Evolution of Program Abstraction Mechanisms: Generic Programming

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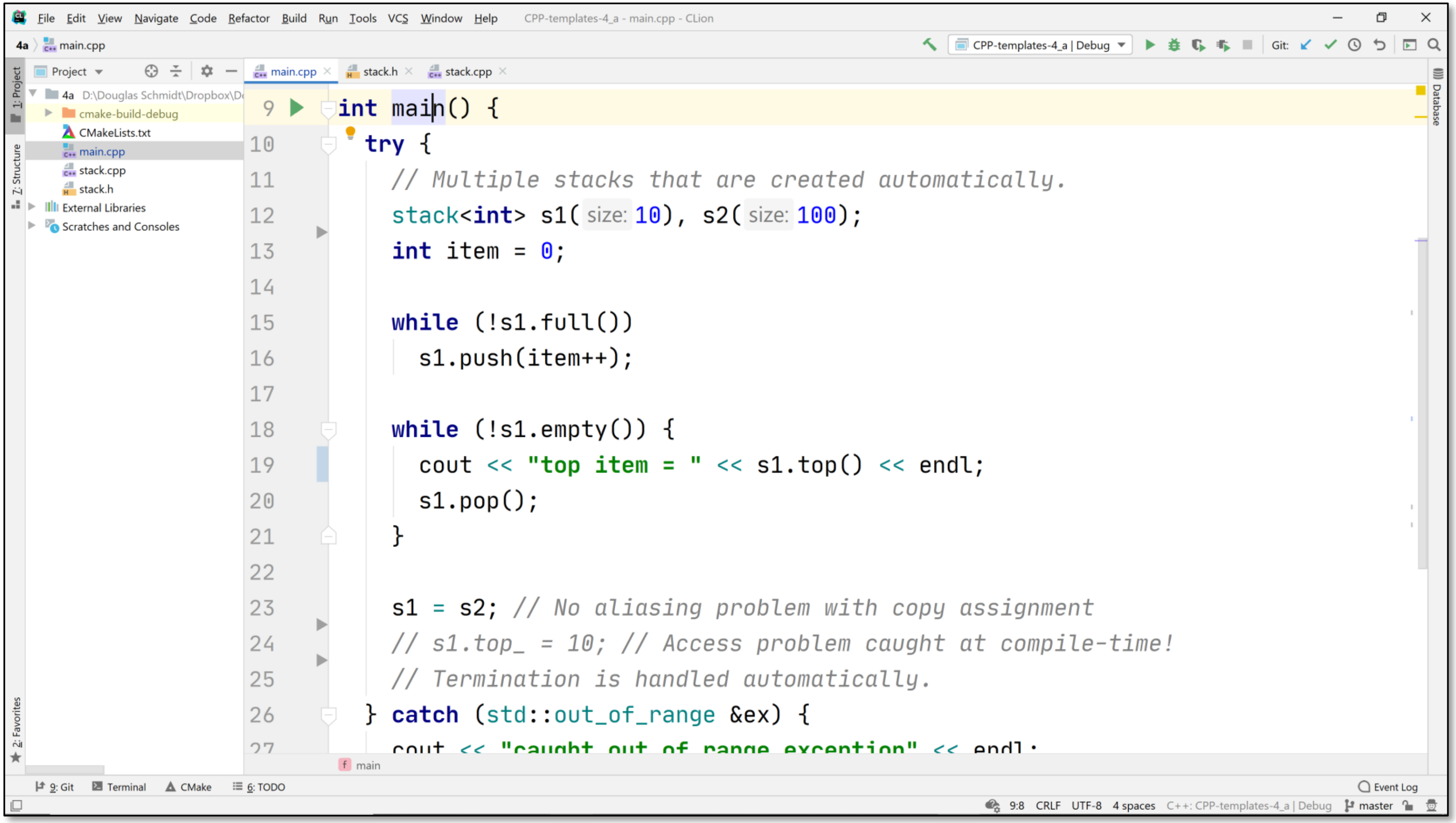
C++ Generic Programming
Stack Implementation

Template Implementation in C++

- A parameterized type Stack class interface using C++



```cpp
int main() {
  try {
    // Multiple stacks that are created automatically.
    stack<int> s1(size: 10), s2(size: 100);
    int item = 0;

    while (!s1.full())
      s1.push(item++);

    while (!s1.empty()) {
      cout << "top item = " << s1.top() << endl;
      s1.pop();
    }

    s1 = s2; // No aliasing problem with copy assignment
    // s1.top_ = 10; // Access problem caught at compile-time!
    // Termination is handled automatically.
  } catch (std::out_of_range &ex) {
    cout << "caught out of range exception" << endl;
```

See CPlusPlus/tree/master/overview/4-C++-templates