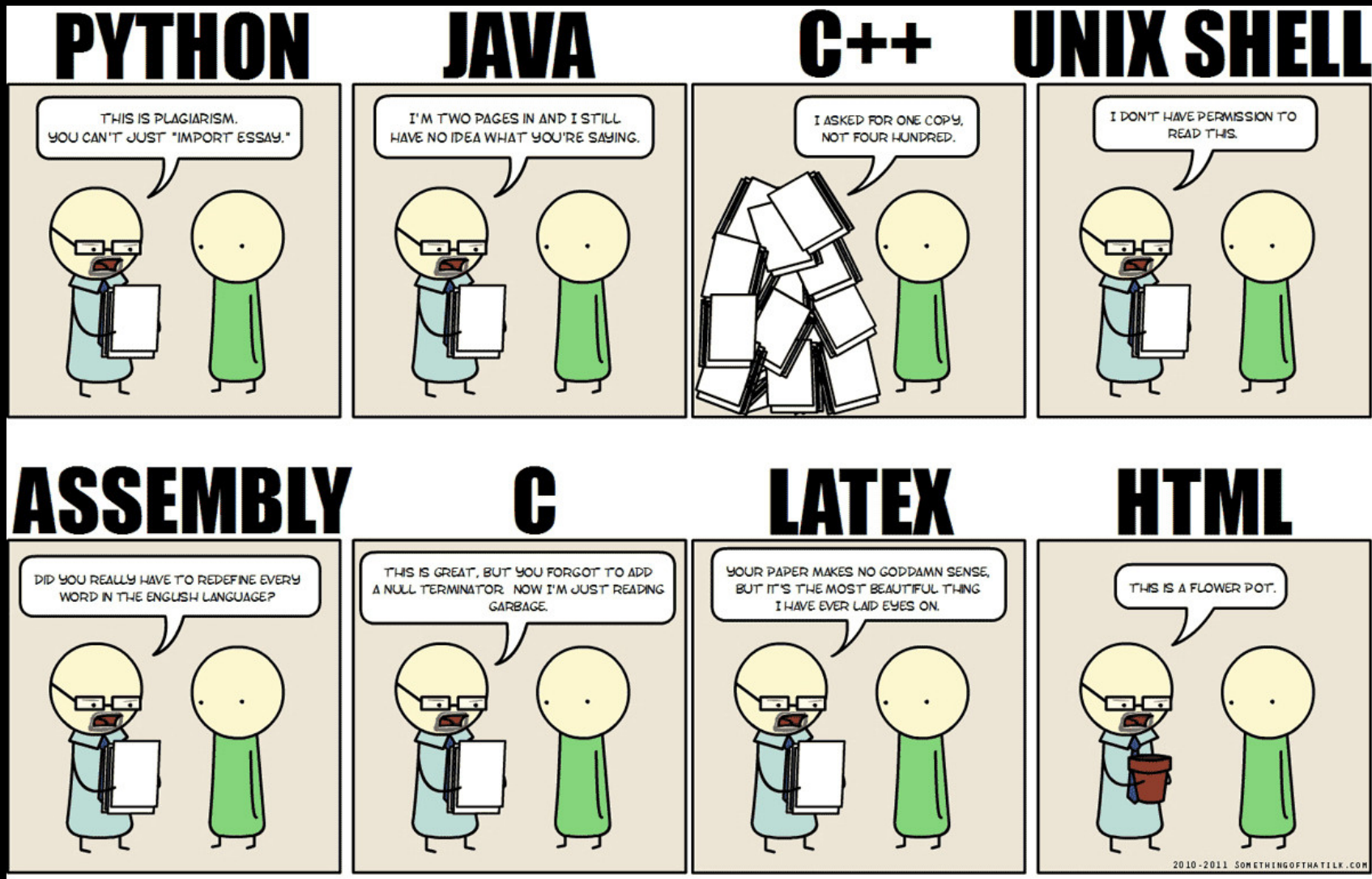


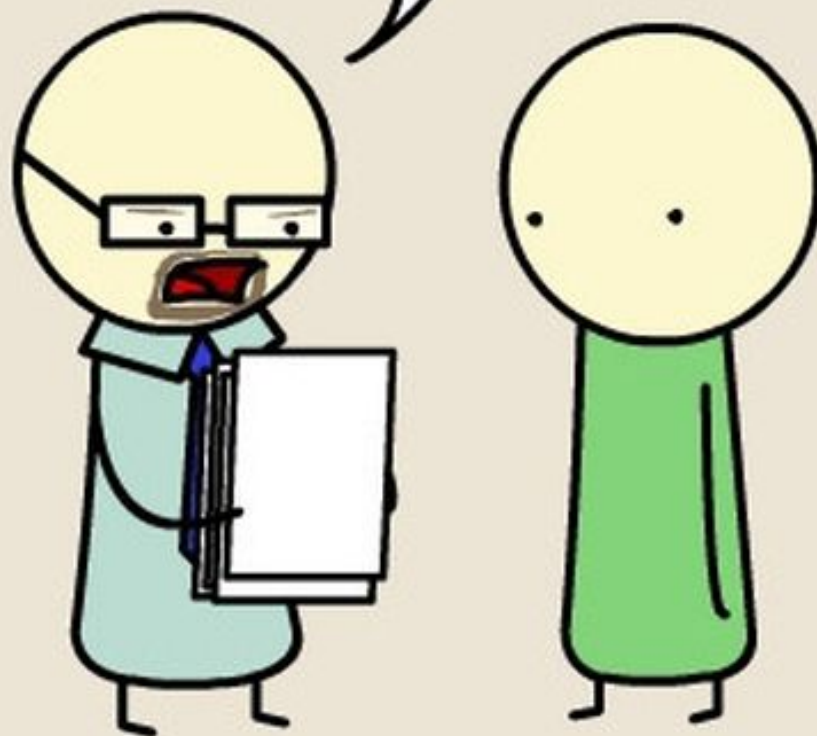
# When You Write Your Essays in Programming Languages



<http://www.somethingofthatilk.com/index.php?id=135>

# LATEX

YOUR PAPER MAKES NO GODDAMN SENSE,  
BUT IT'S THE MOST BEAUTIFUL THING  
I HAVE EVER LAID EYES ON.



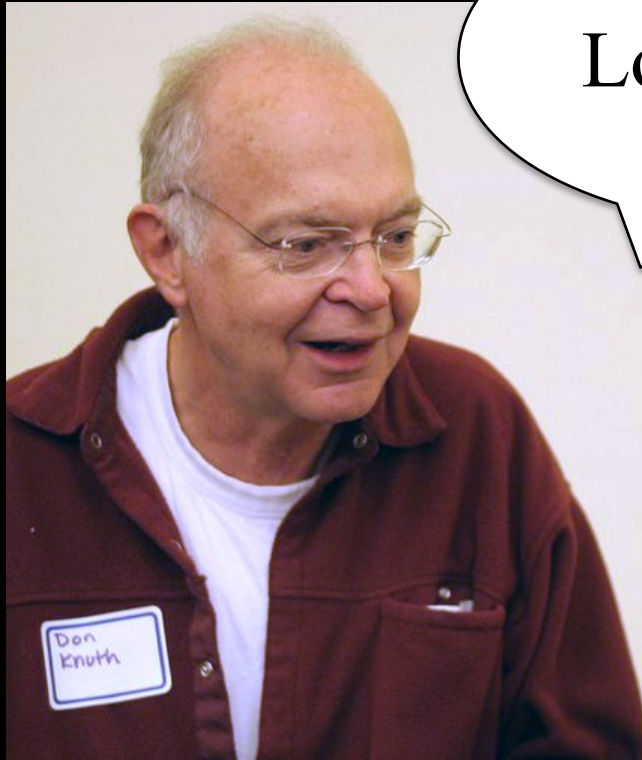
CS 252:

*Advanced Programming Language Principles*



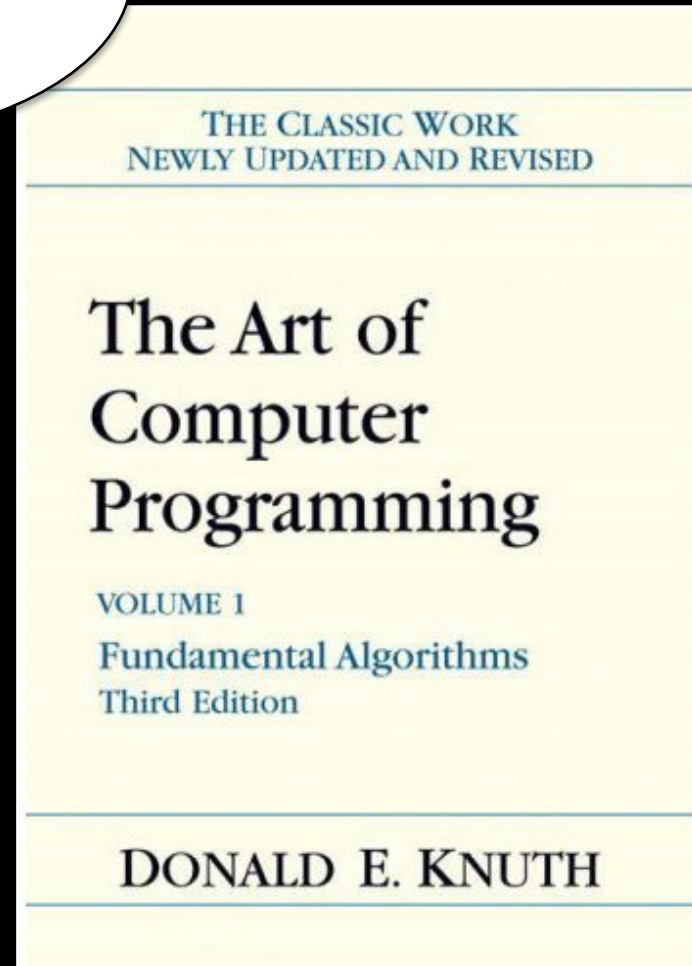
Prof. Tom Austin

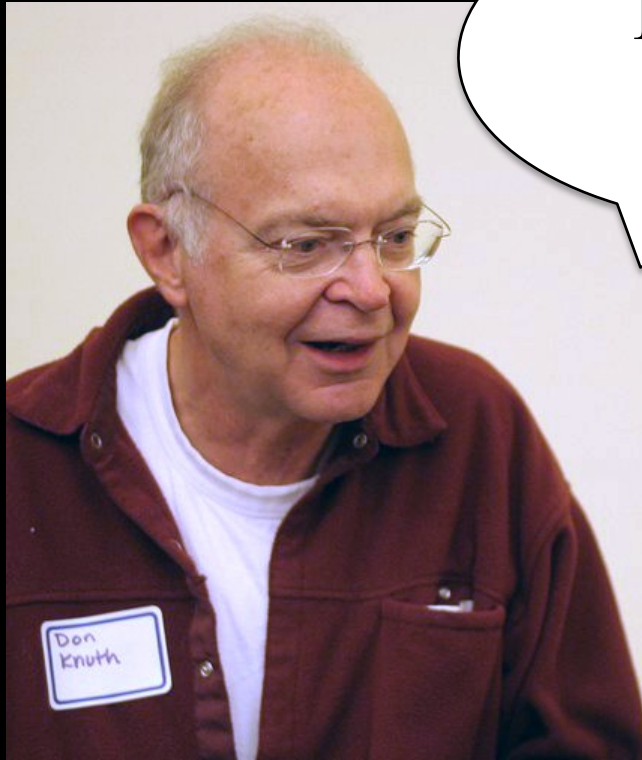
San José State University



Donald Knuth

Looks nice!





Donald Knuth

Ick! Bad  
fonts.

The Art of  
Computer  
Programming  
1977 edition

In 1977, Knuth published a 2<sup>nd</sup> version.

Knuth did not like the fonts...

...but he did not think it was important.

**HAH!** That was a joke.

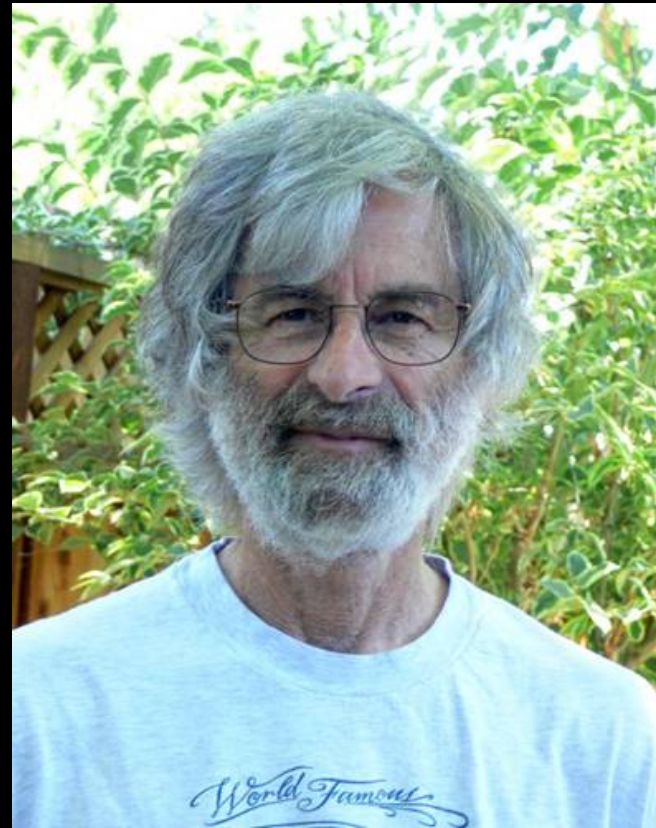
To solve his problem,  
Knuth created a new  
prog. language: **TeX**

## The birth of TeX

- Precisely controls the interface of content.
- *literate programming*
  - logic is in natural language
  - code is interspersed

# LaTeX

In 1985, Leslie  
Lamport released  
**Lamport TeX**



Leslie Lamport

## Interesting aspects

- *Domain specific language (DSL)*
- Separation of concerns
  - Formatting kept separately from content (mostly)
- *Literate programming*

```
\documentclass{article}
```

```
\title{Hello World}
```



**Specifies  
document type**

```
\begin{document}
```

```
\maketitle
```

```
\end{document}
```

```
\documentclass{article}
```

```
\title{Hello World}
```

```
\begin{document}
```

```
\maketitle
```

```
\end{document}
```



**Generates a title  
from information.**

## Sections & Labels

```
\section{Section One}
```

```
\label{sec:one}
```

```
\subsection{A subsection}
```

```
... (sometime later)
```

```
Back in Section~\ref{sec:one} ...
```

# References are tedious to

- reformat
- renumber

# BibTeX

- Reference details in `.bib` file
- In `.tex` file
  - `\cite` command adds references
  - Place bibliography with

```
\bibliographystyle{plainurl}
\bibliography{biblio}
```



`biblio.bib`  
has references

# BibTeX

- Reference details in `.bib` file
- In `.tex` file
  - `\cite` command adds references

– Place bibliography with

```
\bibliographystyle{plainurl}  
\bibliography{biblio}
```

plainurl  
specifies  
format

# BibTeX Example

```
@article{literate,  
  author    = {Donald E. Knuth},  
  title     = {Literate Programming},  
  journal   = {Comput. J.},  
  year      = {1984},  
  volume    = {27},  
  number    = {2},  
  pages     = {97--111},  
}
```

# Extended Example

(in class)

# Some references

- LaTeX symbols table  
[https://oeis.org/wiki/List\\_of\\_LaTeX\\_mathematical\\_symbols](https://oeis.org/wiki/List_of_LaTeX_mathematical_symbols)
- Overleaf – Collaborative LaTeX tool  
<https://www.overleaf.com?r=21c5fbc5&rm=d&rs>
- SJSU thesis LaTeX template  
<https://github.com/taustin/SJSU-thesis-LaTeX>

# LaTeX lab

Write a short essay in LaTeX. The organization must be:

- **Abstract**
- **Section 1: Personal History**  
(make up something interesting if your life has been boring)
- **Section 2: Academic/Career Goals**  
(include at least one itemized/enumerated list)
- **Section 3: Research Topics of Interest**  
(include 2 citations of papers, *USING BIBTEX*)

Include at least one label and one ref in your document.