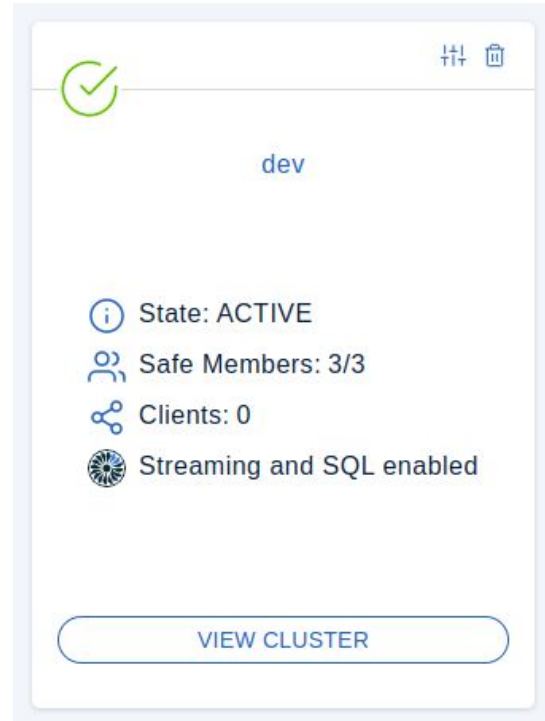


[https://github.com/karyna-volokhatiuk/APZ\\_labs/tree/hazelcast](https://github.com/karyna-volokhatiuk/APZ_labs/tree/hazelcast)

# Пункт 3

```
karyna@karyna: ~  
[main] [c.h.j.t.JobCoordinationService]: [172.17.0.2]:5701 [dev] [5.2.2] Jet started scanning for jobs  
2023-03-20 16:37:04,266 [INFO] [main] [c.h.c.LifecycleService]: [172.17.0.2]:5701 [dev] [5.2.2] [172.17.0.2]:5701 is STARTED  
2023-03-20 16:37:27,407 [INFO] [hz.quirky_maxwell.priority-generic-operation.thread-0] [c.h.c.i.p.t.AuthenticationMessageTask]: [172.17.0.2]:5701 [dev] [5.2.2] Received auth from Connection[id=4, /172.17.0.2:5701->/172.17.0.5:52453, qualifier=null, endpoint=[172.17.0.5]:52453, remoteUuid=cef99e7a-491f-4dc6-b8b6-09d30237c4f5, alive=true, connectionType=MCJVM, planeIndex=-1], successfully authenticated, clientUuid: cef99e7a-491f-4dc6-b8b6-09d30237c4f5, client name: MC-Client-dev, client version: 5.2.1  
karyna@karyna: ~ 33x27  
a36cc  
2023-03-20 16:37:04,340 [INFO] [hz.vigorous_herschel.priority-generic-operation.thread-0] [c.h.c.i.p.t.PartitionStateManager]: [172.17.0.3]:5701 [dev] [5.2.2] Initializing cluster partition table arrangement...  
2023-03-20 16:37:28,383 [INFO] [hz.vigorous_herschel.priority-generic-operation.thread-0] [c.h.c.i.p.t.AuthenticationMessageTask]: [172.17.0.3]:5701 [dev] [5.2.2] Received auth from Connection[id=3, /172.17.0.3:5701->/172.17.0.5:34489, qualifier=null, endpoint=[172.17.0.5]:34489, remoteUuid=cef99e7a-491f-4dc6-b8b6-09d30237c4f5, alive=true, connectionType=MCJVM, planeIndex=-1], successfully authenticated, clientUuid: cef99e7a-491f-4dc6-b8b6-09d30237c4f5, client name: MC-Client-dev, client version: 5.2.1  
karyna@karyna: ~ 101x27  
2023-03-20 16:36:58,596 [INFO] [main] [c.h.w.MCApplication]: Starting MCApplication v5.2.1 using Java 17.0.6 on c9f3f6d4f8f8 with PID 1 (/opt/hazelcast/management-center/hazelcast-management-center-5.2.1.jar started by hazelcast in /opt/hazelcast/management-center)  
2023-03-20 16:36:58,612 [INFO] [main] [c.h.w.MCApplication]: No active profile set, falling back to 1 default profile: "default"  
2023-03-20 16:37:01,194 [INFO] [main] [c.h.w.c.SqlDbConfig]: Checking DB for required migrations.  
2023-03-20 16:37:02,410 [INFO] [main] [c.h.w.c.SqlDbConfig]: Number of applied DB migrations: 19.  
2023-03-20 16:37:03,375 [INFO] [main] [c.h.w.s.s.i.DisableLoginStrategy]: Login will be disabled for 5 seconds after 3 failed login attempts. For every 3 consecutive failed login attempts, disable period will be multiplied by 10.  
2023-03-20 16:37:06,388 [INFO] [main] [c.h.w.MCApplication]: Started MCApplication in 8.99 seconds (JVM running for 10.89)  
2023-03-20 16:37:06,420 [INFO] [AsyncExecutor-2] [c.h.w.MCApplication]: Hazelcast Management Center successfully started at http://localhost:8080  
2023-03-20 16:37:06,423 [INFO] [AsyncExecutor-1] [c.h.w.s.ClusterManager]: Connecting to 0 enabled cluster(s) on startup.  
2023-03-20 16:37:06,438 [INFO] [AsyncExecutor-2] [c.h.w.MCApplication]: Hazelcast Management Center 5.2.1 (20221201 - f06fa4a), Hazelcast client version: 5.2.1, embedded Jetty version: 9.4.49.v20220914  
2023-03-20 16:37:27,417 [INFO] [MC-Client-dev.lifecycle-1] [c.h.w.s.MCClientManager]: MC Client connected to cluster dev.  
2023-03-20 16:37:27,444 [INFO] [MC-Client-dev.event-2] [c.h.w.s.MCClientManager]: Started communication with member: Member [172.17.0.4]:5701 - f51099fa-36ab-4a5b-b6ed-943e8f7a36cc  
2023-03-20 16:37:27,445 [INFO] [MC-Client-dev.event-2] [c.h.w.s.MCClientManager]: Started communication with member: Member [172.17.0.2]:5701 - 6e063389-a6b8-49a5-82e0-45f1ea64f428  
2023-03-20 16:37:27,445 [INFO] [MC-Client-dev.event-2] [c.h.w.s.MCClientManager]: Started communication with member: Member [172.17.0.3]:5701 - 8ba808ef-2343-45b1-a8eb-ca21da420b08
```

## Запускаємо 3 ноди і Management Center



# Запускаємо код, який створює Distributed Map і додає в неї 1000 значень з ключем від 0 до 1к

```
task3 <
/home/karyna/Documents/APZ_lab2/task3/cmake-build-release-gcc/task3
20/03/2023 18:38:33.027 INFO: [139666888062528] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (8db230b1-956a-458e-80e8-bb32e1a3c224) is STARTING
20/03/2023 18:38:33.027 INFO: [139666888062528] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
20/03/2023 18:38:33.027 INFO: [139666888062528] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
20/03/2023 18:38:33.030 INFO: [139666888062528] hz.client_1[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
20/03/2023 18:38:33.032 INFO: [139666888062528] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
20/03/2023 18:38:33.032 INFO: [139666888062528] hz.client_1[dev] [5.2.0] Authenticated with server Address[172.17.0.2:5701]:6e063389-a6b8-49a5-82e0-45f1ea64f428, server version: 5.2.2, local address: Address[127.0.0.1:5701]
20/03/2023 18:38:33.032 INFO: [139666514664592] hz.client_1[dev] [5.2.0]


Members [3] {
  Member[172.17.0.4]:5701 - f51099fa-36ab-4a5b-b6ed-943e8f7a36cc
  Member[172.17.0.2]:5701 - 6e063389-a6b8-49a5-82e0-45f1ea64f428
  Member[172.17.0.3]:5701 - 8ba808ef-2343-45b1-a8eb-ca21da420b08
}

20/03/2023 18:38:33.033 INFO: [139666888062528] hz.client_1[dev] [5.2.0] Trying to connect to Address[172.17.0.4:5701].
20/03/2023 18:38:33.034 INFO: [139666888062528] hz.client_1[dev] [5.2.0] Authenticated with server Address[172.17.0.4:5701]:f51099fa-36ab-4a5b-b6ed-943e8f7a36cc, server version: 5.2.2, local address: Address[172.17.0.4:5701]
20/03/2023 18:38:33.034 INFO: [139666888062528] hz.client_1[dev] [5.2.0] Trying to connect to Address[172.17.0.3:5701].
20/03/2023 18:38:33.036 INFO: [139666888062528] hz.client_1[dev] [5.2.0] Authenticated with server Address[172.17.0.3:5701]:8ba808ef-2343-45b1-a8eb-ca21da420b08, server version: 5.2.2, local address: Address[172.17.0.3:5701]
20/03/2023 18:38:33.923 INFO: [139666903271744] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
20/03/2023 18:38:33.923 INFO: [139666903271744] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[172.17.0.3:5701], connection: Connection{alive=0, connection id=3, remote endpoint=Address[172.17.0.3:5701]}
20/03/2023 18:38:33.923 INFO: [139666903271744] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[172.17.0.4:5701], connection: Connection{alive=0, connection id=2, remote endpoint=Address[172.17.0.4:5701]}
20/03/2023 18:38:33.923 INFO: [139666903271744] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[172.17.0.2:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[172.17.0.2:5701]}
20/03/2023 18:38:33.923 INFO: [139666903271744] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
20/03/2023 18:38:33.927 INFO: [139666903271744] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN

Process finished with exit code 0
```

# Розподіл значень по нодах: в кожній ноді +- третина значень

Map Statistics (In-Memory Format: BINARY)

[RESET TIME](#) 1 minute ago → now Default View   

Member ^	^ Entries	^ Gets	^ Puts	^ Removals	^ Sets	^ Entry Memory	^ Events	^ Hits
172.17.0.2:5701	338	0	338	0	0	44.81 kB	0	0
172.17.0.3:5701	334	0	334	0	0	44.28 kB	0	0
172.17.0.4:5701	328	0	328	0	0	43.50 kB	0	0
TOTAL	1000	0	1000	0	0	132.60 kB	0	0

1 – 3 of 3 Rows 10 ▾

Розподіл значень по нодах після видалення однієї із трьох нод: втрати даних не відбулося; розподіл приблизно по половині значень на ноду

Map Statistics (In-Memory Format: BINARY)

RESET TIME

1 minute ago

→

now

Default View

Member ^	^ Entries	^ Gets	^ Puts	^ Removals	^ Sets	^ Entry Memory	^ Events	^ Hits
172.17.0.2:5701	486	0	338	0	0	64.44 kB	0	0
172.17.0.4:5701	514	0	328	0	0	68.16 kB	0	0
TOTAL	1000	0	666	0	0	132.60 kB	0	0

1 – 2 of 2

Rows

10

Розподіл значень по нодах після видалення ще однієї ноди  
через деякий час: втрати даних не відбулося

Map Statistics (In-Memory Format: BINARY)

RESET TIME

1 minute ago

→ now

Default View

+

Member ^	^ Entries	^ Gets	^ Puts	^ Removals	^ Sets	^ Entry Memory	^ Events	^ Hits
172.17.0.4:5701	1000	0	328	0	0	132.60 kB	0	0
TOTAL	1000	0	328	0	0	132.60 kB	0	0

1 – 1 of 1

Rows 10

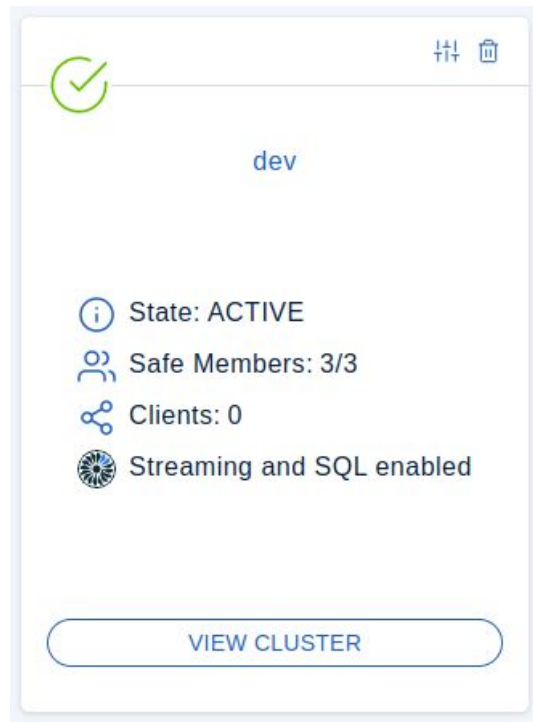


```
karyna@karyna: ~
]
2023-03-20 16:41:50,143 [ INFO] [hz.loving_golick.priority-generic-operation.thread-0] [c.h.i.p.t.PartitionStateManager]: [172.17.0.3]:5701 [dev] [5.2.2] Initializing cluster partition table arrangement...
2023-03-20 16:42:09,476 [ INFO] [hz.loving_golick.priority-generic-operation.thread-0] [c.h.c.i.p.t.AuthenticationMessageTask]: [172.17.0.3]:5701 [dev] [5.2.2] Received auth from Connection[id=3, /172.17.0.3:5701->/172.17.0.2:43333, qualifier=null, endpoint=[172.17.0.2]:43333, remoteUid=f6b9e469-0082-40e6-8f90-8956f961104f, alive=true, connectionType=MCJVM, planeIndex=-1], successfully authenticated, clientUid: f6b9e469-0082-40e6-8f90-8956f961104f, client name: MC-Client-dev, client version: 5.2.1
]

karyna@karyna: ~
and /172.17.0.5:5701
2023-03-20 16:41:50,096 [ INFO] [main] [c.h.j.i.JobCoordinationService]: [172.17.0.4]:5701 [dev] [5.2.2] Jet started scanning for jobs
2023-03-20 16:41:50,099 [ INFO] [main] [c.h.c.LifecycleService]: [172.17.0.4]:5701 [dev] [5.2.2] [172.17.0.4]:5701 is STARTED
2023-03-20 16:42:10,449 [ INFO] [hz.quitzical_kowalevski.priority-generic-operation.thread-0] [c.h.c.i.p.t.AuthenticationMessageTask]: [172.17.0.4]:5701 [dev] [5.2.2] Received auth from Connection[id=4, /172.17.0.4:5701->/172.17.0.2:52771, qualifier=null, endpoint=[172.17.0.2]:52771, remoteUid=f6b9e469-0082-40e6-8f90-8956f961104f, alive=true, connectionType=MCJVM, planeIndex=-1], successfully authenticated, clientUid: f6b9e469-0082-40e6-8f90-8956f961104f, client name: MC-Client-dev, client version: 5.2.1
]

karyna@karyna: ~ 101x27
2023-03-20 16:41:32,069 [ INFO] [main] [c.h.w.MCApplication]: Starting MCApplication v5.2.1 using Java 17.0.6 on 9e84a530ebfd with PID 1 (/opt/hazelcast/management-center/hazelcast-management-center-5.2.1.jar started by hazelcast in /opt/hazelcast/management-center)
2023-03-20 16:41:32,079 [ INFO] [main] [c.h.w.MCApplication]: No active profile set, falling back to 1 default profile: "default"
2023-03-20 16:41:35,406 [ INFO] [main] [c.h.w.c.SqlDbConfig]: Checking DB for required migrations.
2023-03-20 16:41:37,613 [ INFO] [main] [c.h.w.c.SqlDbConfig]: Number of applied DB migrations: 19.
2023-03-20 16:41:39,326 [ INFO] [main] [c.h.w.s.s.i.DisableLoginStrategy]: Login will be disabled for 5 seconds after 3 failed login attempts. For every 3 consecutive failed login attempts, disable period will be multiplied by 10.
2023-03-20 16:41:43,471 [ INFO] [main] [c.h.w.MCApplication]: Started MCApplication in 12.193 seconds (JVM running for 13.34)
2023-03-20 16:41:43,504 [ INFO] [AsyncExecutor-2] [c.h.w.MCApplication]: Hazelcast Management Center successfully started at http://localhost:8080
2023-03-20 16:41:43,546 [ INFO] [AsyncExecutor-1] [c.h.w.s.ClusterManager]: Connecting to 0 enabled cluster(s) on startup.
2023-03-20 16:41:43,553 [ INFO] [AsyncExecutor-2] [c.h.w.MCApplication]: Hazelcast Management Center 5.2.1 (20221201 - f06fa4a), Hazelcast client version: 5.2.1, embedded Jetty version: 9.4.49.v20220914
2023-03-20 16:42:09,496 [ INFO] [MC-Client-dev.lifecycle-1] [c.h.w.s.MCClientManager]: MC Client connected to cluster dev.
2023-03-20 16:42:09,536 [ INFO] [MC-Client-dev.event-2] [c.h.w.s.MCClientManager]: Started communication with member: Member [172.17.0.5]:5701 - 44290ead-1cfd-4e1f-881d-e2228bd94d70
2023-03-20 16:42:09,536 [ INFO] [MC-Client-dev.event-2] [c.h.w.s.MCClientManager]: Started communication with member: Member [172.17.0.4]:5701 - 0eb6da2f-c53e-4ac1-9718-41acbe34cc18
2023-03-20 16:42:09,536 [ INFO] [MC-Client-dev.event-2] [c.h.w.s.MCClientManager]: Started communication with member: Member [172.17.0.3]:5701 - e6180f71-5562-4e1c-820d-b5c5e459eddd4
```

## Запускаємо 3 ноди і Management Center





# Запускаємо код, який створює Distributed Map і додає в неї 1000 значень з ключем від 0 до 1к

task3

/home/karyna/Documents/AP2\_lab2/task3/cmake-build-release-gcc/task3

```
20/03/2023 18:42:54.578 INFO: [139779884709440] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (b58aca2b-2f79-406a-b748-1f25b4b289a7) is STARTING
20/03/2023 18:42:54.578 INFO: [139779884709440] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
20/03/2023 18:42:54.578 INFO: [139779884709440] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
20/03/2023 18:42:54.580 INFO: [139779884709440] hz.client_1[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
20/03/2023 18:42:54.583 INFO: [139779884709440] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
20/03/2023 18:42:54.583 INFO: [139779884709440] hz.client_1[dev] [5.2.0] Authenticated with server Address[172.17.0.3:5701]:e6180f71-5562-4e1c-820d-b5c5e459edd4, server version: 5.2.2, local address: Address[127.0.0.1:5701]
20/03/2023 18:42:54.583 INFO: [139779509188160] hz.client_1[dev] [5.2.0]
```




```
Members [3] {
  Member[172.17.0.5]:5701 - 44290ead-1cfd-4e1f-881d-e2228bd94d70
  Member[172.17.0.4]:5701 - 0eb6da2f-c53e-4ac1-9718-41acbe34cc18
  Member[172.17.0.3]:5701 - e6180f71-5562-4e1c-820d-b5c5e459edd4
}
```

```
20/03/2023 18:42:54.583 INFO: [139779884709440] hz.client_1[dev] [5.2.0] Trying to connect to Address[172.17.0.5:5701].
20/03/2023 18:42:54.585 INFO: [139779884709440] hz.client_1[dev] [5.2.0] Authenticated with server Address[172.17.0.5:5701]:44290ead-1cfd-4e1f-881d-e2228bd94d70, server version: 5.2.2, local address: Address[172.17.0.5:5701]
20/03/2023 18:42:54.585 INFO: [139779884709440] hz.client_1[dev] [5.2.0] Trying to connect to Address[172.17.0.4:5701].
20/03/2023 18:42:54.587 INFO: [139779884709440] hz.client_1[dev] [5.2.0] Authenticated with server Address[172.17.0.4:5701]:0eb6da2f-c53e-4ac1-9718-41acbe34cc18, server version: 5.2.2, local address: Address[172.17.0.4:5701]
20/03/2023 18:42:55.469 INFO: [139779891673408] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
20/03/2023 18:42:55.469 INFO: [139779891673408] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[172.17.0.4:5701], connection: Connection{alive=0, connection id=3, remote endpoint=Address[172.17.0.4:5701]}
20/03/2023 18:42:55.469 INFO: [139779891673408] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[172.17.0.5:5701], connection: Connection{alive=0, connection id=2, remote endpoint=Address[172.17.0.5:5701]}
20/03/2023 18:42:55.469 INFO: [139779891673408] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[172.17.0.3:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[172.17.0.3:5701]}
20/03/2023 18:42:55.469 INFO: [139779891673408] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
20/03/2023 18:42:55.473 INFO: [139779891673408] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
```

Process finished with exit code 0

# Розподіл значень по нодах: в кожній ноді +- третина значень




Map Statistics (In-Memory Format: BINARY)

[RESET TIME](#) 1 minute ago → now Default View   

Member ^	Entries ^	Gets ^	Puts ^	Removals ^	Sets ^	Entry Memory ^	Events ^	Hits ^
172.17.0.3:5701	295	0	295	0	0	39.13 kB	0	0
172.17.0.4:5701	340	0	340	0	0	45.07 kB	0	0
172.17.0.5:5701	365	0	365	0	0	48.40 kB	0	0
TOTAL	1000	0	1000	0	0	132.60 kB	0	0

1 - 3 of 3 Rows 10 ▾

Розподіл значень по нодах після видалення однієї ноди і одразу іншої: відбулася втрата даних; 674 значення, які лишилися, лежать в одній ноді

Map Statistics (In-Memory Format: BINARY)		<a href="#">RESET TIME</a>		1 minute ago	→	now	Default View			
Member ^	Entries ^	Gets ^	Puts ^	Removals ^	Sets ^	Entry Memory ^	Events ^	Hits ^		
172.17.0.5:5701	674	0	365	0	0	89.37 kB	0	0		
TOTAL	674	0	365	0	0	89.37 kB	0	0		

1 – 1 of 1 Rows 10

# Пункт 4

Три клієнти запускаються як три потоки  
однієї програми

# Optimistic locking

```
/home/karyna/Documents/AP2_labs/task4/cmake-build-release-gcc/test_locking
```

```
Test optimistic_locking
```

```
30/03/2023 15:07:37.856 INFO: [140622725903936] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (da2991b3-a970-42a7-99d6-d20b8c3e0100) is STARTING
30/03/2023 15:07:37.856 INFO: [140622725903936] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:07:37.856 INFO: [140622725903936] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:07:37.859 INFO: [140622725903936] hz.client_1[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:07:37.889 INFO: [140622725903936] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:07:37.889 INFO: [140622725903936] hz.client_1[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:c09e607e-85fa-429c-bfcf-180fed0733b5, server version: 5.2.2, local address: Address[127.0.0.1:47236]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:07:37.889, last_write_time=2023-03-30 15:07:37.859, closedTime=never, connected server version=5.2.2}
30/03/2023 15:07:37.894 INFO: [140622354589248] hz.client_1[dev] [5.2.0]
```

```
Members [1] {
    Member[127.0.0.1]:5701 - c09e607e-85fa-429c-bfcf-180fed0733b5
}
```

```
Starting
```

```
thread 0
thread 1
thread 2
```

```
Finishing
```

```
30/03/2023 15:07:37.981 INFO: [140621717169728] hz.client_2[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (cfd2e78a-1485-4962-8a5f-e30da56e8661) is STARTING
30/03/2023 15:07:37.981 INFO: [140621717169728] hz.client_2[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:07:37.981 INFO: [140621717169728] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:07:37.981 INFO: [140621700384320] hz.client_3[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (7a67c55f-fe06-429c-8aab-c341c31bc900) is STARTING
30/03/2023 15:07:37.981 INFO: [140621700384320] hz.client_3[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:07:37.981 INFO: [140621700384320] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:07:37.981 INFO: [140621691991616] hz.client_4[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (bd4cab37-e603-4ee1-9b96-e4dca3519d8e) is STARTING
30/03/2023 15:07:37.981 INFO: [140621691991616] hz.client_4[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:07:37.981 INFO: [140621691991616] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:07:37.985 INFO: [140621717169728] hz.client_2[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:07:37.986 INFO: [140621700384320] hz.client_3[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:07:37.986 INFO: [140621691991616] hz.client_4[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:07:37.990 INFO: [140621691991616] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:07:37.990 INFO: [140621691991616] hz.client_4[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:c09e607e-85fa-429c-bfcf-180fed0733b5, server version: 5.2.2, local address: Address[127.0.0.1:47246]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:07:37.990, last_write_time=2023-03-30 15:07:37.987, closedTime=never, connected server version=5.2.2}
30/03/2023 15:07:37.991 INFO: [140621700384320] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:07:37.991 INFO: [140621700384320] hz.client_3[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:c09e607e-85fa-429c-bfcf-180fed0733b5, server version: 5.2.2, local address: Address[127.0.0.1:47256]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:07:37.991, last_write_time=2023-03-30 15:07:37.987, closedTime=never, connected server version=5.2.2}
```

# Optimistic locking

```
30/03/2023 15:07:37.991 INFO: [140621717169728] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:07:37.991 INFO: [140621717169728] hz.client_2[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:c09e607e-85fa-429c-bfcf-180fed0733b5, server version: 5.2.2, local address: Address[127.0.0.1:47244]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:07:37.991, last_write_time=2023-03-30 15:07:37.986, closedTime=never, connected server version=5.2.2}
30/03/2023 15:07:37.992 INFO: [140620231956032] hz.client_4[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - c09e607e-85fa-429c-bfcf-180fed0733b5
}

30/03/2023 15:07:37.993 INFO: [140620299097664] hz.client_3[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - c09e607e-85fa-429c-bfcf-180fed0733b5
}

30/03/2023 15:07:37.993 INFO: [140620374632000] hz.client_2[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - c09e607e-85fa-429c-bfcf-180fed0733b5
}

30/03/2023 15:08:10.481 INFO: [140621700384320] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:08:10.482 INFO: [140621700384320] hz.client_2[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:08:10.481, last_write_time=2023-03-30 15:08:10.480, closedTime=2023-03-30 15:08:10.481, connected server version=5.2.2}
30/03/2023 15:08:10.482 INFO: [140621700384320] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:08:10.488 INFO: [140621700384320] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
thread 0
30/03/2023 15:08:12.925 INFO: [140622725903936] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:08:12.925 INFO: [140622725903936] hz.client_3[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:08:12.924, last_write_time=2023-03-30 15:08:12.924, closedTime=2023-03-30 15:08:12.924, connected server version=5.2.2}
30/03/2023 15:08:12.925 INFO: [140622725903936] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:08:12.929 INFO: [140622725903936] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
thread 1
30/03/2023 15:08:13.486 INFO: [140621725562432] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:08:13.486 INFO: [140621725562432] hz.client_4[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:08:13.486, last_write_time=2023-03-30 15:08:13.485, closedTime=2023-03-30 15:08:13.485, connected server version=5.2.2}
30/03/2023 15:08:13.486 INFO: [140621725562432] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:08:13.490 INFO: [140621725562432] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
thread 2
```



# Optimistic locking: значення збільшується на $3 \cdot 1000 = 3000$

3000

FinishedResult 3000

```
30/03/2023 15:08:13.494 INFO: [140621708777024] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:08:13.495 INFO: [140621708777024] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701],
  last_read_time=2023-03-30 15:08:13.494, last_write_time=2023-03-30 15:08:13.493, closedTime=2023-03-30 15:08:13.494, connected server version=5.2.2}
30/03/2023 15:08:13.495 INFO: [140621708777024] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:08:13.497 INFO: [140621708777024] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
```

Process finished with exit code 0

# Pessimistic locking

```
/home/karvna/Documents/AP7_labs/task4/cmake-build-release-gcc/test_locking
```

```
Test pessimistic_locking
```

```
30/03/2023 15:13:57.986 INFO: [139948342638144] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (7a9726a1-a168-4c4f-9764-37e062ad7749) is STARTING
30/03/2023 15:13:57.986 INFO: [139948342638144] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:13:57.986 INFO: [139948342638144] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:13:57.988 INFO: [139948342638144] hz.client_1[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:13:58.014 INFO: [139948342638144] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:13:58.014 INFO: [139948342638144] hz.client_1[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:f302939d-8d26-4cdc-af1c-0937d6b90af0, server version: 5.2.2, local address: Address[127.0.0.1:44892]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:13:58.014, last_write_time=2023-03-30 15:13:57.989, closedTime=never, connected server version=5.2.2}
30/03/2023 15:13:58.018 INFO: [139947969222208] hz.client_1[dev] [5.2.0]
```

```
Members [1] {
```

```
    Member[127.0.0.1]:5701 - f302939d-8d26-4cdc-af1c-0937d6b90af0
```

```
}
```

```
Starting
```

```
thread 0
```

```
thread 1
```

```
thread 2
```

```
Finishing
```

```
30/03/2023 15:13:58.097 INFO: [139947809760832] hz.client_2[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (cd0c44e2-78c3-4d87-ba2b-8b41539bec00) is STARTING
30/03/2023 15:13:58.097 INFO: [139947809760832] hz.client_2[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:13:58.097 INFO: [139947809760832] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:13:58.097 INFO: [139947792975424] hz.client_3[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (723a79ae-b13c-4c6d-99fc-d0e7cb42af52) is STARTING
30/03/2023 15:13:58.097 INFO: [139947792975424] hz.client_3[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:13:58.097 INFO: [139947792975424] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:13:58.097 INFO: [139947784582720] hz.client_4[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (4d174214-2742-477d-a184-294cb5232993) is STARTING
30/03/2023 15:13:58.097 INFO: [139947784582720] hz.client_4[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:13:58.097 INFO: [139947784582720] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:13:58.103 INFO: [139947809760832] hz.client_2[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:13:58.103 INFO: [139947792975424] hz.client_3[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:13:58.103 INFO: [139947784582720] hz.client_4[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:13:58.107 INFO: [139947809760832] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:13:58.107 INFO: [139947809760832] hz.client_2[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:f302939d-8d26-4cdc-af1c-0937d6b90af0, server version: 5.2.2, local address: Address[127.0.0.1:44894]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:13:58.107, last_write_time=2023-03-30 15:13:58.104, closedTime=never, connected server version=5.2.2}
30/03/2023 15:13:58.107 INFO: [139947784582720] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:13:58.107 INFO: [139947784582720] hz.client_4[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:f302939d-8d26-4cdc-af1c-0937d6b90af0, server version: 5.2.2, local address: Address[127.0.0.1:44896]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:13:58.107, last_write_time=2023-03-30 15:13:58.104, closedTime=never, connected server version=5.2.2}
```

# Pessimistic locking

```
30/03/2023 15:13:58.108 INFO: [139947792975424] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:13:58.108 INFO: [139947792975424] hz.client_3[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:f302939d-8d26-4cdc-af1c-0937d6b90af0, server version: 5.2.2, local address: Address[127.0.0.1:4898]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:13:58.107, last_write_time=2023-03-30 15:13:58.104, closedTime=never, connected server version=5.2.2}
30/03/2023 15:13:58.108 INFO: [139945955694144] hz.client_2[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - f302939d-8d26-4cdc-af1c-0937d6b90af0
}

30/03/2023 15:13:58.109 INFO: [139945896945216] hz.client_4[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - f302939d-8d26-4cdc-af1c-0937d6b90af0
}

30/03/2023 15:13:58.109 INFO: [139945947301440] hz.client_3[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - f302939d-8d26-4cdc-af1c-0937d6b90af0
}

30/03/2023 15:14:36.443 INFO: [139947792975424] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:14:36.443 INFO: [139947792975424] hz.client_2[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:14:36.442, last_write_time=2023-03-30 15:14:36.442, closedTime=2023-03-30 15:14:36.442, connected server version=5.2.2}
30/03/2023 15:14:36.443 INFO: [139947792975424] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:14:36.448 INFO: [139947792975424] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
thread 0
30/03/2023 15:14:36.456 INFO: [139948342638144] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:14:36.456 INFO: [139948342638144] hz.client_3[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:14:36.455, last_write_time=2023-03-30 15:14:36.455, closedTime=2023-03-30 15:14:36.455, connected server version=5.2.2}
30/03/2023 15:14:36.456 INFO: [139948342638144] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:14:36.459 INFO: [139948342638144] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
thread 1
30/03/2023 15:14:36.469 INFO: [139947818153536] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:14:36.469 INFO: [139947818153536] hz.client_4[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:14:36.469, last_write_time=2023-03-30 15:14:36.468, closedTime=2023-03-30 15:14:36.469, connected server version=5.2.2}
30/03/2023 15:14:36.469 INFO: [139947818153536] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:14:36.472 INFO: [139947818153536] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
thread 2
```

# Pessimistic locking: значення збільшується на $3 \cdot 1000 = 3000$

3000

FinishedResult 3000

```
30/03/2023 15:14:36.475 INFO: [139947801368128] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:14:36.475 INFO: [139947801368128] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701],
  last_read_time=2023-03-30 15:14:36.474, last_write_time=2023-03-30 15:14:36.474, closedTime=2023-03-30 15:14:36.474, connected server version=5.2.2}
30/03/2023 15:14:36.475 INFO: [139947801368128] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:14:36.476 INFO: [139947801368128] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
```

Process finished with exit code 0

# Without locking

```
/home/karyna/Documents/AP7_labs/task4/cmake-build-release-gcc/test_locking
```

```
Test without locking
```

```
30/03/2023 15:20:49.654 INFO: [140141014283840] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (615264de-3dca-4d8e-8529-a4029f772d36) is STARTING
30/03/2023 15:20:49.655 INFO: [140141014283840] hz.client_1[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:20:49.655 INFO: [140141014283840] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:20:49.657 INFO: [140141014283840] hz.client_1[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:20:49.680 INFO: [140141014283840] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:20:49.680 INFO: [140141014283840] hz.client_1[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7, server version: 5.2.2, local address: Address[127.0.0.1:36658]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:20:49.680, last_write_time=2023-03-30 15:20:49.657, closedTime=never, connected server version=5.2.2}
30/03/2023 15:20:49.683 INFO: [140140638770752] hz.client_1[dev] [5.2.0]
```

```
Members [1] {
    Member[127.0.0.1:5701 - 8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7
}
```

```
Starting
thread 0
thread 1
thread 2
```

```
Finishing
```

```
30/03/2023 15:20:49.761 INFO: [140140462523968] hz.client_2[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (8ac9cc2a-84f1-4569-b84f-d3cc39336be3) is STARTING
30/03/2023 15:20:49.761 INFO: [140140462523968] hz.client_2[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:20:49.761 INFO: [140140462523968] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:20:49.761 INFO: [140140470916672] hz.client_3[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (893a50d2-68a2-47db-9d74-cdc999db05c8) is STARTING
30/03/2023 15:20:49.761 INFO: [140140454131264] hz.client_4[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent Client (34b70cf2-2a0e-41be-9e24-0c11e0ae080e) is STARTING
30/03/2023 15:20:49.761 INFO: [140140454131264] hz.client_4[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:20:49.761 INFO: [140140454131264] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:20:49.761 INFO: [140140470916672] hz.client_3[dev] [5.2.0] (NOT_FOUND:NOT_FOUND) LifecycleService::LifecycleEvent STARTING
30/03/2023 15:20:49.761 INFO: [140140470916672] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent STARTED
30/03/2023 15:20:49.765 INFO: [140140462523968] hz.client_2[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:20:49.765 INFO: [140140470916672] hz.client_3[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:20:49.766 INFO: [140140454131264] hz.client_4[dev] [5.2.0] Trying to connect to Address[127.0.0.1:5701].
30/03/2023 15:20:49.770 INFO: [140140462523968] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:20:49.770 INFO: [140140462523968] hz.client_2[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7, server version: 5.2.2, local address: Address[127.0.0.1:36668]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:20:49.770, last_write_time=2023-03-30 15:20:49.766, closedTime=never, connected server version=5.2.2}
30/03/2023 15:20:49.770 INFO: [140140454131264] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:20:49.770 INFO: [140140454131264] hz.client_4[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7, server version: 5.2.2, local address: Address[127.0.0.1:36674]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:20:49.770, last_write_time=2023-03-30 15:20:49.767, closedTime=never, connected server version=5.2.2}
```



# Without locking

```
30/03/2023 15:20:49.771 INFO: [140138642028096] hz.client_2[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - 8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7
}

30/03/2023 15:20:49.772 INFO: [140140470916672] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_CONNECTED
30/03/2023 15:20:49.772 INFO: [140140470916672] hz.client_3[dev] [5.2.0] Authenticated with server Address[127.0.0.1:5701]:8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7, server version: 5.2.2, local address: Address[127.0.0.1:36672]. Connection{alive=1, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:20:49.772, last_write_time=2023-03-30 15:20:49.766, closedTime=never, connected server version=5.2.2}
30/03/2023 15:20:49.773 INFO: [140138625242688] hz.client_3[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - 8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7
}

30/03/2023 15:20:49.775 INFO: [140138524530240] hz.client_4[dev] [5.2.0]

Members [1] {
    Member[127.0.0.1]:5701 - 8ed9a330-b1aa-4e62-9bc4-88c9ce8e23e7
}

30/03/2023 15:21:01.753 INFO: [140140462523968] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:21:01.753 INFO: [140140470916672] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:21:01.753 INFO: [140140454131264] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:21:01.754 INFO: [140140462523968] hz.client_3[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:21:01.753, last_write_time=2023-03-30 15:21:01.752, closedTime=2023-03-30 15:21:01.753, connected server version=5.2.2}
30/03/2023 15:21:01.754 INFO: [140140454131264] hz.client_2[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:21:01.753, last_write_time=2023-03-30 15:21:01.752, closedTime=2023-03-30 15:21:01.753, connected server version=5.2.2}
30/03/2023 15:21:01.754 INFO: [140140454131264] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:21:01.754 INFO: [140140462523968] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:21:01.754 INFO: [140140470916672] hz.client_4[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701], last_read_time=2023-03-30 15:21:01.753, last_write_time=2023-03-30 15:21:01.753, closedTime=2023-03-30 15:21:01.753, connected server version=5.2.2}
30/03/2023 15:21:01.755 INFO: [140140470916672] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:21:01.760 INFO: [140140462523968] hz.client_3[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
30/03/2023 15:21:01.761 INFO: [140140454131264] hz.client_2[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
30/03/2023 15:21:01.762 INFO: [140140470916672] hz.client_4[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN

thread 0
thread 1
thread 2
```

# Without locking: значення збільшується на 1000!=3000

1000

FinishedResult 1000

```
30/03/2023 15:21:01.767 INFO: [140140479309376] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTTING_DOWN
30/03/2023 15:21:01.768 INFO: [140140479309376] hz.client_1[dev] [5.2.0] Removed connection to endpoint: Address[127.0.0.1:5701], connection: Connection{alive=0, connection id=1, remote endpoint=Address[127.0.0.1:5701],
  last_read_time=2023-03-30 15:21:01.767, last_write_time=2023-03-30 15:21:01.767, closedTime=2023-03-30 15:21:01.767, connected server version=5.2.2}
30/03/2023 15:21:01.768 INFO: [140140479309376] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent CLIENT_DISCONNECTED
30/03/2023 15:21:01.769 INFO: [140140479309376] hz.client_1[dev] [5.2.0] LifecycleService::LifecycleEvent SHUTDOWN
```



# Пункт 5

Для запуску докер-контейнера з підключенням yml файлу

```
karyna@karyna:~/Documents/APZ_lab2/task5$ docker run -v "$(pwd)"/bounded_queue.yml:/opt/hazelcast/bounded_queue.yml -e HAZELCAST_CONFIG=bounded_queue.yml -p:5701:5701 hazelcast/hazelcast
```

```
Consumer 1: 0
Producer 1: 0
Consumer 2: 1
Producer 1: 1
Producer 1: 2
Producer 1: 3
Producer 1: 4
Consumer 1: 2
Producer 1: 5
Consumer 2: 3
Producer 1: 6
Producer 1: 7
Producer 1: 8
Producer 1: 9
Consumer 1: 4
Producer 1: 10
Consumer 2: 5
Producer 1: 11
Producer 1: 12
Producer 1: 13
Producer 1: 14
Consumer 1: 6
Producer 1: 15
Consumer 2: 7
Producer 1: 16
Producer 1: 17
```

- клієнти запущені як 3 потоки: 1 на записування і 2 на читання
- дані записуються в чергу кожну секунду
- дані читаються з черги кожні 5 секунд
- як будуть вичитуватись значення з черги, якщо є декілька читачів?
  - оскільки всі читачі працюють на одній частоті і всі дані однакового розміру, то читачі вичитують їх по черзі

```
Producer 1: 0  
Producer 1: 1  
Producer 1: 2  
Producer 1: 3  
Producer 1: 4  
Producer 1: 5  
Producer 1: 6  
Producer 1: 7  
Producer 1: 8  
Producer 1: 9
```

- запущений тільки клієнт на записування даних
- дані записуються в чергу кожну 1 секунду
- дані не читаються з черги
- максимальний розмір черги – 10
- перевірте, яка буде поведінка на запис, якщо відсутнє читання, і черга заповнена
  - запис нових значень призупиниться в момент, коли черга досягне свого максимального значення (10 значень)
  - нові значення не будуть додаватися, допоки не вчитається хоча б одне значення з черги