

Computers

Exercises Parallelism

Grau en Ciència i Enginyeria de Dades

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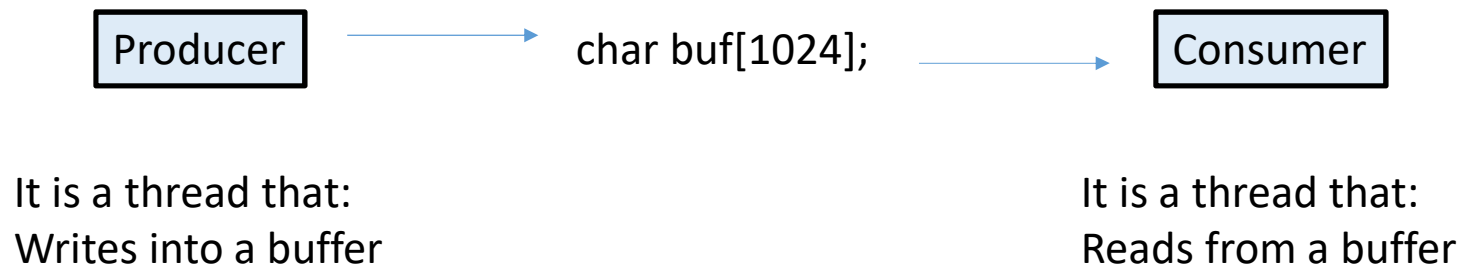
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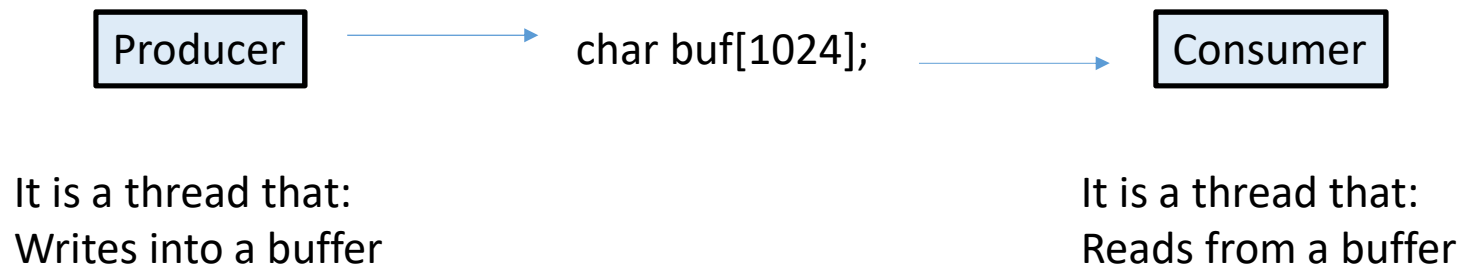
Exercise 1

- Implement the algorithm of Producer/Consumer
 - Develop the algorithm without using any particular parallel programming language
 - Just 1 Producer and 1 Consumer
 - Identify the critical section



Exercise 2

- Modify the previous algorithm to use OpenMP
 - Just 1 Producer and 1 Consumer
 - Protect the critical section with the OpenMP mechanisms/tools seen in the lectures



Exercise 3

- Implement a code to calculate the max value from a given array
 - Use OpenMP to parallelize the function

Exercise 4

- Execute the code of the previous exercise to perform different experiments
 - with different vector size
 - with different number of threads
- Analyze what is the performance improvement/degradation and why
 - pick two different sizes (medium, large), and use 1, 2, 4 and 8 threads
 - remember to use OpenMP indications to modify the number of threads