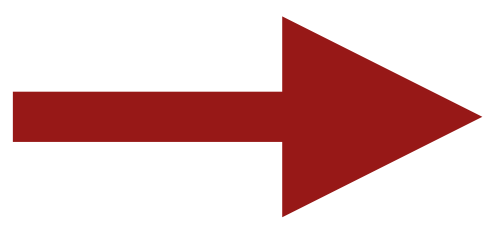
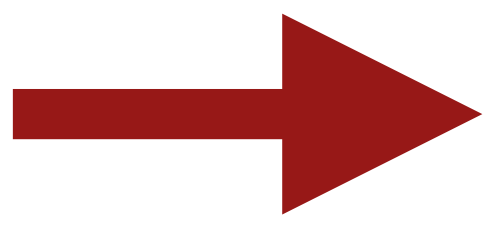
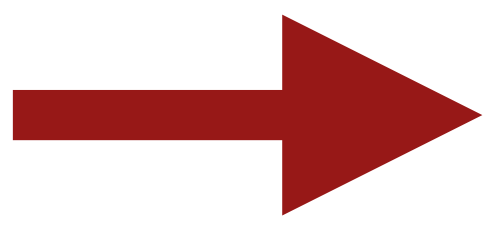
```cpp
template<typename I>
long async_accumulate(I begin, I end)
{
   auto len = std::distance(begin, end);

   if (len == 0)
      return 0;

   const unsigned num_threads = compute_number_of_threads(len);
   std::vector<std::future<long>> res(num_threads-1);
   const unsigned block_size = len / num_threads;

   auto f =[](I b, I e, long init) { return std::accumulate(b,e,init); };

   auto start_block = begin;
   for(unsigned i =0; i < num_threads-1; ++i)
   {
      auto end_block  = start_block;
      std::advance(end_block, block_size);
      res[i] = std::async(f, start_block, end_block, 0);
      start_block = end_block;
   }

   long sum = f(start_block, end, 0);
   for(auto& f : res )
      sum += f.get();

   return sum;
}
```







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Results