Filozofowie
zadanie domowe
Marcin Mikuła

Wyniki

Java

Każdy filozof ma 5 prób zjedzenia posiłku.

1. z możliwością zagłodzenia

    W przypadku tej implementacji, co najmniej jeden filozof nie dostanie się do stołu i wszystkie jego próby podniesienia widelców będą nieudane. Jego wątek skończy działanie od razu.
    Pomiary dla 5 filozofów:

    ```
    Philosopher 0 has eaten 5 meals, average waiting time 0

    Philosopher 1 has eaten 0 meals, average waiting time 0

    Philosopher 2 has eaten 5 meals, average waiting time 0

    Philosopher 3 has eaten 0 meals, average waiting time 0

    Philosopher 4 has eaten 5 meals, average waiting time 408
    ```

Zgodnie z przewidywaniami, 2 wątki zostały zagłodzone, nie otrzymały one dostępu do stołu. 2 inne wątki wywłaszczyły sobie stół i miały do niego natychmiastowy dostęp przy każdej próbie, ostatni wątek czekał, aż te działające zwolnią potrzebny mu zasób.

Pomiary dla 10 filozofów:

```
Philosopher 0 has eaten 5 meals, average waiting time 0

Philosopher 1 has eaten 0 meals, average waiting time 0

Philosopher 2 has eaten 5 meals, average waiting time 0

Philosopher 3 has eaten 0 meals, average waiting time 0

Philosopher 4 has eaten 5 meals, average waiting time 0

Philosopher 5 has eaten 0 meals, average waiting time 0

Philosopher 6 has eaten 5 meals, average waiting time 0

Philosopher 7 has eaten 0 meals, average waiting time 0

Philosopher 8 has eaten 5 meals, average waiting time 0

Philosopher 9 has eaten 5 meals, average waiting time 407
```

Wyniki analogiczne jak dla 5 filozofów, część nie otrzymała dostępu do stołu i została zagłodzona, pozostali mieli bezproblemowy dostęp do stołu, jeden czekał na potrzebny mu zasób.

2. z kelnerem
 Dla 5 filozofów:

```
Philosopher 0 has eaten 5 meals, average waiting time 972

Philosopher 1 has eaten 5 meals, average waiting time 1059

Philosopher 2 has eaten 5 meals, average waiting time 1140

Philosopher 3 has eaten 5 meals, average waiting time 1219

Philosopher 4 has eaten 5 meals, average waiting time 1215
```

Dla 10 filozofów:


```
Philosopher 0 has eaten 5 meals, average waiting time 988

Philosopher 1 has eaten 5 meals, average waiting time 1050

Philosopher 2 has eaten 5 meals, average waiting time 1153

Philosopher 3 has eaten 5 meals, average waiting time 1232

Philosopher 4 has eaten 5 meals, average waiting time 1336

Philosopher 5 has eaten 5 meals, average waiting time 1436

Philosopher 6 has eaten 5 meals, average waiting time 1044

Philosopher 7 has eaten 5 meals, average waiting time 1128

Philosopher 8 has eaten 5 meals, average waiting time 1171

Philosopher 9 has eaten 5 meals, average waiting time 1168
```

W implementacji z kelnerem, można zauważyć, że każdy wątek dostanie się do stołu tyle razy ile spróbuje, w odniesieniu do poprzedniej implementacji znacząco poprawia to sytuację z zagłodzeniem niektórych wątków.

JS

1. naiwna
   W podejściu naiwnym zawsze występuje zawieszenie programu.

2. asymetryczna
   Dla 5 filozofów:


```
Asym:

Philosopher 0 average waiting time 39.2 ms

Philosopher 1 average waiting time 46.8 ms

Philosopher 2 average waiting time 52.2 ms

Philosopher 3 average waiting time 48 ms

Philosopher 4 average waiting time 56 ms
```

Dla 10 filozofów:

```
Asym:

Philosopher 0 average waiting time 46.4 ms

Philosopher 1 average waiting time 45.4 ms

Philosopher 2 average waiting time 50.6 ms

Philosopher 3 average waiting time 58.8 ms

Philosopher 4 average waiting time 50.8 ms

Philosopher 5 average waiting time 52.2 ms

Philosopher 6 average waiting time 47 ms

Philosopher 7 average waiting time 92.6 ms

Philosopher 8 average waiting time 46.8 ms

Philosopher 9 average waiting time 53 ms
```

3. z kelnerem

Dla 5 filozofów:

```
Philosopher 0 average waiting time 79.6 ms

Philosopher 1 average waiting time 76.2 ms

Philosopher 2 average waiting time 73.6 ms

Philosopher 3 average waiting time 70.4 ms

Philosopher 4 average waiting time 82.4 ms
```

Dla 10 filozofów:

```
Conductor:

Philosopher 0 average waiting time 164.4 ms

Philosopher 1 average waiting time 107.8 ms

Philosopher 2 average waiting time 3506.8 ms

Philosopher 3 average waiting time 3385.6 ms

Philosopher 4 average waiting time 1720.8 ms

Philosopher 5 average waiting time 1717 ms

Philosopher 6 average waiting time 895.4 ms

Philosopher 7 average waiting time 895.6 ms

Philosopher 8 average waiting time 481 ms

Philosopher 9 average waiting time 275.4 ms
```

4. z jednoczesnym podniesieniem widelców

Dla 5 filozofów:

```
Simult:

Philosopher 0 average waiting time 37.4 ms

Philosopher 1 average waiting time 33.8 ms

Philosopher 2 average waiting time 40.6 ms

Philosopher 3 average waiting time 34.2 ms

Philosopher 4 average waiting time 31 ms
```

Dla 10 filozofów:

```
Simult:

Philosopher 0 average waiting time 27.4 ms

Philosopher 1 average waiting time 25.8 ms

Philosopher 2 average waiting time 27.2 ms

Philosopher 3 average waiting time 25.6 ms

Philosopher 4 average waiting time 26.8 ms

Philosopher 5 average waiting time 25 ms

Philosopher 6 average waiting time 26.6 ms

Philosopher 7 average waiting time 25 ms

Philosopher 8 average waiting time 26.6 ms

Philosopher 9 average waiting time 24.6 ms
```