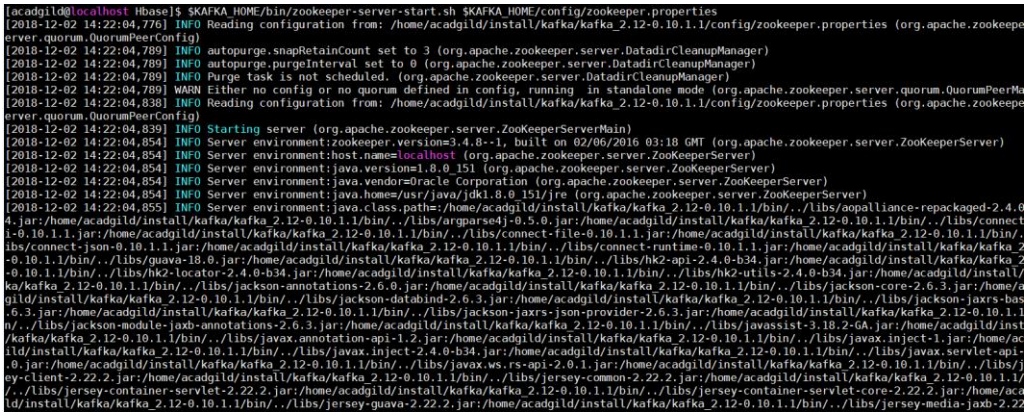
Assignment - 24

For this task we need to start zookeeper and kafka broker

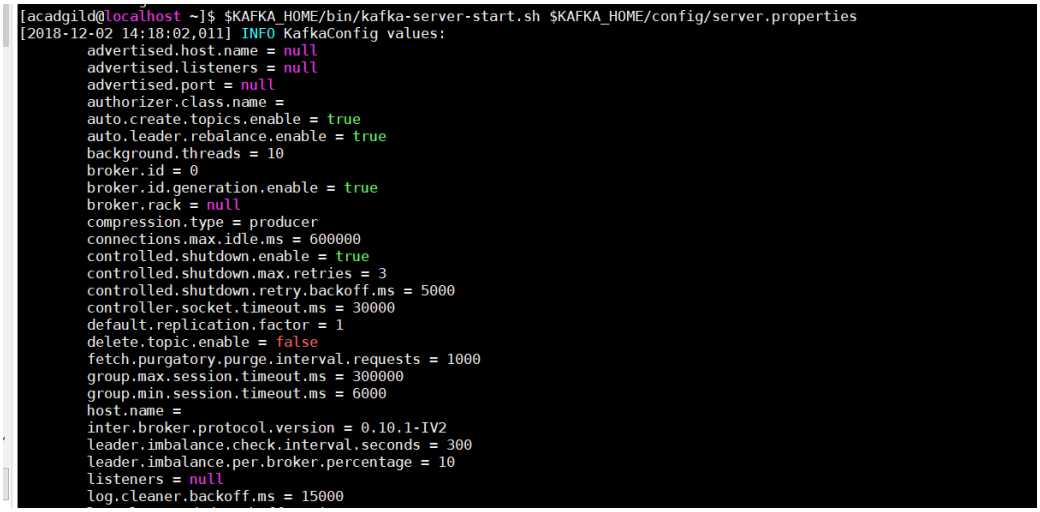
- **Starting Zookeeper**

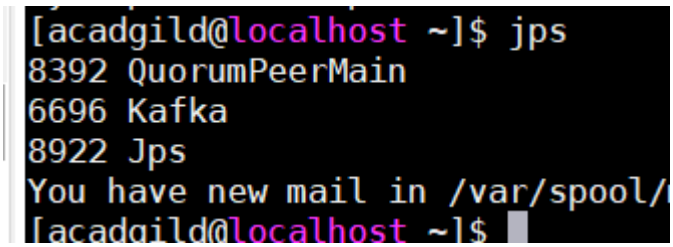
$KAFKA_HOME/bin/zookeeper-server-start.sh $KAFKA_HOME/config/zookeeper.properties



- **Starting broker**

$KAFKA_HOME/bin/kafka-server-start.sh $KAFKA_HOME/config/server.properties





Task 1:

Create a java program MyKafkaProducer.java that takes a file name and delimiter as input arguments. It should read the content of file line by line. Fields in the file are in following order

1. Kafka Topic Name

2. Key

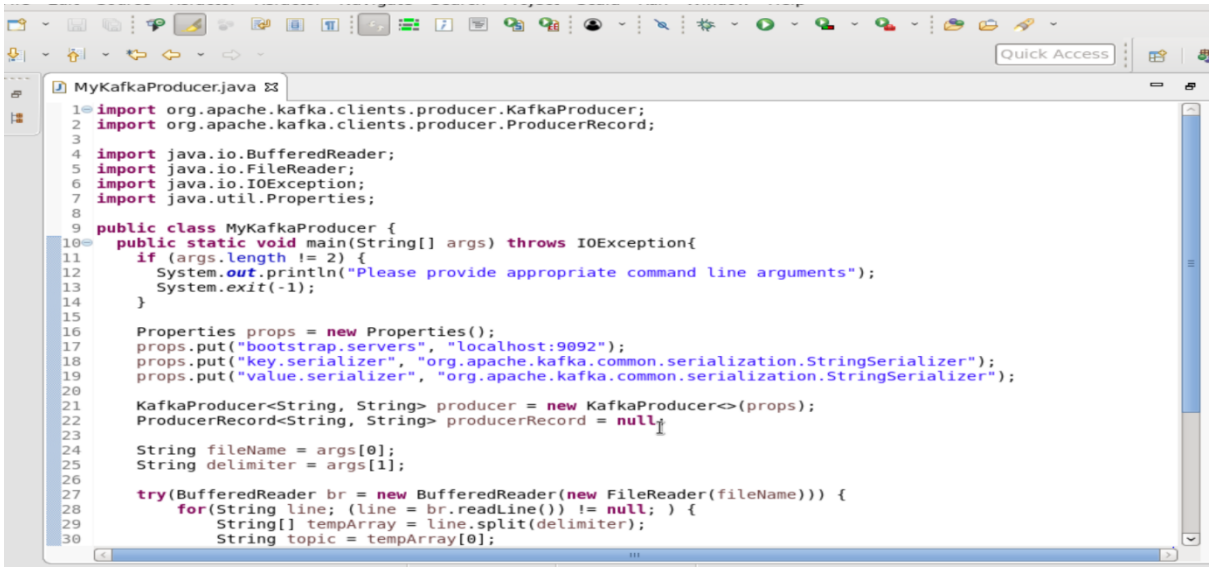
3. value

For every line, insert the key and value to the respective Kafka broker in a fire and forget mode. After record is sent, it should print appropriate message on screen. Pass dataset_producer.txt as the input file and - as delimiter

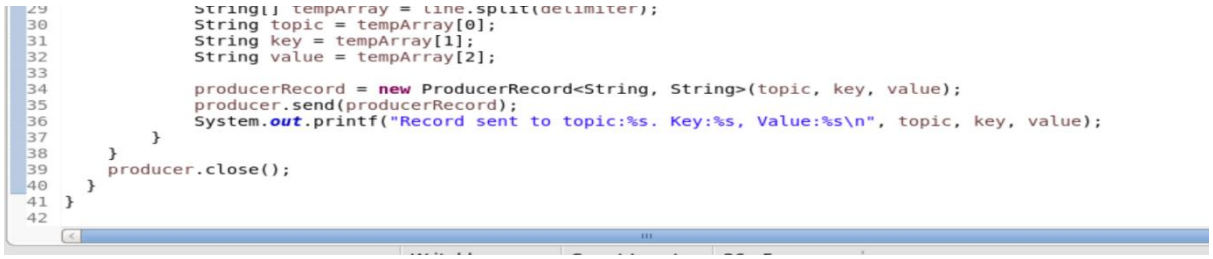
Below is the data file

```
[acadgild@localhost ~]$ ls dat*
dataset_producer.txt
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost ~]$ cat dataset_producer.txt
ItemTopic-{"item_id":"101"}-{"user_id":"U101"}
UserTopic-{"name":"John"}-{"exp":16}
ItemTopic-{"item_id":"101"}-{"user_id":"U106"}
UserTopic-{"name":"Mark"}-{"exp":18}
ItemTopic-{"item_id":"102"}-{"user_id":"U110"}
UserTopic-{"name":"Cylin"}-{"exp":15}
ItemTopic-{"item_id":"102"}-{"user_id":"U101"}
UserTopic-{"name":"Prod"}-{"exp":14}
ItemTopic-{"item_id":"104"}-{"user_id":"U102"}
UserTopic-{"name":"Abhay"}-{"exp":17}
ItemTopic-{"item_id":"107"}-{"user_id":"U104"}
UserTopic-{"name":"Misano"}-{"exp":19}
[acadgild@localhost ~]$
```

Below screenshot is the Java program MyKafkaProducer.java (original code attached)

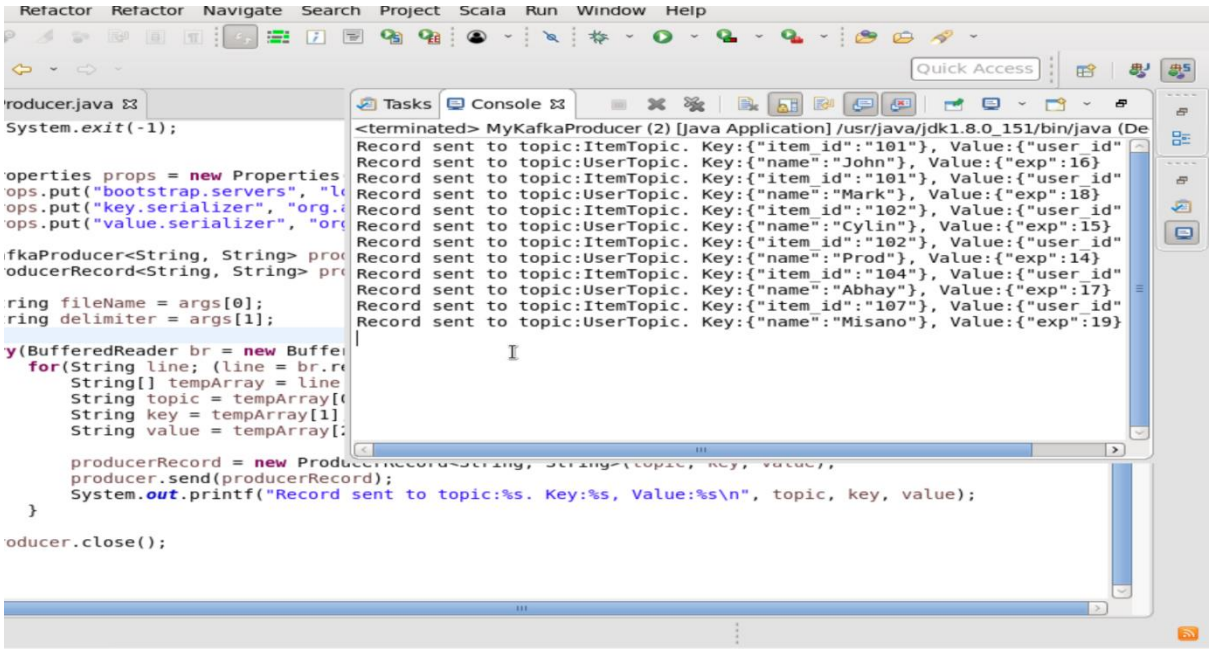


```java
import org.apache.kafka.clients.producer.KafkaProducer;
import org.apache.kafka.clients.producer.ProducerRecord;

import java.io.BufferedReader;
import java.io.FileReader;
import java.io.IOException;
import java.util.Properties;

public class MyKafkaProducer {
  public static void main(String[] args) throws IOException{
    if (args.length != 2) {
      System.out.println("Please provide appropriate command line arguments");
      System.exit(-1);
    }

    Properties props = new Properties();
    props.put("bootstrap.servers", "localhost:9092");
    props.put("key.serializer", "org.apache.kafka.common.serialization.StringSerializer");
    props.put("value.serializer", "org.apache.kafka.common.serialization.StringSerializer");

    KafkaProducer<String, String> producer = new KafkaProducer<>(props);
    ProducerRecord<String, String> producerRecord = null;

    String fileName = args[0];
    String delimiter = args[1];

    try(BufferedReader br = new BufferedReader(new FileReader(fileName))) {
        for(String line; (line = br.readLine()) != null; ) {
            String[] tempArray = line.split(delimiter);
            String topic = tempArray[0];
```



```java
            String[] tempArray = line.split(delimiter);
            String topic = tempArray[0];
            String key = tempArray[1];
            String value = tempArray[2];

            producerRecord = new ProducerRecord<String, String>(topic, key, value);
            producer.send(producerRecord);
            System.out.printf("Record sent to topic:%s. Key:%s, Value:%s\n", topic, key, value);
        }
    }
    producer.close();
  }
}
```

Output



```
Refactor  Refactor  Navigate  Search  Project  Scala  Run  Window  Help

Quick Access

roducer.java
System.exit(-1);

operties props = new Properties
ops.put("bootstrap.servers", "l
ops.put("key.serializer", "org.
ops.put("value.serializer", "or

fkaProducer<String, String> pro
oducerRecord<String, String> pr

ring fileName = args[0];
ring delimiter = args[1];

y(BufferedReader br = new Buffe
  for(String line; (line = br.r
      String[] tempArray = line
      String topic = tempArray[
      String key = tempArray[1]
      String value = tempArray[

      producerRecord = new Produ
      producer.send(producerRecord);
      System.out.printf("Record sent to topic:%s. Key:%s, Value:%s\n", topic, key, value);
  }

oducer.close();

Tasks  Console

<terminated> MyKafkaProducer (2) [Java Application] /usr/java/jdk1.8.0_151/bin/java (De
Record sent to topic:ItemTopic. Key:{"item_id":"101"}, Value:{"user_id"
Record sent to topic:UserTopic. Key:{"name":"John"}, Value:{"exp":16}
Record sent to topic:ItemTopic. Key:{"item_id":"101"}, Value:{"user_id"
Record sent to topic:UserTopic. Key:{"name":"Mark"}, Value:{"exp":18}
Record sent to topic:ItemTopic. Key:{"item_id":"102"}, Value:{"user_id"
Record sent to topic:UserTopic. Key:{"name":"Cylin"}, Value:{"exp":15}
Record sent to topic:ItemTopic. Key:{"item_id":"102"}, Value:{"user_id"
Record sent to topic:UserTopic. Key:{"name":"Prod"}, Value:{"exp":14}
Record sent to topic:ItemTopic. Key:{"item_id":"104"}, Value:{"user_id"
Record sent to topic:UserTopic. Key:{"name":"Abhay"}, Value:{"exp":17}
Record sent to topic:ItemTopic. Key:{"item_id":"107"}, Value:{"user_id"
Record sent to topic:UserTopic. Key:{"name":"Misano"}, Value:{"exp":19}
```

List the topics you can find ItemTopic and UserTopic

$KAFKA_HOME/bin/kafka-topics.sh --list --zookeeper localhost:2181

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-topics.sh --list --zookeeper localhost:2181
ItemTopic
KeyLessTopic
KeyedTopic
TestTopic
UserTopic
__consumer_offsets
my-replicated-topic
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost ~]$
ort MobaXterm by subscribing to the professional edition here:  https://mobaxterm.mobatek.net
```

Running the jar file

java -cp $KAFKA_HOME/share/java/kafka/*:/home/acadgild/Desktop/my.jar producer.MyKafkaProducer /home/acadgild/dataset_producer.txt -

```
[acadgild@localhost Desktop]$ java -cp $KAFKA_HOME/share/java/kafka/*:/home/acadgild/Desktop/my.jar MyKafkaProducer /home/acadgild/dataset_producer.txt -
Record sent to topic:ItemTopic. Key:{"item_id":"101"}, Value:{"user_id":"U101"}
Record sent to topic:UserTopic. Key:{"name":"John"}, Value:{"exp":16}
Record sent to topic:ItemTopic. Key:{"item_id":"101"}, Value:{"user_id":"U106"}
Record sent to topic:UserTopic. Key:{"name":"Mark"}, Value:{"exp":18}
Record sent to topic:ItemTopic. Key:{"item_id":"102"}, Value:{"user_id":"U110"}
Record sent to topic:UserTopic. Key:{"name":"Cylin"}, Value:{"exp":15}
Record sent to topic:ItemTopic. Key:{"item_id":"102"}, Value:{"user_id":"U101"}
Record sent to topic:UserTopic. Key:{"name":"Prod"}, Value:{"exp":14}
Record sent to topic:ItemTopic. Key:{"item_id":"104"}, Value:{"user_id":"U102"}
Record sent to topic:UserTopic. Key:{"name":"Abhay"}, Value:{"exp":17}
Record sent to topic:ItemTopic. Key:{"item_id":"107"}, Value:{"user_id":"U104"}
Record sent to topic:UserTopic. Key:{"name":"Misano"}, Value:{"exp":19}
[acadgild@localhost Desktop]$
```

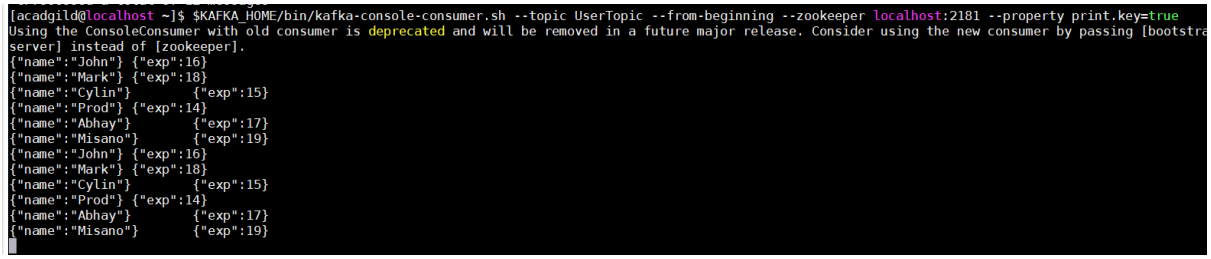
Item topic consumer

$KAFKA_HOME/bin/kafka-console-consumer.sh --topic ItemTopic --from-beginning --zookeeper localhost:2181 --property print.key=true

```
^[[AYou have new mail in /var/spool/mail/acadgild
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-console-consumer.sh --topic ItemTopic --from-beginning --zookeeper localhost:2181 --property print.key=true
Using the ConsoleConsumer with old consumer is deprecated and will be removed in a future major release. Consider using the new consumer by passing [bootstrap-
server] instead of [zookeeper].
{"item_id":"101"}       {"user_id":"U101"}
{"item_id":"101"}       {"user_id":"U106"}
{"item_id":"102"}       {"user_id":"U110"}
{"item_id":"102"}       {"user_id":"U101"}
{"item_id":"104"}       {"user_id":"U102"}
{"item_id":"107"}       {"user_id":"U104"}
{"item_id":"101"}       {"user_id":"U101"}
{"item_id":"101"}       {"user_id":"U106"}
{"item_id":"102"}       {"user_id":"U110"}
{"item_id":"102"}       {"user_id":"U101"}
{"item_id":"104"}       {"user_id":"U102"}
{"item_id":"107"}       {"user_id":"U104"}
```

User topic consumer

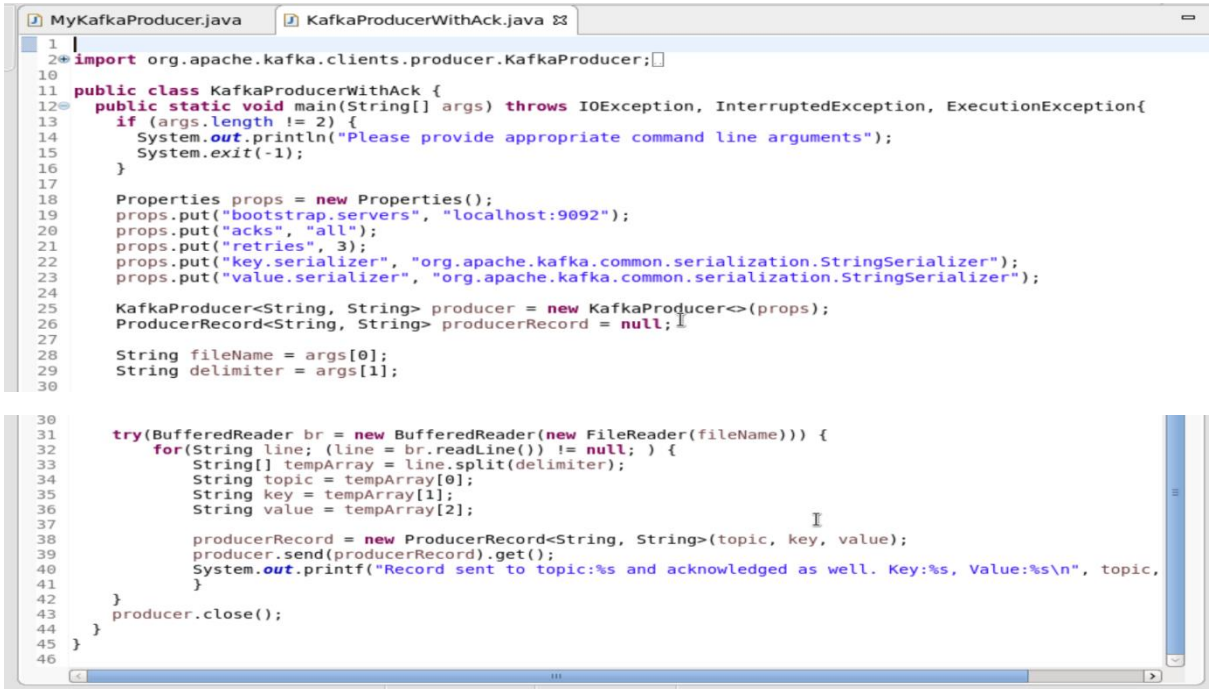
$KAFKA_HOME/bin/kafka-console-consumer.sh --topic UserTopic --from-beginning --zookeeper localhost:2181 --property print.key=true



Task 2:

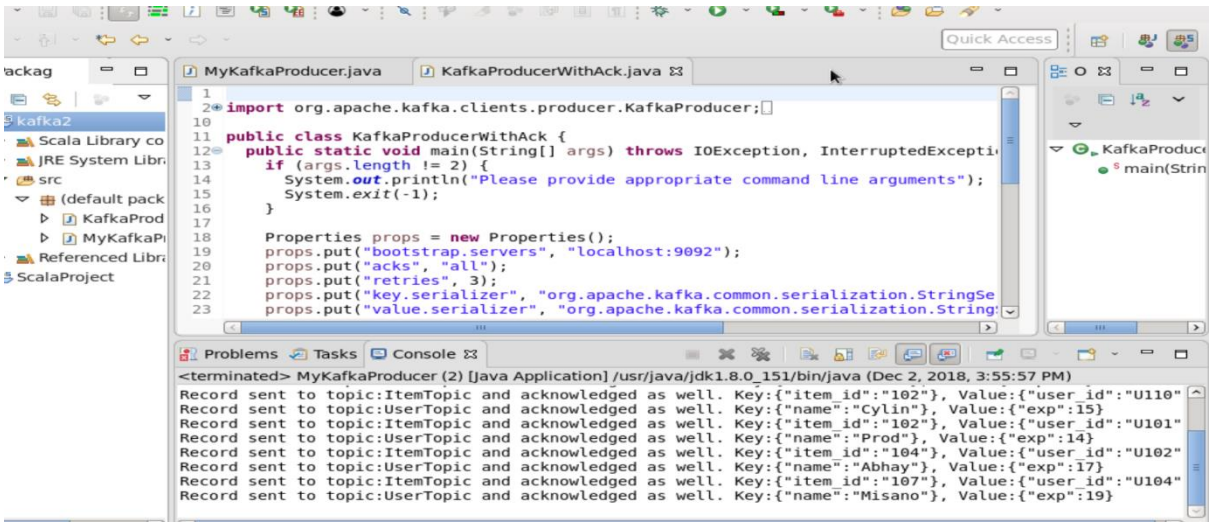
Modify the previous program MyKafkaProducer.java and create a new Java program KafkaProducerWithAck.java. This should perform the same task as of KafkaProducer.java with some modification. When passing any data to a topic, it should wait for acknowledgement. After acknowledgement is received from the broker, it should print the key and value, which has been written to a specified topic. The application should attempt for three retries before giving any exception. Pass dataset_producer.txt as the input file and - as delimiter.

Below screenshot is the MyKafkaProducer.java Code (original code attached)



```
MyKafkaProducer.java   KafkaProducerWithAck.java

1
2  import org.apache.kafka.clients.producer.KafkaProducer;
10
11 public class KafkaProducerWithAck {
12   public static void main(String[] args) throws IOException, InterruptedException, ExecutionException{
13     if (args.length != 2) {
14       System.out.println("Please provide appropriate command line arguments");
15       System.exit(-1);
16     }
17
18     Properties props = new Properties();
19     props.put("bootstrap.servers", "localhost:9092");
20     props.put("acks", "all");
21     props.put("retries", 3);
22     props.put("key.serializer", "org.apache.kafka.common.serialization.StringSerializer");
23     props.put("value.serializer", "org.apache.kafka.common.serialization.StringSerializer");
24
25     KafkaProducer<String, String> producer = new KafkaProducer<>(props);
26     ProducerRecord<String, String> producerRecord = null;
27
28     String fileName = args[0];
29     String delimiter = args[1];
30
30
31     try(BufferedReader br = new BufferedReader(new FileReader(fileName))) {
32         for(String line; (line = br.readLine()) != null; ) {
33             String[] tempArray = line.split(delimiter);
34             String topic = tempArray[0];
35             String key = tempArray[1];
36             String value = tempArray[2];
37
38             producerRecord = new ProducerRecord<String, String>(topic, key, value);
39             producer.send(producerRecord).get();
40             System.out.printf("Record sent to topic:%s and acknowledged as well. Key:%s, Value:%s\n", topic,
41             }
42     }
43     producer.close();
44   }
45 }
46
```

Output



```
Quick Access
MyKafkaProducer.java   KafkaProducerWithAck.java

1
2  import org.apache.kafka.clients.producer.KafkaProducer;
10
11 public class KafkaProducerWithAck {
12   public static void main(String[] args) throws IOException, InterruptedExcepti
13     if (args.length != 2) {
14       System.out.println("Please provide appropriate command line arguments");
15       System.exit(-1);
16     }
17
18     Properties props = new Properties();
19     props.put("bootstrap.servers", "localhost:9092");
20     props.put("acks", "all");
21     props.put("retries", 3);
22     props.put("key.serializer", "org.apache.kafka.common.serialization.StringSe
23     props.put("value.serializer", "org.apache.kafka.common.serialization.String

Problems  Tasks  Console
<terminated> MyKafkaProducer (2) [Java Application] /usr/java/jdk1.8.0_151/bin/java (Dec 2, 2018, 3:55:57 PM)
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"102"}, Value:{"user_id":"U110"
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Cylin"}, Value:{"exp":15}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"102"}, Value:{"user_id":"U101"
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Prod"}, Value:{"exp":14}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"104"}, Value:{"user_id":"U102"
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Abhay"}, Value:{"exp":17}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"107"}, Value:{"user_id":"U104"
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Misano"}, Value:{"exp":19}
```

Running the Jar

java -cp $KAFKA_HOME/share/java/kafka/*:/home/acadgild/Desktop/my.jar KafkaProducerWithAck /home/acadgild/dataset_producer.txt -

```
[acadgild@localhost Desktop]$ java -cp $KAFKA_HOME/share/java/kafka/*:/home/acadgild/Desktop/my.jar KafkaProducerWithAck  /home/acadgild/dataset_producer.txt -

Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"101"}, Value:{"user_id":"U101"}
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"John"}, Value:{"exp":16}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"101"}, Value:{"user_id":"U106"}
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Mark"}, Value:{"exp":18}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"102"}, Value:{"user_id":"U110"}
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Cylin"}, Value:{"exp":15}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"102"}, Value:{"user_id":"U101"}
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Prod"}, Value:{"exp":14}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"104"}, Value:{"user_id":"U102"}
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Abhay"}, Value:{"exp":17}
Record sent to topic:ItemTopic and acknowledged as well. Key:{"item_id":"107"}, Value:{"user_id":"U104"}
Record sent to topic:UserTopic and acknowledged as well. Key:{"name":"Misano"}, Value:{"exp":19}
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost Desktop]$
```

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User Topic output

$KAFKA_HOME/bin/kafka-console-consumer.sh --topic UserTopic --from-beginning --zookeeper localhost:2181 --property print.key=true

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-console-consumer.sh --topic UserTopic --from-beginning --zookeeper localhost:2181 --property print.key=true
Using the ConsoleConsumer with old consumer is deprecated and will be removed in a future major release. Consider using the new consumer by passing [bootstrap-server] instead of [zookeeper].
{"name":"John"} {"exp":16}
{"name":"Mark"} {"exp":18}
{"name":"Cylin"}        {"exp":15}
{"name":"Prod"} {"exp":14}
{"name":"Abhay"}        {"exp":17}
{"name":"Misano"}       {"exp":19}
{"name":"John"} {"exp":16}
{"name":"Mark"} {"exp":18}
{"name":"Cylin"}        {"exp":15}
{"name":"Prod"} {"exp":14}
{"name":"Abhay"}        {"exp":17}
{"name":"Misano"}       {"exp":19}
{"name":"John"} {"exp":16}
{"name":"Mark"} {"exp":18}
{"name":"Cylin"}        {"exp":15}
{"name":"Prod"} {"exp":14}
{"name":"Abhay"}        {"exp":17}
{"name":"Misano"}       {"exp":19}
```

Item Topic output

$KAFKA_HOME/bin/kafka-console-consumer.sh --topic ItemTopic --from-beginning --zookeeper localhost:2181 --property print.key=true

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-console-consumer.sh --topic ItemTopic --from-beginning --zookeeper localhost:2181 --property print.key=true
Using the ConsoleConsumer with old consumer is deprecated and will be removed in a future major release. Consider using the new consumer by passing [bootstrap-server] instead of [zookeeper].
{"item_id":"101"}       {"user_id":"U101"}
{"item_id":"101"}       {"user_id":"U106"}
{"item_id":"102"}       {"user_id":"U110"}
{"item_id":"102"}       {"user_id":"U101"}
{"item_id":"104"}       {"user_id":"U102"}
{"item_id":"107"}       {"user_id":"U104"}
{"item_id":"101"}       {"user_id":"U101"}
{"item_id":"101"}       {"user_id":"U106"}
{"item_id":"102"}       {"user_id":"U110"}
{"item_id":"102"}       {"user_id":"U101"}
{"item_id":"104"}       {"user_id":"U102"}
{"item_id":"107"}       {"user_id":"U104"}
{"item_id":"101"}       {"user_id":"U101"}
{"item_id":"101"}       {"user_id":"U106"}
{"item_id":"102"}       {"user_id":"U110"}
{"item_id":"102"}       {"user_id":"U101"}
{"item_id":"104"}       {"user_id":"U102"}
{"item_id":"107"}       {"user_id":"U104"}
```