

# WibTeX Reference Management System

CS486C – Design Review



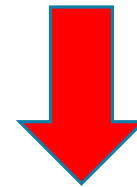
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Sponsor/Mentor: Dr. James Palmer

# Reference Management

- Referenced content must be cited
- The format for citing a source depends on the reference style
- We may often cite the same source
- Software to manage references is useful

*I loved Ophelia. Forty thousand brothers  
Could not with all their quantity of love  
Make up my sum. What wilt thou do for her?*



## References

[1] Shakespeare, William, and Cyrus Hoy. *Hamlet*. New York: W.W. Norton, 1996. Print.

# LaTeX – Document Preparation

```
\documentclass[12pt]{article}
% options include 12pt or 11pt or 10pt
% classes include article, report, book, letter, thesis

\title{This is the title}
\author{Author One \ \ Author Two}
\date{29 February 2004}

\begin{document}
\maketitle

This is the content of this document.

This is the 2nd paragraph.
Here is an inline formula:
$ V = \frac{4 \pi r^3}{3} $.
And appearing immediately below
is a displayed formula:
$$ V = \frac{4 \pi r^3}{3} $$
\end{document}
```



This is the title

Author One

Author Two

29 February 2004

This is the content of this document.

This is the 2nd paragraph. Here is an inline formula:  $V = \frac{4\pi r^3}{3}$ . And appearing immediately below is a displayed formula:

$$V = \frac{4\pi r^3}{3}$$

# BibTeX – Reference Management

```
@ARTICLE{Codishetal2000,  
AUTHOR="M. Codish and K. Marriott and C.K. Taboch",  
TITLE="Improving program analyses by structure untupling",  
JOURNAL="Journal of Logic Programming",  
VOLUME= ""43",  
ISSUE = "3",  
PAGES= "251--263",  
YEAR=2000  
}
```



```
\documentclass{article}  
\begin{document}  
\bibliographystyle{plain}%Choose a bibliographic style  
%  
Note. This is the Postscript version with plain  
bibliographic style.  
Most of the academic staff in the  
School of Computer Science and Software  
Engineering have publications in their field of e  
xpertise or research.  
The majority of the publications appear in journals or proceedings  
Articles appearing in journals may be written by  
a single author. \cite{Codishetal2000}  
%  
\bibliography{Master}  
\end{document}
```

## References

- [1] CODISH, M., MARRIOTT, K., AND TABOCH, C. Improving program analyses by structure untupling. *Journal of Logic Programming* 43 (2000), 251–263.
- [2] CONWAY, D. *Object Oriented Perl: A comprehensive guide to concepts and programming techniques*. Manning Publications Co., Connecticut, USA, 2000.
- [3] HU, J., WU, H., JENNINGS, A., AND WANG, X. Fast and robust equalization: A case study. In *Proceedings of the World Multiconference on Systemics, Cybernetics and Informatics, (SCI 2000)*, Florida, USA, 23-26 July 2000 (FL, USA, 2000), International Institute of Informatics and Systemics, pp. 398–403.

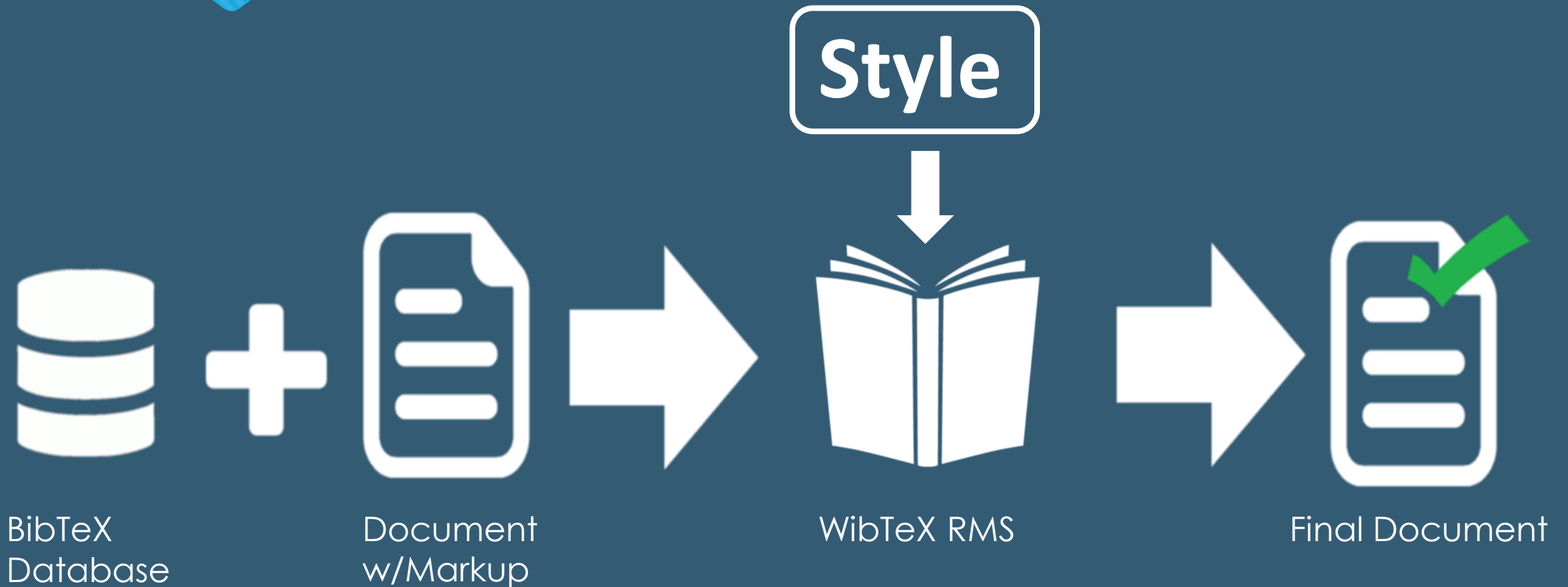
# The Problem

- Publishing for Computer Science conferences often requires the use of LaTeX and BibTeX
- Publishing for conferences outside Computer Science often requires Microsoft Word
- Bibliographic data created in BibTeX does not easily transfer to Word

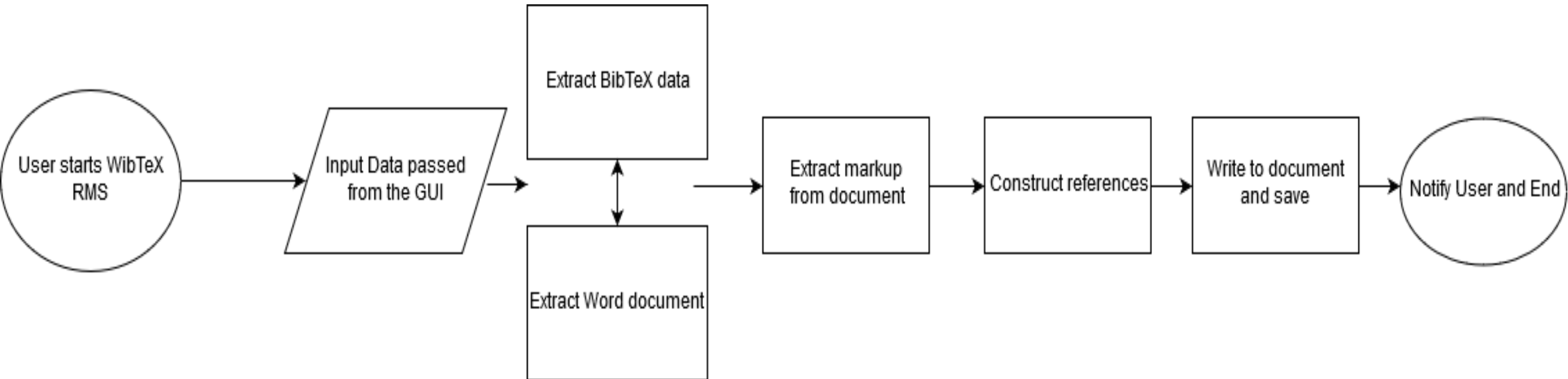
# Our Solution – WibTeX Reference Management System

- User can construct formatted reference data from their BibTeX database within a Word document
- User retains their working environment
- User is not tasked with converting bibliographic data

# The Process



# Flow of Execution





Lorem ipsum dolor sit amet, cu justo facilisi eam, impetus signiferumque est ne `\cite{duso_2012}`. Mei euismod oporteat efficiendi cu, discere corrumpit eu vix. Mei ea quot pericula vituperatoribus. Ferri luptatum est et, sed an phaedrum dissentias `\cite{jarid_2017}` Et ullum eruditi maluisset usu, sit ei saperet minimum invidunt.

Ex his detraxit patrioque, error dolores eos an. Elit errem verear qui id, rebum idque his et. Mea ex tota nemore delicata. Sed ne tation nemore. Ea usu cetero scripta aliquando. Minim aperiam ex eam, inimicus laboramus sea no, suas audire accumsan vix ea. Suas aperiam ius no `\cite{cage1987}`.

`\bibliography{bib}`



Lorem ipsum dolor sit amet, cu justo facilisi eam, impetus signiferumque est ne [1]. Mei euismod oporteat efficiendi cu, discere corrumpit eu vix. Mei ea quot pericula vituperatoribus. Ferri luptatum est et, sed an phaedrum dissentias [2]. Et ullum eruditi maluisset usu, sit ei saperet minimum invidunt.

Ex his detraxit patrioque, error dolores eos an. Elit errem verear qui id, rebum idque his et. Mea ex tota nemore delicata. Sed ne tation nemore. Ea usu cetero scripta aliquando. Minim aperiam ex eam, inimicus laboramus sea no, suas audire accumsan vix ea. Suas aperiam ius no [3].

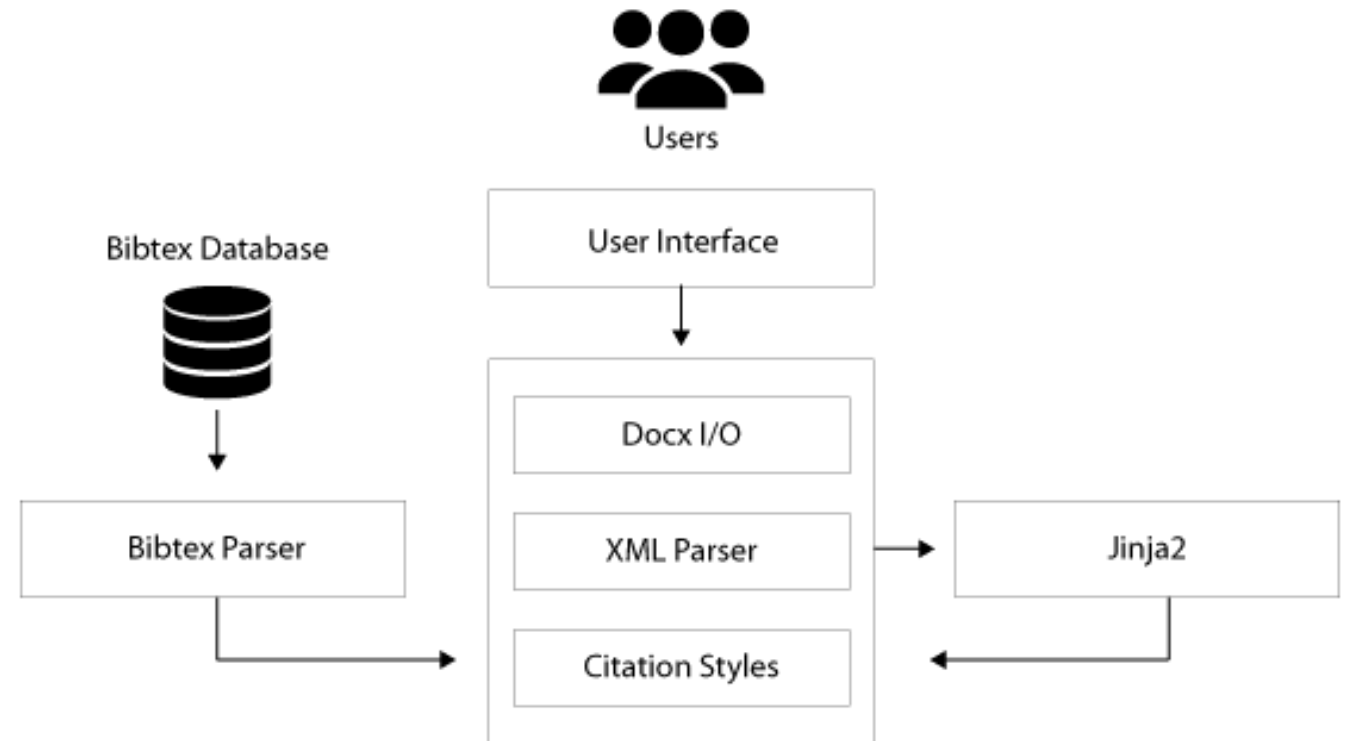
## References

- [1] LaTeX – A document preparation system. (2017). Retrieved March 5, 2017 from <https://www.latex-project.org/>
- [2] Alexander Feder. 2006. BibTeX. (2006). Retrieved March 5, 2017 from <http://www.bibtex.org/>
- [3] Word. (2017). Retrieved March 6, 2017 from <https://products.office.com/en-us/word>

# WibTeX RMS – Requirements

- Process valid BibTeX markup
- Support multiple styles (ACM, CCSC, IEEE, APA)
- Support user-created styles
- Support valid BibTeX databases
- Convert LaTeX symbols to Unicode
- Input data via GUI or command line

# WibTeX RMS Architecture



# Architecture - Jinja2



```
index = '[1]'  
name = 'Fischer, K.'  
...
```



```
{{index}}{{name}} {{title}} {{publisher}} {{volume}} {{issue}} {{pages}}{{year}}.
```



```
[1]Fischer, K. Design Standards. IEEE intelligent systems, 14(2). 8-19. 2016.
```

# Architecture - Citation Styles

- Style files contain the metadata needed to generate references
- Citation Styles module uses metadata and reference information to create formatted reference data

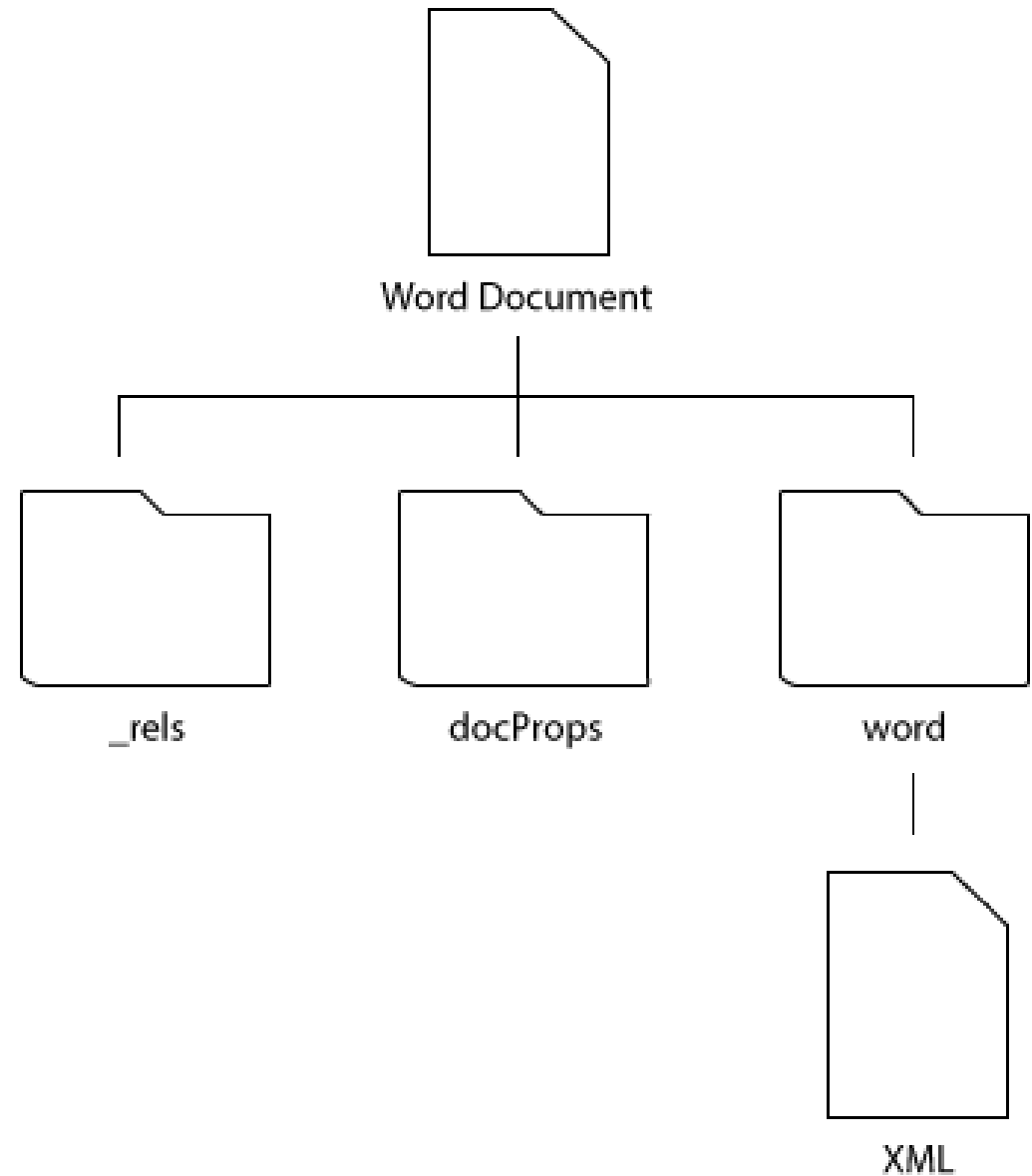
# Architecture - BibtexParser

```
@article{small,  
author = {Orti, E. and Bredas, J.L. and Clarisse, C.},  
title = {A small paper},  
journal = {The journal of small papers},  
year = 1997,  
volume = {-1},  
note = {to appear},  
}
```

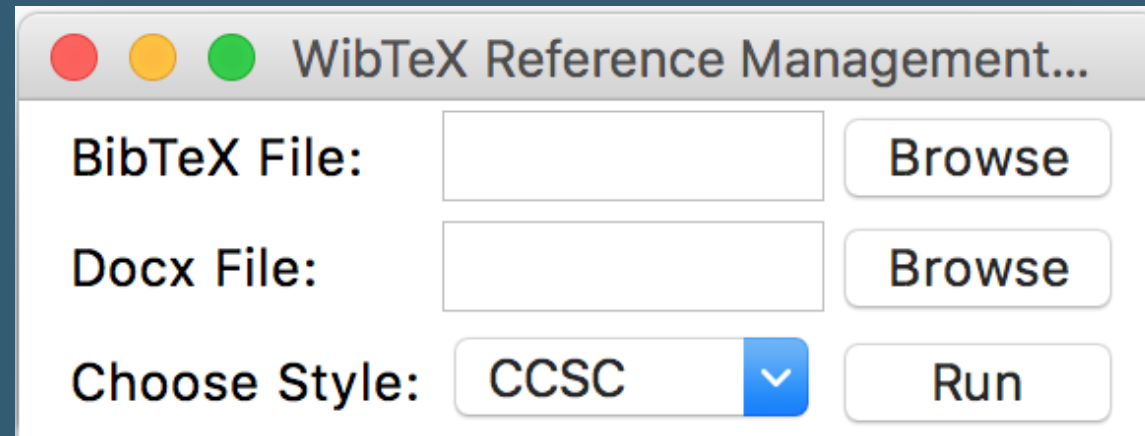


```
{'small': {'ENTRYTYPE': 'article',  
          'ID': 'small',  
          'author': ['Orti, E.', 'Bredas, J.L.', 'Clarisse, C.'],  
          'journal': {'ID': 'Thejournalofsmallpapers',  
                     'name': 'The journal of small papers'},  
          'note': 'to appear',  
          'title': 'A small paper',  
          'volume': '-1',  
          'year': '1997'}}
```

# Architecture – Document Manipulation



# Architecture - Graphical User Interface





# Current Progress – Functional Prototype

- Supports CCSC reference style
- Supports valid BibTeX databases
- Converts subset of LaTeX symbols
- Accepts Microsoft Word documents
- User cannot dictate style/format

# Implementation Challenges

1

Ensuring reliable document formatting

2

Ensuring style file convention supports most reference styles

3

Handling multiple reference sections for a single document



Least Difficult

# Testing

- Unit Tests (pytest)
  - Extracting and validating BibTeX databases (COMPLETE)
    - Equivalence class tests for all BibTeX entry types and fields
    - 100% Success on all unit tests
  - Extracting BibTeX markup from Word documents (COMPLETE)
- Integration Tests
  - Constructing proper XML markup for format of reference pages (IN PROGRESS)
- Other Tests
  - Validation of visual output of a Word document (IN PROGRESS)



# Conclusion

- Problem
  - Cannot use BibTeX data within a Microsoft Word document
- Solution
  - WibTeX RMS allows the user to reference their BibTeX database within Microsoft Word
- Current focus
  - Testing and optimization
  - Presentation practice
  - Poster Design