Name #1:

Name #2:

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TCSS 462/562: (Software Engineering for) Cloud Computing   School of Engineering and Technology
Fall 2022   University of Washington – Tacoma

Class Activity 1 – Implicit vs. Explicit Parallelism
Thursday October 6th, 2022

We've discussed four types of parallelism:
  Thread Level Parallelism (TLP)
  Data-level Parallelism
  Bit-level parallelism
  Instruction level parallelism.

1. Which two types of parallelism are *implicit*, in that they come for free without any special efforts required by programmers to use them? Why are these methods available automatically without special developer effort?

2. Which two types of parallelism are *explicit*, in that they require manual programmer effort to reap benefits? Why do these methods require manual effort?

3. List advantages of *implicit* approaches to parallelism?

4. List disadvantages of *implicit* approaches to parallelism?

5. List advantages of *explicit* approaches to parallelism:

6. List disadvantages of *explicit* approaches to parallelism:

7. For *bit-level* parallelism, should a developer be concerned with the available number of virtual CPU processing cores when choosing a cloud-based virtual machine if wanting to obtain the best possible speed-up? (Yes / No)

8. For *instruction-level* parallelism, should a developer be concerned with the physical CPU's architecture used to host a cloud-based virtual machine if wanting to obtain the best possible speed-up? (Yes / No)

9. For *thread level parallelism* (TLP) where a programmer has spent considerable effort to parallelize their code and algorithms, what consequences result when this code is deployed on a virtual machine with too few virtual CPU processing cores?

   What happens when this code is deployed on a virtual machine with too many virtual CPU processing cores?