

## Lab 4 - Мікросервиси з використанням Messaging queue

Завдання базується на функціоналі розробленому у попередньому завданні, і є його подальшим розвитком.

До **messages-service** необхідно додати:

- у якості каналу доставки повідомлень між **facade-service** та **messages-service** використати message queue
- можливість запускати одночасно декілька копій **messages-service**
- **facade-service** випадковим чином обирає до якої копії **messages-service** звертатись для читання повідомлень

Пропонується використати у якості Messaging queue

- Kafka (10 балів) - <https://hub.docker.com/r/apache/kafka>

### Функціональність системи

Клієнт взаємодіє з **facade-service** через HTTP POST та GET запити. У якості клієнта може бути *curl*, *Postman*, браузер у Dev mode та інше

- Необхідно розгорнути кластер **Messaging queue** - Hazelcast Distributed Queue (достаньо 2х серверів) чи Kafka (необхідно буде 3 сервери) та налаштувати реплікації черги (див. далі)
- При надходженні POST-запиту до **facade-service** він має додавати повідомлення з запиту до черги повідомлень
- Копії **messages-service** мають вичитувати повідомлення (схема - producer/consumer) та зберегти їх у пам'яті
- при GET запиті **facade-service**, з яким взаємодіє клієнт, випадковим чином обирає екземпляр **messages-service** та повертає по REST (HTTP) протоколу всі повідомлення, які зберігаються на даній копії

## Завдання

- Запустити три екземпляра **logging-service** (локально їх можна запустити на різних портах), відповідно мають запуститись також три екземпляра Hazelcast
- Запустити два екземпляри **messages-service** (локально їх можна запустити на різних портах)

<input type="checkbox"/>	dist-lab4	-	-	-	216.45%	3 minutes ago			
<input type="checkbox"/>	hazelcast2	f8a410deddee	<a href="#">hazelcast/hazelcast:5.3</a>	<a href="#">5702:5701</a>	3.17%	3 minutes ago			
<input type="checkbox"/>	hazelcast1	82aa91a72846	<a href="#">hazelcast/hazelcast:5.3</a>	<a href="#">5701:5701</a>	2.32%	3 minutes ago			
<input type="checkbox"/>	hazelcast3	03aa65a73325	<a href="#">hazelcast/hazelcast:5.3</a>	<a href="#">5703:5701</a>	1.98%	3 minutes ago			
<input type="checkbox"/>	config-server	46041a6c219c	<a href="#">dist-lab4-config-server</a>	<a href="#">8881:8881</a>	0.02%	3 minutes ago			
<input type="checkbox"/>	zookeeper	110eda17e33a	<a href="#">confluentinc/cp-zookeeper</a>	<a href="#">2181:2181</a>	0.8%	3 minutes ago			
<input type="checkbox"/>	logging1	d8868a73188b	<a href="#">dist-lab4-logging1</a>	<a href="#">50051:50051</a>	1.31%	3 minutes ago			
<input type="checkbox"/>	logging2	e6a6683cdd24	<a href="#">dist-lab4-logging2</a>	<a href="#">50052:50052</a>	1.45%	3 minutes ago			

<input type="checkbox"/>	logging3	e6a6683cdd24	<a href="#">dist-lab4-logging3</a>	<a href="#">50053:50053</a>	1.55%	4 minutes ago			
<input type="checkbox"/>	kafka1	cfeeb588cc4d	<a href="#">confluentinc/cp-kafka:7.3.0</a>	<a href="#">9092:9092</a>	37.87%	4 minutes ago			
<input type="checkbox"/>	kafka2	39e400f2cbf9	<a href="#">confluentinc/cp-kafka:7.3.0</a>	<a href="#">9093:9093</a>	65.35%	4 minutes ago			
<input type="checkbox"/>	kafka3	2051df9b0c4e	<a href="#">confluentinc/cp-kafka:7.3.0</a>	<a href="#">9094:9094</a>	25.83%	4 minutes ago			
<input type="checkbox"/>	logging2	772a2b3668aa	<a href="#">dist-lab4-logging2</a>	<a href="#">50052:50052</a>	1.45%	4 minutes ago			
<input type="checkbox"/>	messages1	17e441d7f7c0	<a href="#">dist-lab4-messages1</a>	<a href="#">8882:8882</a>	0.91%	3 minutes ago			
<input type="checkbox"/>	facade	1e92a51a5f28	<a href="#">dist-lab4-facade</a>	<a href="#">8880:8880</a>	0.01%	3 minutes ago			
<input type="checkbox"/>	messages2	b2a7779e7f7e	<a href="#">dist-lab4-messages2</a>	<a href="#">8883:8883</a>	0.99%	3 minutes ago			

```
PS D:\shared\dist-lab4> docker exec kafka1 kafka-topics --describe --topic messages-topic --bootstrap-server kafka1:9092
Topic: messages-topic TopicId: Mag0ZP99QpSlpEWRKHGTMA PartitionCount: 3 ReplicationFactor: 3 Configs:
Topic: messages-topic Partition: 0 Leader: 1 Replicas: 1,3,2 Isr: 1,3,2
Topic: messages-topic Partition: 1 Leader: 2 Replicas: 2,1,3 Isr: 2,1,3
Topic: messages-topic Partition: 2 Leader: 3 Replicas: 3,2,1 Isr: 3,2,1
PS D:\shared\dist-lab4>
```

- Через HTTP POST записати 10 повідомлень *msg1-msg10* через **facade-service**

```

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg1"
{"id":"5378a491-6a44-4c58-8aa3-95c8502b413b","txt":"msg1"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg2"
{"id":"d1a7bd3d-1541-46f8-b42a-257745255d4b","txt":"msg2"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg3"
{"id":"81831bb6-a7dc-43ac-85ba-70277ccab667","txt":"msg3"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg4"
{"id":"341e8e21-2ffe-4331-9a1d-8361e0d122c7","txt":"msg4"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg5"
{"id":"480497fe-0e7b-49d0-aed3-4b35073b7d3a","txt":"msg5"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg6"
{"id":"d42ebb26-f224-4028-a5f1-a7163e072031","txt":"msg6"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg7"
{"id":"2a47c579-12e9-4f24-9d65-f80f51466703","txt":"msg7"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg8"
{"id":"e1d65e5c-79d5-4bee-83f4-32e5bc1bffa37","txt":"msg8"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg9"
{"id":"06fd8b84-137c-4238-9b79-e1cd5f4d737c","txt":"msg9"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg10"
{"id":"c1bebac6-646d-4675-bd3a-0aa32939d59e","txt":"msg10"}

D:\shared\dist-lab4>

```

- Показати які повідомлення отримав кожен з екземплярів **logging-service** (це має бути видно у логах сервісу)

## Logging1:

```

PS D:\shared\dist-lab4> docker logs logging1
INFO:hazelcast.lifecycle:HazelcastClient 5.5.0 is STARTING
INFO:hazelcast.lifecycle:HazelcastClient 5.5.0 is STARTED
INFO:hazelcast.connection:Trying to connect to Address(host=hazelcast3, port=5701)
INFO:hazelcast.lifecycle:HazelcastClient 5.5.0 is CONNECTED
INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.6, port=5701):00757f79-452e-4193-bfd4-b7d91742c88a, server version: 5.3.8, local address: Address(host=172.18.0.7, port=41858)
INFO:hazelcast.cluster:
Members [3] {
  Member [172.18.0.2]:5701 - ace26f58-3964-4f7e-9f6a-105360f00009
  Member [172.18.0.3]:5701 - 3c420321-5c04-4a55-b5b7-7b48e326bd3d
  Member [172.18.0.6]:5701 - 00757f79-452e-4193-bfd4-b7d91742c88a
}
INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.2, port=5701):ace26f58-3964-4f7e-9f6a-105360f00009, server version: 5.3.8, local address: Address(host=172.18.0.7, port=44416)
INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.3, port=5701):3c420321-5c04-4a55-b5b7-7b48e326bd3d, server version: 5.3.8, local address: Address(host=172.18.0.7, port=34526)
INFO:hazelcast.client:Client started
INFO:___main___:[d8868a73188b] Connected to Hazelcast cluster
INFO:___main___:[d8868a73188b] Starting on port 50051
* Serving Flask app 'logging-service'
* Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:50051
* Running on http://172.18.0.7:50051
INFO:werkzeug:Press CTRL+C to quit
INFO:___main___:[d8868a73188b] Received request: POST http://logging1:50051/logging
INFO:___main___:[d8868a73188b] Logged message: msg3 with ID 81831bb6-a7dc-43ac-85ba-70277ccab667
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:30] "POST /logging HTTP/1.1" 201 -

```

## Logging2:

```
PS D:\shared\dist-lab4> docker logs logging2
INFO:hazelcast.lifecycle:HazelcastClient 5.5.0 is STARTING
INFO:hazelcast.lifecycle:HazelcastClient 5.5.0 is STARTED
INFO:hazelcast.connection:Trying to connect to Address(host=hazelcast3, port=5701)
INFO:hazelcast.lifecycle:HazelcastClient 5.5.0 is CONNECTED
INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.6, port=5701):00757f79-452e-4193-bfd4-b7d91742c88a, server version: 5.3.8, local address: Address(host=172.18.0.9, port=36104)
INFO:hazelcast.cluster:

Members [3] {
  Member [172.18.0.2]:5701 - ace26f58-3964-4f7e-9f6a-105360f00009
  Member [172.18.0.3]:5701 - 3c420321-5c04-4a55-b5b7-7b48e326bd3d
  Member [172.18.0.6]:5701 - 00757f79-452e-4193-bfd4-b7d91742c88a
}

INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.2, port=5701):ace26f58-3964-4f7e-9f6a-105360f00009, server version: 5.3.8, local address: Address(host=172.18.0.9, port=60380)
INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.3, port=5701):3c420321-5c04-4a55-b5b7-7b48e326bd3d, server version: 5.3.8, local address: Address(host=172.18.0.9, port=58214)
INFO:hazelcast.client:Client started
INFO:___main___:[772a2b3668aa] Connected to Hazelcast cluster
INFO:___main___:[772a2b3668aa] Starting on port 50052
  * Serving Flask app 'logging-service'
  * Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
  * Running on all addresses (0.0.0.0)
  * Running on http://127.0.0.1:50052
  * Running on http://172.18.0.9:50052
INFO:werkzeug:Press CTRL+C to quit
INFO:___main___:[772a2b3668aa] Received request: POST http://logging2:50052/logging
INFO:___main___:[772a2b3668aa] Logged message: msg1 with ID 5378a491-6a44-4c58-8aa3-95c8502b413b
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:24] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[772a2b3668aa] Received request: POST http://logging2:50052/logging
INFO:___main___:[772a2b3668aa] Logged message: msg4 with ID 341e8e21-2ffe-4331-9a1d-8361e0d122c7
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:32] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[772a2b3668aa] Received request: POST http://logging2:50052/logging
INFO:___main___:[772a2b3668aa] Logged message: msg10 with ID c1bebac4-646d-4675-bd3a-0aa32939d59e
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:44] "POST /logging HTTP/1.1" 201 -
```

## Logging3:

```
Members [3] {
  Member [172.18.0.2]:5701 - ace26f58-3964-4f7e-9f6a-105360f00009
  Member [172.18.0.3]:5701 - 3c420321-5c04-4a55-b5b7-7b48e326bd3d
  Member [172.18.0.6]:5701 - 00757f79-452e-4193-bfd4-b7d91742c88a
}

INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.2, port=5701):ace26f58-3964-4f7e-9f6a-105360f00009, server version: 5.3.8, local address: Address(host=172.18.0.8, port=51918)
INFO:hazelcast.connection:Authenticated with server Address(host=172.18.0.3, port=5701):3c420321-5c04-4a55-b5b7-7b48e326bd3d, server version: 5.3.8, local address: Address(host=172.18.0.8, port=39594)
INFO:hazelcast.client:Client started
INFO:___main___:[e6a6683cdd24] Connected to Hazelcast cluster
INFO:___main___:[e6a6683cdd24] Starting on port 50053
  * Serving Flask app 'logging-service'
  * Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
  * Running on all addresses (0.0.0.0)
  * Running on http://127.0.0.1:50053
  * Running on http://172.18.0.8:50053
INFO:werkzeug:Press CTRL+C to quit
INFO:___main___:[e6a6683cdd24] Received request: POST http://logging3:50053/logging
INFO:___main___:[e6a6683cdd24] Logged message: msg2 with ID d1a7bd3d-1541-46f8-b42a-257745255d4b
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:28] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[e6a6683cdd24] Received request: POST http://logging3:50053/logging
INFO:___main___:[e6a6683cdd24] Logged message: msg5 with ID 480497fe-0e7b-49d0-aed3-4b35073b7d3a
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:34] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[e6a6683cdd24] Received request: POST http://logging3:50053/logging
INFO:___main___:[e6a6683cdd24] Logged message: msg6 with ID d42ebb26-f224-4028-a5f1-a7163e072031
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:36] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[e6a6683cdd24] Received request: POST http://logging3:50053/logging
INFO:___main___:[e6a6683cdd24] Logged message: msg7 with ID 2a47c579-12e9-4f24-9d65-f80f51466703
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:38] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[e6a6683cdd24] Received request: POST http://logging3:50053/logging
INFO:___main___:[e6a6683cdd24] Logged message: msg8 with ID e1d65e5c-79d5-4bee-83f4-32e5bc1bfff7
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:40] "POST /logging HTTP/1.1" 201 -
INFO:___main___:[e6a6683cdd24] Received request: POST http://logging3:50053/logging
INFO:___main___:[e6a6683cdd24] Logged message: msg9 with ID 06fd8b84-137c-4238-9b79-e1cd5f4d737c
INFO:werkzeug:172.18.0.15 - - [31/May/2025 16:21:42] "POST /logging HTTP/1.1" 201 -
PS D:\shared\dist-lab4>
```

- Показати які повідомлення отримав кожен з екземплярів **messages-service** (це має бути видно у логах сервісу)

## Messages1:

```

    topic: messages-topic Partition: 2 Leader: 3 Replicas: 3,2,1 Isr: 3,2,1
PS D:\shared\dist-lab\ doctest logs messages1
INFO: _main...[f372c3d7179d] Attempting to connect to Kafka
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <connecting> [IPv4 ('172.18.0.10', 9092)]: connecting to kafka1:9092 [('172.18.0.10', 9092) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <checking_api_versions_recv> [IPv4 ('172.18.0.10', 9092)]: Broker version identified as 2.6
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <connected> [IPv4 ('172.18.0.10', 9092)]: Connection complete.
INFO:kafka.consumer.subscription_state:Updating subscribed topics to: ('messages-topic',)
INFO: _main...[f372c3d7179d] Connected to Kafka
INFO: _main...[f372c3d7179d] Starting kafka consumer
INFO: _main...[f372c3d7179d] Starting on port 8882
INFO: _main...[f372c3d7179d] Serving Flask app 'messages-service'
* Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8882
* Running on http://172.18.0.13:8882
INFO:werkzeug:Press CTRL+C to quit
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=3 host=kafka3:9094 <connecting> [IPv4 ('172.18.0.11', 9094)]: connecting to kafka3:9094 [('172.18.0.11', 9094) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=3 host=kafka3:9094 <connected> [IPv4 ('172.18.0.11', 9094)]: Connection complete.
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <connected> [IPv4 ('172.18.0.10', 9092)]: Closing connection.
INFO:kafka.cluster:Coordinator for group/messages-group is BrokerMetadata(nodeId='coordinator-3', host='kafka3', port=9094, rack=None)
INFO:kafka.coordinator:Discovered coordinator coordinator-3 for group messages-group
INFO:kafka.coordinator.heartbeat:Starting new heartbeat thread
INFO:kafka.coordinator.consumer:Revoking previously assigned partitions set() for group messages-group
INFO:kafka.coordinator:Failed to join group messages-group: NodeNotReadyError: coordinator-3
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-3 host=kafka3:9094 <connecting> [IPv4 ('172.18.0.11', 9094)]: connecting to kafka3:9094 [('172.18.0.11', 9094) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-3 host=kafka3:9094 <connected> [IPv4 ('172.18.0.11', 9094)]: Connection complete.
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Failed to join group messages-group: NodeNotReadyError: coordinator-3
INFO:kafka.coordinator:Failed to join group messages-group: [Error 79] MemberIdRequiredError
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Successfully joined group messages-group <Generation 1 (member_id: kafka-python-2.2.10-8ac91572-b16e-43fa-84d5-6d70a337afa3, protocol: range)>
INFO:kafka.coordinator:Elected group leader — performing partition assignments using Range
INFO:kafka.consumer.subscription_state:Updated partition assignment: [TopicPartition(topic='messages-topic', partition=2)]
INFO:kafka.coordinator.consumer:Setting newly assigned partitions [TopicPartition(topic='messages-topic', partition=2)] for group messages-group
INFO:kafka.consumer.fetcher:Resetting offset for partition TopicPartition(topic='messages-topic', partition=2) to offset 0.
INFO: _main...[f372c3d7179d] Received message: msg8 with ID d259c29b-35bf-4a5e-9e6d-c4aa102e72d3
INFO: _main...[f372c3d7179d] Received message: msg9 with ID 025fb96b-3151-4331-9271-05c94e514def
PS D:\shared\dist-lab\ doctest logs messages1

```

## Messages2:

```

INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka3:9094 <connecting> [IPv4 ('172.18.0.11', 9094)]: connecting to kafka3:9094 [('172.18.0.11', 9094) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka3:9094 <checking_api_versions_recv> [IPv4 ('172.18.0.11', 9094)]: Broker version identified as 2.6
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka3:9094 <connected> [IPv4 ('172.18.0.11', 9094)]: Connection complete.
INFO:kafka.consumer.subscription_state:Updating subscribed topics to: ('messages-topic',)
INFO: _main...[06b355a4d337] Connected to Kafka
INFO: _main...[06b355a4d337] Starting Kafka consumer
INFO: _main...[06b355a4d337] Starting on port 8883
INFO: _main...[06b355a4d337] Serving Flask app 'messages-service'
* Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8883
* Running on http://172.18.0.14:8883
INFO:werkzeug:Press CTRL+C to quit
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=1 host=kafka1:9092 <connecting> [IPv4 ('172.18.0.10', 9092)]: connecting to kafka1:9092 [('172.18.0.10', 9092) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=1 host=kafka1:9092 <connected> [IPv4 ('172.18.0.10', 9092)]: Connection complete.
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka3:9094 <connected> [IPv4 ('172.18.0.11', 9094)]: Closing connection.
INFO:kafka.cluster:Coordinator for group/messages-group is BrokerMetadata(nodeId='coordinator-3', host='kafka3', port=9094, rack=None)
INFO:kafka.coordinator:Discovered coordinator coordinator-3 for group messages-group
INFO:kafka.coordinator.heartbeat:Starting new heartbeat thread
INFO:kafka.coordinator.consumer:Revoking previously assigned partitions set() for group messages-group
INFO:kafka.coordinator:Failed to join group messages-group: NodeNotReadyError: coordinator-3
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-3 host=kafka3:9094 <connecting> [IPv4 ('172.18.0.11', 9094)]: connecting to kafka3:9094 [('172.18.0.11', 9094) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-3 host=kafka3:9094 <connected> [IPv4 ('172.18.0.11', 9094)]: Connection complete.
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Received member 1 kafka-python-2.2.10-413d956f-8fa3-483b-b9c9-7baaca9a5467 for group messages-group; will retry join-group
INFO:kafka.coordinator:Failed to join group messages-group: [Error 79] MemberIdRequiredError
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Successfully joined group messages-group <Generation 1 (member_id: kafka-python-2.2.10-413d956f-8fa3-483b-b9c9-7baaca9a5467, protocol: range)>
INFO:kafka.consumer.subscription_state:Updated partition assignment: [TopicPartition(topic='messages-topic', partition=0), TopicPartition(topic='messages-topic', partition=1)]
INFO:kafka.coordinator.consumer:Setting newly assigned partitions [TopicPartition(topic='messages-topic', partition=0), TopicPartition(topic='messages-topic', partition=1)] for group messages-group
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connecting> [IPv4 ('172.18.0.12', 9093)]: connecting to kafka2:9093 [('172.18.0.12', 9093) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]: Connection complete.
INFO:kafka.consumer.fetcher:Resetting offset for partition TopicPartition(topic='messages-topic', partition=0) to offset 0.
INFO:kafka.consumer.fetcher:Resetting offset for partition TopicPartition(topic='messages-topic', partition=1) to offset 0.
INFO: _main...[06b355a4d337] Received message: msg1 with ID 8f286f54-4931-441c-b401-2dff3d0b99df
INFO: _main...[06b355a4d337] Received message: msg2 with ID 6428997e-622b-4043-8928-b15e60304dec
INFO: _main...[06b355a4d337] Received message: msg3 with ID 90b2c1b3-413e-4979-b3f7-32a1a1c058
INFO: _main...[06b355a4d337] Received message: msg4 with ID dba95e1a-743a-4a67-8676-61e75dc79678
INFO: _main...[06b355a4d337] Received message: msg5 with ID 7796bb29-9ff5-44c4-986a-6c4aa34ff37c
INFO: _main...[06b355a4d337] Received message: msg6 with ID b150b0bb-3d4e-413b-9cab-eb1bc743d47d
INFO: _main...[06b355a4d337] Received message: msg7 with ID 5413194b-7b52-4412-9319-6535e384a096
INFO: _main...[06b355a4d337] Received message: msg10 with ID 3834238e-10cc-4561-a958-517ea91c0a03
PS D:\shared\dist-lab\

```

- Декілька разів викликати HTTP GET на **facade-service** та отримати об'єднані дві множини повідомлень - це мають бути повідомлення з **logging-service** та **messages-service**

```
D:\shared\dist-lab4>curl http://localhost:8880/messages
{"all_messages_from_messages_service":[{"id":"f5966746-fe49-4a6a-ab14-08095f81b112","text":"msg1"}, {"id":"b04a2943-47a9-4db8-b6b8-44dcc89f32e7","text":"msg2"}, {"id":"7e22e5e3-82e3-4720-9ec7-4dd1d94b6a56","text":"msg3"}, {"id":"c8a3c88a-588f-4a38-bcd0-d167134f3704","text":"msg4"}, {"id":"fccfee05-f4dc-4a05-955c-4f94a541e891","text":"msg5"}, {"id":"4e59e234-d87e-42fe-bc73-79fb5e6e9592","text":"msg6"}, {"id":"0fb3d46d-ebc1-4ba1-a65b-b6c62816694c","text":"msg7"}, {"id":"55d3e083-2a72-476f-8377-8e90af1da56c","text":"msg8"}, {"id":"0c38c13d-1d96-4a76-8940-99f147258ec2","text":"msg9"}, {"id":"3e677171-522c-44b6-a001-b76c2d2015a4","text":"msg10"}], "combined_messages":[{"id":"f5966746-fe49-4a6a-ab14-08095f81b112","text":"msg1"}, {"id":"b04a2943-47a9-4db8-b6b8-44dcc89f32e7","text":"msg2"}, {"id":"7e22e5e3-82e3-4720-9ec7-4dd1d94b6a56","text":"msg3"}, {"id":"c8a3c88a-588f-4a38-bcd0-d167134f3704","text":"msg4"}, {"id":"fccfee05-f4dc-4a05-955c-4f94a541e891","text":"msg5"}, {"id":"4e59e234-d87e-42fe-bc73-79fb5e6e9592","text":"msg6"}, {"id":"0fb3d46d-ebc1-4ba1-a65b-b6c62816694c","text":"msg7"}, {"id":"55d3e083-2a72-476f-8377-8e90af1da56c","text":"msg8"}, {"id":"0c38c13d-1d96-4a76-8940-99f147258ec2","text":"msg9"}, {"id":"3e677171-522c-44b6-a001-b76c2d2015a4","text":"msg10"}], "logging_services":[{"instance":"206286b9a605","messages":["msg6 (processed by f93280e1c0aa)", "msg2 (processed by f93280e1c0aa)", "msg1 (processed by 0c0511dc26c3)", "msg8 (processed by 206286b9a605)", "msg9 (processed by 0c0511dc26c3)", "msg7 (processed by 206286b9a605)", "msg5 (processed by f93280e1c0aa)", "msg3 (processed by 206286b9a605)", "msg4 (processed by 206286b9a605)", "msg10 (processed by 206286b9a605)"],"service":"http://logging1:50051/logging"}]
D:\shared\dist-lab4>
```

## Перевірка відмовостійкості черги повідомлень

Класична черга повідомлень зберігає додані в неї повідомлення на своїй стороні, тому якщо її сервер раптово “впаде”, то повідомлення які містяться у черзі стануть недоступними та можуть взагалі втратитись.

Для запобігання цього, рекомендується налаштовувати кластер для message queue, тобто запускати декілька серверів та налаштовувати між ними реплікацію (чи backup для Hazelcast). Тепер якщо один сервер з кластеру message queue впаде, то повідомлення будуть доступні з його репліки (копії)

У даній роботі вам необхідно налаштувати такий кластер для Hazelcast (чи Kafka) та перевірити його відмовостійкість.

Для перевірки відмовостійкості вам необхідно буде перевірити, що не буде втрат повідомлень у випадку зупинки одного з серверів message queue.

Для цього:

- не запускайте (вимкніть) два екземпляри **messages-service** для того щоб повідомлення тимчасово не вичитувались та зберігались у message queue

перевірка топіка:

```
PS D:\shared\dist-lab4> docker exec kafka1 kafka-topics --describe --topic messages-topic --bootstrap-server kafka1:9092
Topic: messages-topic TopicId: npSJSRjSCCUXlLVSRvV7Q PartitionCount: 3 ReplicationFactor: 3 Configs:
Topic: messages-topic Partition: 0 Leader: 3 Replicas: 3,2,1 Isr: 3,2,1
Topic: messages-topic Partition: 1 Leader: 1 Replicas: 1,3,2 Isr: 1,3,2
Topic: messages-topic Partition: 2 Leader: 2 Replicas: 2,1,3 Isr: 2,1,3
PS D:\shared\dist-lab4>
```

Зупинили:

```
PS D:\shared\dist-lab4> docker stop messages1 messages2
messages1
messages2
PS D:\shared\dist-lab4>
```



<input type="checkbox"/>	<input checked="" type="radio"/>	kafka3	c22fc237d7c1	<a href="#">confluentinc/cp-kafka7.3.0 9094:9094 ↗</a>	32.17%	3 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>
<input type="checkbox"/>	<input checked="" type="radio"/>	logging3	2a9c510c7b77	<a href="#">dist-lab4-logging3 50053:50053 ↗</a>	1.52%	3 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>
<input type="checkbox"/>	<input checked="" type="radio"/>	logging1	443cb94d111e	<a href="#">dist-lab4-logging1 50051:50051 ↗</a>	1.41%	3 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>
<input type="checkbox"/>	<input checked="" type="radio"/>	kafka2	aa39cb7c24ac	<a href="#">confluentinc/cp-kafka7.3.0 9093:9093 ↗</a>	72.25%	3 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>
<input type="checkbox"/>	<input type="radio"/>	messages1	8678591d715a	<a href="#">dist-lab4-messages1 8882:8882</a>	0%	2 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>
<input type="checkbox"/>	<input type="radio"/>	messages2	449e6fe707b6	<a href="#">dist-lab4-messages2 8883:8883</a>	0%	2 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>
<input type="checkbox"/>	<input checked="" type="radio"/>	facade	71b31b04510d	<a href="#">dist-lab4-facade 8880:8880 ↗</a>	0.01%	2 minutes ago	<input type="checkbox"/>	:	<input type="trash"/>

- відправте 10 (можна і 100) повідомлень через **facade-service**

```
D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg1"
{"id":"48a9d215-21b9-4927-a6f2-3df8705ac51f","txt":"msg1"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg2"
{"id":"241c75e8-8fed-4a9b-ba23-d5b12935fdac","txt":"msg2"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg3"
{"id":"35ceb81c-8962-43d0-a696-93b64f6d98ac","txt":"msg3"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg4"
{"id":"6a1886c1-8889-41b0-b190-75520f3462b9","txt":"msg4"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg5"
{"id":"d2b2fa50-b212-4df3-a63f-e83975907525","txt":"msg5"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg6"
{"id":"d563c66b-b8a4-480a-83b7-328424eb6b6d","txt":"msg6"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg7"
{"id":"0f7122f4-ca48-4df0-a3c7-74799a270d6e","txt":"msg7"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg8"
{"id":"fc392562-dc4f-47e4-adeb-6bfe625f7932","txt":"msg8"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg9"
{"id":"0d12b20f-df92-4aa0-b14d-dfdf709faea6","txt":"msg9"}

D:\shared\dist-lab4>curl -X POST http://localhost:8880/messages -d "txt=msg10"
{"id":"870c329f-cc54-4f76-b55a-18f94db342bb","txt":"msg10"}

D:\shared\dist-lab4>
```

## Логи facade:

```
INFO:kafka.conn:BrokerConnection client_id=kafka-python-producer-1, node_id=9 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]: Connection complete.
INFO:_main...Sent message to Kafka: {'id': '48a9d215-21b9-4927-a6f2-3df8705ac51f', 'txt': 'msg1'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:40] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': '241c75e8-8fed-4a9b-ba23-d5b12935fdac', 'txt': 'msg2'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:47] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': '35ceb81c-8962-43d0-a696-93b64f6d98ac', 'txt': 'msg3'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:49] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': '6a1886c1-8889-41b0-b190-75520f3462b9', 'txt': 'msg4'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:49] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': 'd2b2fa50-b212-4df3-a63f-e83975907525', 'txt': 'msg5'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:51] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': 'd563c66b-b8a4-480a-83b7-328424eb6b6d', 'txt': 'msg6'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:53] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:kafka.conn:BrokerConnection client_id=kafka-python-producer-1, node_id=2 host=kafka2:9093 <connecting> [IPv4 ('172.18.0.12', 9093)]: connecting to kafka2:9093 [IPv4 ('172.18.0.12', 9093)]
INFO:kafka.conn:BrokerConnection client_id=kafka-python-producer-1, node_id=2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]: Connection complete.
INFO:_main...Sent message to Kafka: {'id': '0f7122f4-ca48-4df0-a3c7-74799a270d6e', 'txt': 'msg7'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:55] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': 'fc392562-dc4f-47e4-adeb-6bfe625f7932', 'txt': 'msg8'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:57] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': '0d12b20f-df92-4aa0-b14d-dfdf709faea6', 'txt': 'msg9'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:58] "POST /messages HTTP/1.1" 200 -
INFO:_main...Fetching addresses for logging from http://config-server:8881
INFO:_main...Received addresses for logging: ['http://logging1:50051/logging', 'http://logging2:50052/logging', 'http://logging3:50053/logging']
INFO:_main...Trying to send to http://logging1:50051/logging
INFO:_main...Successfully sent to http://logging1:50051/logging
INFO:_main...Sent message to Kafka: {'id': '870c329f-cc54-4f76-b55a-18f94db342bb', 'txt': 'msg10'}
INFO:werkzeug:172.18.0.1 - - [31/May/2025 16:40:59] "POST /messages HTTP/1.1" 200 -
PS D:\shared\dist-lab4>
```

- вимкнити один з серверів (message queue)
- для Hazelcast це має бути сервер з меншою IP-адресою для Kafka це має бути т.з. Leader

```
PS D:\shared\dist-lab4> docker stop kafka3
kafka3
PS D:\shared\dist-lab4>
```

```
PS D:\shared\dist-lab4> docker exec kafka1 kafka-topics --describe --topic messages-topic --bootstrap-server kafka1:9092
Topic: messages-topic TopicId: npSJSrRjSCCUX1LVSRvV7Q PartitionCount: 3 ReplicationFactor: 3 Configs:
Topic: messages-topic Partition: 0 Leader: 3 Replicas: 3,2,1 Isr: 3,2,1
Topic: messages-topic Partition: 1 Leader: 1 Replicas: 1,3,2 Isr: 1,3,2
Topic: messages-topic Partition: 2 Leader: 2 Replicas: 2,1,3 Isr: 2,1,3
PS D:\shared\dist-lab4> docker stop kafka3
kafka3
PS D:\shared\dist-lab4>
```

Лідер змінився:

```
PS D:\shared\dist-lab4> docker exec kafka2 kafka-topics --describe --topic messages-topic --bootstrap-server kafka2:9093
Topic: messages-topic TopicId: npSJSrRjSCCUX1LVSRvV7Q PartitionCount: 3 ReplicationFactor: 3 Configs:
Topic: messages-topic Partition: 0 Leader: 2 Replicas: 3,2,1 Isr: 2,1
Topic: messages-topic Partition: 1 Leader: 1 Replicas: 1,3,2 Isr: 1,2
Topic: messages-topic Partition: 2 Leader: 2 Replicas: 2,1,3 Isr: 2,1
PS D:\shared\dist-lab4>
```

- запустить два екземпляри **messages-service** і перевірте що вони отримали всі повідомлення з черги

Запустили знову:

```
Topic: messages-topic Partition: 2 Leader: 2 Replicas:
PS D:\shared\dist-lab4> docker start messages1 messages2
messages1
messages2
PS D:\shared\dist-lab4> |
```

Messages1:

```
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]: Connection complete.
INFO:kafka.consumer.fetcher:Resetting offset for partition TopicPartition(topic='messages-topic', partition=2) to offset 0.
INFO:_main_: [8678591d715a] Attempting to connect to Kafka
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <connecting> [IPv4 ('172.18.0.10', 9092)]: connecting to kafka1:9092
2 [ ('172.18.0.10', 9092) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <checking_api_versions_recv> [IPv4 ('172.18.0.10', 9092)]: Broker v
ersion identified as 2.6
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <connected> [IPv4 ('172.18.0.10', 9092)]: Connection complete.
INFO:kafka.consumer.subscription_state:Updating subscribed topics to: ('messages-topic',)
INFO:_main_: [8678591d715a] Connected to Kafka
INFO:_main_: [8678591d715a] Starting Kafka consumer
INFO:_main_: [8678591d715a] Starting on port 8882
* Serving Flask app 'messages-service'
* Debug mode: off
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connecting> [IPv4 ('172.18.0.12', 9093)]: connecting to kafka2:9093 [ ('172.1
8.0.12', 9093) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]: Connection complete.
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka1:9092 <connected> [IPv4 ('172.18.0.10', 9092)]: Closing connection.
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8882
* Running on http://172.18.0.11:8882
INFO:werkzeug:Press CTRL+C to quit
INFO:kafka.cluster:Coordinator for group/messages-group is BrokerMetadata(nodeId='coordinator-2', host='kafka2', port=9093, rack=None)
INFO:kafka.coordinator:Discovered coordinator coordinator-2 for group messages-group
INFO:kafka.coordinator:Starting new heartbeat thread
INFO:kafka.coordinator.consumer:Revoking previously assigned partitions set() for group messages-group
INFO:kafka.coordinator:Failed to join group messages-group: NodeNotReadyError: coordinator-2
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-2 host=kafka2:9093 <connecting> [IPv4 ('172.18.0.12', 9093)]: connecting to kafka2:9
093 [ ('172.18.0.12', 9093) IPv4]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]: Connection complete.
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Failed to join group messages-group: [Error 79] MemberIdRequiredError
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Successfully joined group messages-group <Generation 3 (member_id: kafka-python-2.2.10-3e2228ba-4aca-41d6-99ce-ccf964c3ebfc, protocol: range)>
INFO:kafka.coordinator:Elected group leader -- performing partition assignments using range
INFO:kafka.consumer.subscription_state:Updated partition assignment: [TopicPartition(topic='messages-topic', partition=2)]
INFO:kafka.coordinator.consumer:Setting newly assigned partitions [TopicPartition(topic='messages-topic', partition=2)] for group messages-group
INFO:_main_: [8678591d715a] Received message: msg7 with ID 0f7122f4-ca48-4df0-a3c7-74799a278d6e
INFO:_main_: [8678591d715a] Received message: msg8 with ID fc392562-dc4f-47e4-ade6-6bfe25f7932
INFO:_main_: [8678591d715a] Received message: msg9 with ID 0d12b20f-df92-4aa0-b14d-dfdf709faea6
PS D:\shared\dist-lab4>
```

Messages2:



```

ersion identified as 2.6
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]>: Connection complete.
INFO:kafka.consumer.subscription_state:Updating subscribed topics to: ('messages-topic',)
INFO: __main__: [449e6fe707b6] Connected to Kafka
INFO: __main__: [449e6fe707b6] Starting Kafka consumer
INFO: __main__: [449e6fe707b6] Starting on port 8883
  * Serving Flask app 'messages-service'
  * Debug mode: off
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=1 host=kafka1:9092 <connecting> [IPv4 ('172.18.0.10', 9092)]>: connecting to kafka1:9092 [(('172.18.0.10', 9092) IPv4)]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=1 host=kafka1:9092 <connected> [IPv4 ('172.18.0.10', 9092)]>: Connection complete.
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=bootstrap-2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]>: Closing connection.
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
  * Running on all addresses (0.0.0.0)
  * Running on http://127.0.0.1:8883
  * Running on http://172.18.0.13:8883
INFO:werkzeug:Press CTRL+C to quit
INFO:kafka.cluster:Coordinator for group/messages-group is BrokerMetadata(nodeId='coordinator-2', host='kafka2', port=9093, rack=None)
INFO:kafka.coordinator:Discovered coordinator coordinator-2 for group messages-group
INFO:kafka.coordinator:heartbeat:Starting new heartbeat thread
INFO:kafka.coordinator.consumer:Revoking previously assigned partitions set() for group messages-group
INFO:kafka.coordinator:Failed to join group messages-group: NodeNotReadyError: coordinator-2
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-2 host=kafka2:9093 <connecting> [IPv4 ('172.18.0.12', 9093)]>: connecting to kafka2:9093 [(('172.18.0.12', 9093) IPv4)]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=coordinator-2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]>: Connection complete.
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Received member id kafka-python-2.2.10-1807e6ae-a28f-4ac6-a3a7-17869bcbf4fa for group messages-group; will retry join-group
INFO:kafka.coordinator:Failed to join group messages-group: [Error 79] MemberIdRequiredError
INFO:kafka.coordinator:(Re-)joining group messages-group
INFO:kafka.coordinator:Successfully joined group messages-group <Generation 3 (member_id: kafka-python-2.2.10-1807e6ae-a28f-4ac6-a3a7-17869bcbf4fa, protocol: range)>
INFO:kafka.consumer.subscription_state:Updated partition assignment: [TopicPartition(topic='messages-topic', partition=0), TopicPartition(topic='messages-topic', partition=1)]
INFO:kafka.coordinator.consumer:Setting newly assigned partitions [TopicPartition(topic='messages-topic', partition=0), TopicPartition(topic='messages-topic', partition=1)] for group messages-group
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connecting> [IPv4 ('172.18.0.12', 9093)]>: connecting to kafka2:9093 [(('172.18.0.12', 9093) IPv4)]
INFO:kafka.conn:<BrokerConnection client_id=kafka-python-2.2.10, node_id=2 host=kafka2:9093 <connected> [IPv4 ('172.18.0.12', 9093)]>: Connection complete.
INFO: __main__: [449e6fe707b6] Received message: msg3 with ID 35ceb81c-8962-43d0-a696-93b64fd98ac
INFO: __main__: [449e6fe707b6] Received message: msg6 with ID d563c66b-b8a4-480a-83b7-328424eb6b6d
INFO: __main__: [449e6fe707b6] Received message: msg10 with ID 870c329f-cc54-4f76-b55a-18f94db342bb
INFO: __main__: [449e6fe707b6] Received message: msg1 with ID 48a9d215-21b9-4927-a6f2-3df8705ac51f
INFO: __main__: [449e6fe707b6] Received message: msg2 with ID 241c75e8-8fed-4a9b-ba23-d5b12935fdac
INFO: __main__: [449e6fe707b6] Received message: msg4 with ID 6a1886c1-8889-41b0-b190-75520f3462b9
INFO: __main__: [449e6fe707b6] Received message: msg5 with ID d2b2fa50-b212-4df3-a63f-e83975907525
PS D:\shared\dist-lab4>

```

## GET-запити до façade:

```

D:\shared\dist-lab4>curl http://localhost:8880/messages
{"all_messages_from_messages_service":[{"id":"0f7122f4-ca48-4df0-a3c7-74799a270d6e","text":"msg7"}, {"id":"fc392562-dc4f-47e4-adeb-6bfe25f7932","text":"msg8"}, {"id":"0d12b20f-df92-4aa0-b14d-dfdf709faea6","text":"msg9"}, {"id":"35ceb81c-8962-43d0-a696-93b64fd98ac","text":"msg3"}, {"id":"d563c66b-b8a4-480a-83b7-328424eb6b6d","text":"msg6"}, {"id":"870c329f-cc54-4f76-b55a-18f94db342bb","text":"msg10"}, {"id":"48a9d215-21b9-4927-a6f2-3df8705ac51f","text":"msg1"}, {"id":"241c75e8-8fed-4a9b-ba23-d5b12935fdac","text":"msg2"}, {"id":"6a1886c1-8889-41b0-b190-75520f3462b9","text":"msg4"}, {"id":"d2b2fa50-b212-4df3-a63f-e83975907525","text":"msg5"}], "combined_messages":[{"id":"0f7122f4-ca48-4df0-a3c7-74799a270d6e","text":"msg7"}, {"id":"fc392562-dc4f-47e4-adeb-6bfe25f7932","text":"msg8"}, {"id":"0d12b20f-df92-4aa0-b14d-dfdf709faea6","text":"msg9"}, {"id":"35ceb81c-8962-43d0-a696-93b64fd98ac","text":"msg3"}, {"id":"d563c66b-b8a4-480a-83b7-328424eb6b6d","text":"msg6"}, {"id":"870c329f-cc54-4f76-b55a-18f94db342bb","text":"msg10"}, {"id":"48a9d215-21b9-4927-a6f2-3df8705ac51f","text":"msg1"}, {"id":"241c75e8-8fed-4a9b-ba23-d5b12935fdac","text":"msg2"}, {"id":"6a1886c1-8889-41b0-b190-75520f3462b9","text":"msg4"}, {"id":"d2b2fa50-b212-4df3-a63f-e83975907525","text":"msg5"}], "logging_services":{"instance":"1565e2cd6800","messages":["msg10 (processed by 443cb94d111e)","msg9 (processed by 2a9c510c7b77)","msg1 (processed by 443cb94d111e)","msg7 (processed by 443cb94d111e)","msg8 (processed by 2a9c510c7b77)","msg2 (processed by 2a9c510c7b77)","msg6 (processed by 1565e2cd6800)","msg5 (processed by 443cb94d111e)","msg4 (processed by 1565e2cd6800)","msg3 (processed by 1565e2cd6800)"],"service":"http://logging2:50052/logging"}]}}
D:\shared\dist-lab4>

```