Solids4foam Documentation

Amanda McVeigh
Research Mentor: Dr. Philip Cardiff
UCD School of Mechanical and Materials Engineering
University College Dublin

Introduction

Solids4foam is a toolbox for the open-source software OpenFOAM. With this toolbox, the software has the capabilities for solid mechanics and fluid solid integrations. Some of the things that this software can do is analyze the stresses and displacements generated in certain shapes as well as heat analysis which will tell you what happens to an object over time as it physically changes. This research is an extension of documentation for this software. The goal is to create an easy-to-use online data base for the toolbox Solids4foams that is well organized and can be maintained for future updates.

Previous Work

Prior to my involvement in this project, the documentation was displayed on a couple different online platforms. These sites are Bitbucket and a 257-page slideshow. Both made it easy to have all the information in once place however Bitbucket isn't very organized, and the slideshow is hard to navigate.

Conclusion

Research documentation is extremely important. Without it the entire project is invalid, the experiments won't be able to be repeated and other won't be able to refer to the data. Having different types of documentation is ideal. We can organize the data and make it clear to whoever is reading what it's about. It also makes sharing the documentation easier. By keeping the documentation organized, it's also easier to edit information or add information in the future.

Methodology

1. Create an account on Read the Docs
2. To link Bitbucket and Read the Docs accounts, copy ("Fork") the repository of the files owned by Dr. Philip Cardiff.
3. This gave me ownership of the files so that Bitbucket can be connected to the Read the Docs
4. In Read the Docs under my projects section, I was able to import the repository just copied
5. Once imported you can build the format of the website and then you are able to view the Docs
6. To format the website, create another file within the repository titled index.rst to create a format for the Docs
7. reStructuredText is the type of code used to format

Results

I have created an online easy to use document, however this document has not completed the goal yet. If formatted correctly, Read the Docs is easier to navigate to find the documents needed to run this software. There is still more work to be done, but I am making progress every day. There has been some difficulty in the set up but mainly in the formatting of these documents. Ideally there would be the seven sections on the left-hand side bar, with subsections.

Acknowledgements

I would like to thank Dr. Philip Cardiff for this great opportunity to learn the importance of documentation as well as being exposed to a different type of coding. Furthermore, I would like to thank Dr. Kevin Nolan for this research opportunity while studying abroad.