

C++11 code 3.5.16: Sub-problem (3-5.i): function `bdFunctionalEval()` → [GITHUB](#)

```
2 // Load mesh into a Lehfem++ object
3 std::string mesh_file = "meshes/hex" + std::to_string(i) + ".msh";
4 auto mesh_factory = std::make_unique<lf::mesh::hybrid2d::MeshFactory>(2);
5 const lf::io::GmshReader reader(std::move(mesh_factory), mesh_file);
6 auto mesh_p = reader.mesh(); // type shared_ptr<const lf::mesh::Mesh>
7
8 // Finite element space
9 auto fe_space = std::make_shared<linear_lagrange>(mesh_p);
10 // Obtain local->global index mapping for current finite element space
11 const lf::assemble::DofHandler &dofh{fe_space->LocGlobMap()};
12 // Dimension of finite element space
13 const lf::base::size_type N_dofs(dofh.NumDofs());
14 results(i - 1, 0) = N_dofs;
15
16 // Solve the boundary value problem with Robin boundary conditions
17 Eigen::VectorXd sol_vec = solveBVP(fe_space);
18
19 // Integrate the solution sol_vec over the flagged edges
20 double bd_functional_val = bdFunctionalEval(fe_space, sol_vec);
21
22 double error = std::abs(bd_functional_val - 2.081541059732923);
23 results(i - 1, 1) = error;
```