

**Operating System**

**TAE – 2**

**Report on Google Summer of Code**

**Redevelop FreeType's Documentation using  
Markdown**

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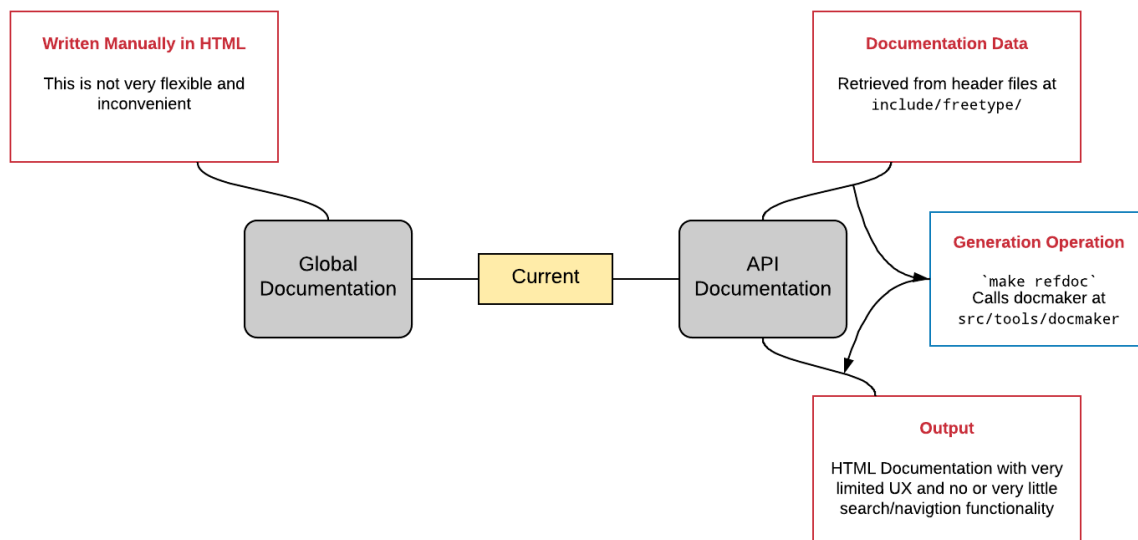
**Roll no: A-58**

**Semester: III**

## Aim of the Project:

The aim of the project is to redesign the documentation methods for FreeType, and make it easier to update and manage the FreeType website. This includes changes in the current method of retrieving and generating the API documentation, one-time conversion of the current pages to Markdown, and deploying the website from a repository by performing Markdown to HTML conversions. This is explained below in detail.

## Earlier Functioning:

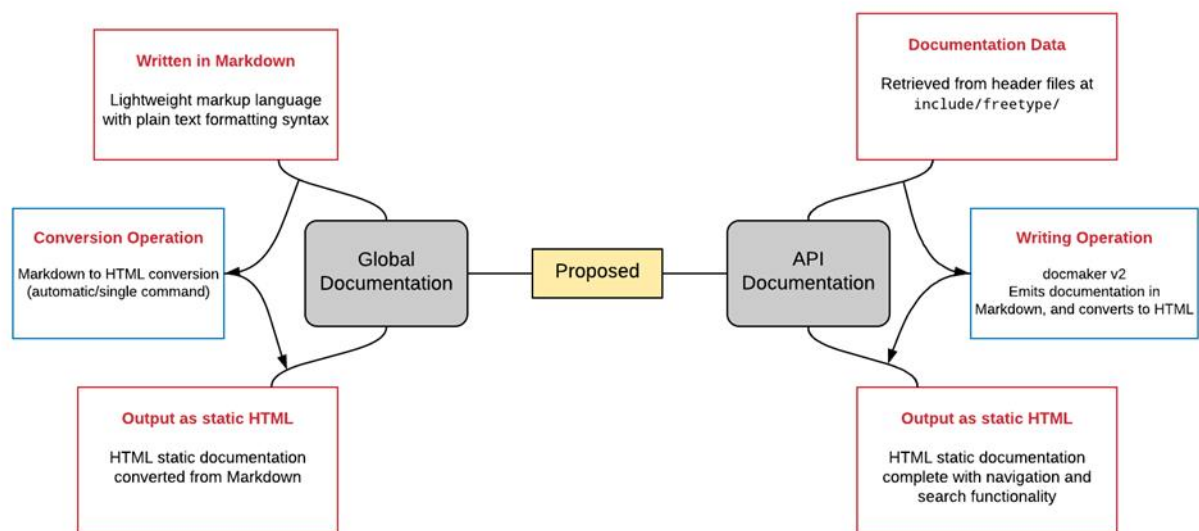


This diagram shows how the current website and documentation works. There are a few issues with this:

1. **Manual Webpage Writing:** Pages need to be written in HTML manually. This makes creating and modifying content difficult and might discourage contributors from writing guides/tutorials.
2. **Navigation and Search** have to be implemented manually for each page currently.
3. **API Documentation** uses a limited Markdown-like syntax which is directly converted to HTML by docmaker.

4. The documentation has a **very limited** user experience and does not have search functionality.
5. docmaker is **not documented** and might cause difficulties when contributors are trying to fix bugs or add features.

## Post-project Functioning:



This diagram shows how the GSoC Student planned to implement the website and the new documentation. These are the milestones:

1. Investigating how to convert the complete documentation and website to markdown using an automated approach.
2. Extending docmaker to emit markdown for the API Documentation.
3. Making sure that cross-references resolve in the documentation.
4. Setting up a Makefile (or equivalent) that statically generates the complete HTML code of the FreeType API documentation.
5. Implementing a method to generate static pages for the FreeType website from markdown.
6. Adding automatic generation of navigation bars and search to the web pages.

## Benefits to Community:

This project will upgrade the current FreeType documentation to Markdown, a highly portable and lightweight markup language. This has a lot of merits:

- No need to manually write HTML for website and documentation.
- Cutting-edge documentation standards - Markdown documentation is used by many open-source projects, and there is active development towards representing markdown documentation in beautiful HTML static websites (pandoc, MkDocs).
- This will make it easier for contributors to write guides and tutorials on the website.
- This project can be extended to other open-source projects: to extract documentation, write to markdown, generate a website all with a single command.

## Timeline of the Project:

### **Week -2 to 0 (April 23 to May 14) - Community Bonding**

- Interact with the mentor and the FreeType developer community.

### **Week 1 & 2 (May 14 to May 27) - Inspect docmaker and create roadmap**

- Inspect the current docmaker, and evaluate its usability and extendibility.
- Finalize the evaluations and document a roadmap for docs generation from source to emit markdown, and conversion of the same to a static site.

- Begin implementation of modified docmaker.

### **Week 3 & 4 (May 28 to June 10) - API goes Markdown!**

- Implement markdown API documentation generation from header files.
- Make sure that cross-references resolve in the documentation.
- Test and evaluate converters to static websites and compare outputs of different HTML converters.

### **Week 5 & 6 (June 11 to June 24) - Markdown to HTML**

- Select and implement an HTML converter for API Documentation.
- Make sure everything works as expected, and implement navigation and search functionality.

### **Week 7 (June 25 to July 1) - Static Conversion of Website**

- Evaluate and test different options for converting current website and global documentation (except API documentation) to markdown (one-time), such that it can be easily integrated into the website.
- Write code for the same and perform few conversions.

### **Week 8 & 9 (July 2 to July 15) - Makefiles and Website Updating**

- Set up a method to update website by generating HTML from Markdown uploaded to a repository.
- Set up a makefile to generate complete HTML pages for the API Documentation, to be included in the distribution tarball.
- Community feedback and review for the module.

### **Week 10-13 (July 16 to August 6) - Final work, bug-fixes, suggestions**

- This period would be dedicated to polish things, fix bugs, taking feedback from community and implementing suggestions.
- Finishing up everything, and deploying the documentation to website.
- His classes for the next semester would begin on July 23rd. This could decrease the contribution during the remaining period.
- This would officially conclude the work for FreeType in GSoC.

**This is how I conclude my report on GSoC Project of Redevelopment of FreeType's Documentation using Markdown.**