zookeeper.properties

3. Startup Kafka Server

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
.bin\windows\kafka-server-start.bat config\server.properties

4. Prepare input topic and start Kafka producer

- Start a terminal/window on your computer
- Change directory to:
C:\Workbench
- Execute from the command line the script:
env-setup-for-kafka-2.6.bat
- Execute the following command to verify your environment Java SDK setup
java -version
- Change directory to:
C:\Workbench\kafka_2.13-2.6.0
- Execute from the command line the following command:
.bin\windows\kafka-topics.bat --create --bootstrap-server localhost:9092 --
replication-factor 1 --partitions 1 --topic streams-plaintext-input
- Execute from the command line the following command:
.bin\windows\kafka-topics.bat --create --bootstrap-server localhost:9092 --
replication-factor 1 --partitions 1 --topic streams-wordcount-output --config
cleanup.policy=compact

- Execute from the command line the following command:
`.\bin\windows\kafka-topics.bat --bootstrap-server localhost:9092 --describe`

5. Start the Wordcount Application

- Start a terminal/window on your computer
- Change directory to:
`C:\Workbench`
- Execute from the command line the script:
`env-setup-for-kafka-2.6.bat`
- Execute the following command to verify your environment Java SDK setup
`java -version`
- Change directory to:
`C:\Workbench\kafka_2.13-2.6.0`
- Execute from the command line the following command:
`.\bin\windows\kafka-run-class.bat`
`org.apache.kafka.streams.examples.wordcount.WordCountDemo`

5. Start the Producer in its own Console

- Start a terminal/window on your computer
- Change directory to:
`C:\Workbench`
- Execute from the command line the script:
`env-setup-for-kafka-2.6.bat`
- Execute the following command to verify your environment Java SDK setup
`java -version`
- Change directory to:
`C:\Workbench\kafka_2.13-2.6.0`
- Execute from the command line the following command:
`.\bin\windows\kafka-console-producer.bat --bootstrap-server localhost:9092 --`
`topic streams-plaintext-input`

6. Start the Consumer in its own Console

- Start a terminal/window on your computer
- Change directory to:
`C:\Workbench`
- Execute from the command line the script:
`env-setup-for-kafka-2.6.bat`
- Execute the following command to verify your environment Java SDK setup
`java -version`
- Change directory to:
`C:\Workbench\kafka_2.13-2.6.0`
- Execute from the command line the following command:
`.\bin\windows\kafka-console-consumer.bat --bootstrap-server localhost:9092 --`
`topic streams-wordcount-output --from-beginning --formatter`
`kafka.tools.DefaultMessageFormatter --property print.key=true --property print.value=true --`
`property key.deserializer=org.apache.kafka.common.serialization.StringDeserializer --property`
`value.deserializer=org.apache.kafka.common.serialization.LongDeserializer`

7. Terminate Kafka

- Stop the producer and consumer clients with Ctrl-C.
- Stop the Kafka broker with Ctrl-C.
- Stop the ZooKeeper server with Ctrl-C.