

Execution Policies Solutions

Code Execution

- Briefly explain what is meant by the following type of execution
- Sequential
 - An operation is performed in a single instruction
- Vectorized
 - Multiple operations are performed in a single instruction
- Parallel
 - Multiple threads each perform an operation in a single instruction
- Parallel + Vectorized
 - Multiple threads each perform multiple operations in a single instruction

Execution policies

- Write a program which exercises the following code, then displays the elements of `vec`

```
std::vector<int> vec(20'000);  
int count = 0;  
  
std::for_each(se::par, vec.begin(), vec.end(),  
              [&count] (int& x) { x = ++count; }  
);
```

- Rewrite the program to use each of the C++17 execution policies in turn

Execution policies

- Rewrite the program to use each of the C++17 execution policies in turn
- Compare the output from each program
- Explain any unusual features
- seq
 - Values will be from 1 to 20000. May not be in numerical order
- par
 - Values will be from 1 to n
 - If count is not protected against data races, n will differ from 20000
 - May not be in numerical order
- par_unseq
 - Values will be from 1 to n
 - If count is not protected against data races, n will differ from 20000
 - May not be in numerical order