Zad 1

```
m 1 1
result: 1 operation count: 1
d 1 1
result: 1 operation count: 1
d 1 0
[WARN] [05/17/2020 11:56:13.601] [local_system-akka.actor.default-dispatcher-5] [akka://local_system/user/math/divideWorker] / by zero
m 1 1
result: 1 operation count: 2
d 1 1
result: 1 operation count: 3
```

Rysunek 1 OneForOne resume

```
m 1 1
result: 1 operation count: 1
d 1 1
result: 1 operation count: 1
d aaa
[ERROR] [05/17/2020 11:57:23.947] [local_system-akka.actor.default-dispatcher-4] [akka://local_system/user/math/divideWorker] For input string: "aaa"
java.lang.NumberFormatException: For input string: "aaa"
    at java.base/java.lang.NumberFormatException.forInputString(NumberFormatException.java:68)
    at java.base/java.lang.Integer.parseInt(Integer.java:652)
m 1 1
result: 1 operation count: 2
d 1 1
result: 1 operation count: 1
```

Rysunek 2 OneForOne restart

```
m 1 1
result: 1 operation count: 1
d 1 1
result: 1 operation count: 1
d 1 0
[WARN] [05/17/2020 11:54:13.920] [local_system-akka.actor.default-dispatcher-4] [akka://local_system/user/math/divideWorker] / by zero
m 1 1
result: 1 operation count: 2
d 1 1
result: 1 operation count: 3
```

Rysunek 3 AllForOne resume

```
m 1 1
result: 1 operation count: 1
d 1 1
result: 1 operation count: 1
d aaa
[ERROR] [05/17/2020 12:04:56.839] [local_system-akka.actor.default-dispatcher-7] [akka://local_system/user/math/divideWorker] For input string: "aaa"
java.lang.NumberFormatException: For input string: "aaa"
    at java.base/java.lang.NumberFormatException.forInputString(NumberFormatException.java:68)
m 1 1
result: 1 operation count: 1
d 1 1
result: 1 operation count: 1
```

Rysunek 4 AllForOne restart

OneForOne resume zachowuje stan licznika DivideWorker/ restart zeruje -||-

AllForOne zachowuje stan liczników DivideWorker MultiplyWorker/ restart zeruje oba liczniki

Zad2

```
[WARN] [05/17/2020 19:54:58.721] [main] [akka.remote.RemoteActorRefProvider] Using the 'remote' ActorRefProvider directly, which is a low-level layer. For most use cases, the 'cluster' abstraction on top of remoting is more suitable instead.
[WARN] [05/17/2020 19:54:58.721] [main] [akka.remote.RemoteActorRefProvider] Akka Cluster not in use - Using Akka Cluster is recommended if you need remote watch and deploy.
[INFO] [05/17/2020 19:54:59.138] [main] [ArteryTcpTransport(akka://local_system)] Remoting started with transport [Artery tcp]; listening on address [akka://local_system@127.0.0.1:2551] with UID [3137036086769156833]
Napis mala litera
NAPIS MALA LITERA
```

Rysunek 5Output AppLocal

```
"C:\Program Files (x86)\Java\jdk-14\bin\java.exe" ...
[WARN] [05/17/2020 19:54:55.814] [main] [akka.remote.RemoteActorRefProvider] Using the 'remote' ActorRefProvider directly, which is a low-level layer. For most use cases, the 'cluster' abstraction on top of remoting is more suitable instead.
[WARN] [05/17/2020 19:54:55.814] [main] [akka.remote.RemoteActorRefProvider] Akka Cluster not in use - Using Akka Cluster is recommended if you need remote watch and deploy.
[INFO] [05/17/2020 19:54:56.210] [main] [ArteryTcpTransport(akka://remote_system)] Remoting started with transport [Artery tcp]; listening on address [akka://remote_system@127.0.0.1:2552] with UID [-389773430584241125]
Napis mala litera
```

Rysunek 6 Output AppRemote

Zad3

```
20
40
60
80
100
120
140
160
180
200
10342ms
```

7Mapowanie bez async

```
20
40
60
80
100
120
140
160
180
200
5768ms
```

Mapowanie z async

```
160
180
200
2163ms
```

Dodanybufor ze strategią dropHead i async

```
20
40
200
2124ms
```

Droptail async

```
20
40
60
80
100
120
140
160
180
200
5781ms
```

Backpressure z async