

**MATH 676**

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**Finite element methods in  
scientific computing**

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# **Lecture 17:**

## **A sixth example:**

### **The *step-6* tutorial program - Adaptively refined meshes**

# step-6

## **Step-6 shows:**

- How to adaptively refine meshes
- How to deal with the constraints that result from this

**Note:** The issues surrounding constraints are all summarized here

[http://www.dealii.org/developer/doxygen/deal.II/group\\_constraints.html](http://www.dealii.org/developer/doxygen/deal.II/group_constraints.html)

## step-6

Read through the commented program at

[http://www.dealii.org/7.3.0/doxygen/deal.II/step\\_6.html](http://www.dealii.org/7.3.0/doxygen/deal.II/step_6.html)

Then play with the program:

```
cd examples/step-6
```

```
cmake -DDEAL_II_DIR=/a/b/c ; make run
```

This will run the program and generate output files:

```
ls -l
```

Then visualize the solutions:

```
visit
```

**Next step:** Play by following the suggestions in the results section. This is the best way to learn!

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