

ЛР #4: Параллельные алгоритмы

Реквизиты

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Цель

Познакомить студента с инструментами, направленными на решение задач, использующих технологии распараллеливания.

Задача

Моделирование нагрузки пользователей, которые обращаются почти одновременно на сервер (запросы выстраиваются в очередь).

Дано:

- Действие 1: Регистрация на портале (время обработки T1, нагрузка на процессор ~25%)
 - Действие 2: Получение главной страницы (время обработки T2, нагрузка на процессор ~15%)
 - Действие 3: Просмотр перечня зарегистрированных пользователей (время обработки T3, нагрузка на процессор ~1%)
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- U1 – количество пользователей, которые отправляют запрос на действие 1
 - U2 – количество пользователей, которые отправляют запрос на действие 2
 - U3 – количество пользователей, которые отправляют запрос на действие 3

Требуется:

Составить программу, на которой смоделировать поведение обработки запросов пользователей. Рассмотреть вариант последовательного решения задачи (1) и параллельных вариантах (рассмотреть каждый), subprocess (2), threads (3), asyncio (4)

=== Sequential Processing ===

Starting sequential processing...

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Processed action with load: 1.0% for 0.5 seconds.

Processed action with load: 15.0% for 1 seconds.

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Total time for subprocess processing: 9.47 seconds

=== Asynchronous Processing ===

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Total time for asynchronous processing: 2.04 seconds