Parallelism Overview Solutions

Concurrency and parallelism

- Briefly explain the difference between concurrency and parallelism
  - Concurrency is when threads perform different tasks
  - Concurrency is mainly used when programs are structured for "separation of concerns"
  - This keeps conceptually tasks distinct and improves responsiveness
  - Parallelism is when threads perform the same task
  - Parallelism is mainly used for computationally intensive work which can be split into units
  - The units can be processed independently of each other

Sequential and Vectorized Execution

- Briefly explain the difference between sequential and vectorized execution
  - In sequential execution, each processor instruction performs a single operation
  - In vectorized execution, a single processor instruction can perform multiple operations