

C++ code 2.5.13: Sub-problem (2-5.d): Implementation of `L2Error()` → [GitLab](#)

```
2  template <typename FUNCTOR>
3  double L2Error(const TriaMesh2D &mesh, const Eigen::VectorXd &uFEM,
4                FUNCTOR &&exact) {
5      double l2error_squared = 0.0;
6      // loop over all triangles
7      for (int i = 0; i < mesh._elements.rows(); ++i) {
8          TriGeo_t triangle = mesh.getVtCoords(i);
9
10         // loop over all three vertices of the triangle
11         Eigen::Vector3d error_at_vertices;
12         for (int k = 0; k < 3; ++k) {
13             error_at_vertices(k) =
14                 exact(triangle.col(k)) - uFEM(mesh._elements(i, k));
15         }
16         // Add squared error per triangle
17         l2error_squared +=
18             getArea(triangle) / 3.0 * error_at_vertices.squaredNorm();
19     }
20     return std::sqrt(l2error_squared);
21 }
```