

• *Not bullet proof*

• Not beginner friendly

• Not defined

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How far have we got in C++?

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- Not *bullet proof*
- Not *beginner friendly*
- Not *default*



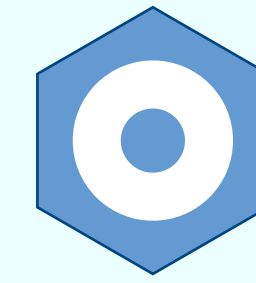
```
void entry_point (std::shared_ptr<synchronized_value<std::string>> sync_s, int tid)
{
    apply ([tid] (auto& s) {
        s.append ("🔥");
        std::println ("{} {}", s, tid);
        return s;
    },
    *sync_s);
}

int main()
{
    auto s = std::make_shared<synchronized_value<std::string>> ("Hello threads");

    std::vector<safe_thread> threads { };

    const int num_threads = 15;

    for (int i : std::views::iota (0, num_threads))
        threads.push_back (safe_thread (entry_point, auto (s), auto (i)));
}
```



```
void entry_point (shared_ptr<mutex<string>> data, int thread_id) safe
{
    auto lock_guard = data->lock();

    string^s = lock_guard^.borrow();
    s^->append ("🔥");

    println (*s);
}

int main () safe
{
    auto shared_data = shared_ptr<mutex<string>>::make(string ("Hello threads"));

    vector<thread> threads { };

    const int num_threads = 15;

    for(int i : num_threads)
        threads^.push_back(thread (&entry_point, copy shared_data, i));
}
```