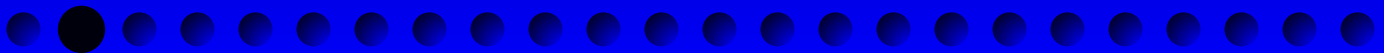
TANSU

A Workflow for Cabinet Layout

Pavneet Arora

PART I

What?

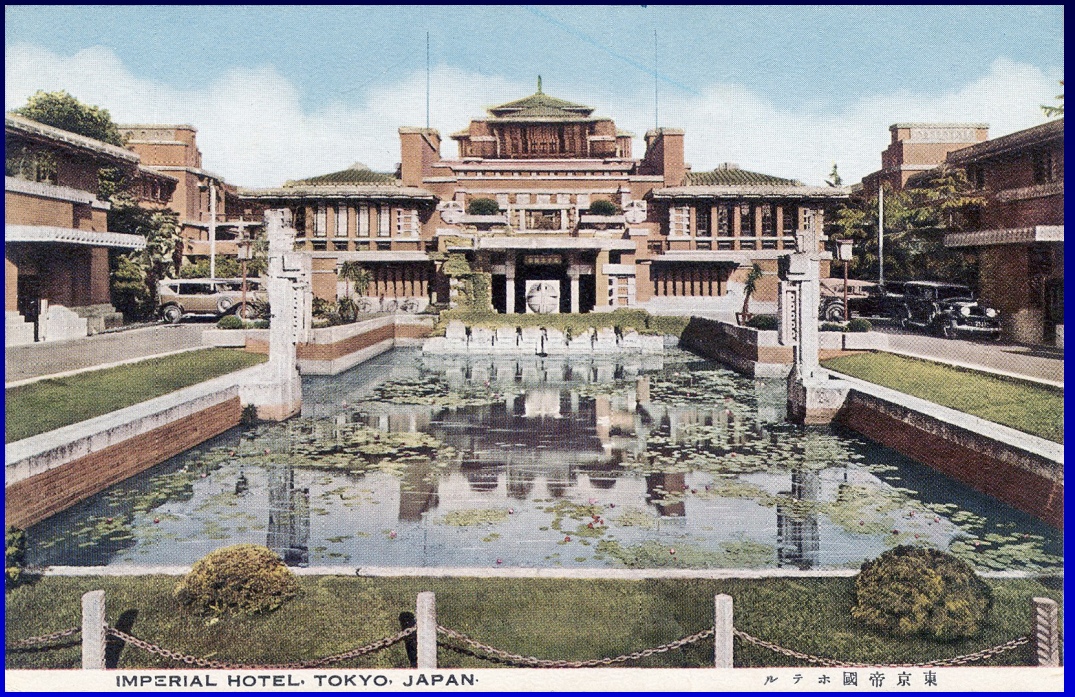


Tansu

Tansu is the Japanese word for storage unit.

What problem does it try to solve?

The need to quickly explore different cabinet layouts and costing options.



Frank Lloyd Wright designed version of the Imperial Hotel, Tokyo.

TANSU

TEX and

Aymptote driven

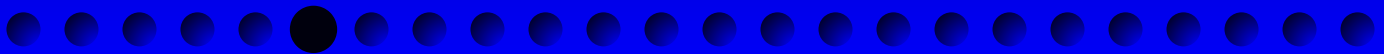
Nomenclature for

Storage

Unit layout.

PART II

Where?



From TUG 2012 presentation:

YAWN—Sleep De(p)rived Typesetting

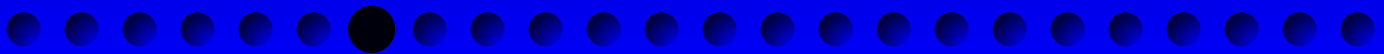
YAML

Algebra

Words

Numbers

A LaTeX enabled workflow that decoupled the data, its processing, and subsequent typsetting by using YAML to store specification and catalogue data and Ruby to do the processing.

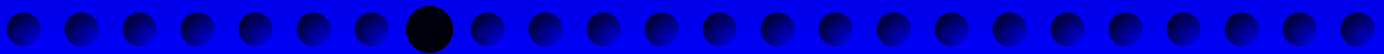


From TUG 2012 presentation:

A perfectly good framework already exists:

MODEL–VIEW–CONTROLLER

MODEL	YAML representations of the specification and price catalogue
VIEW	LaTeX enabled shell script
CONTROLLER	Ruby program that contains the business logic



A historical interlude...

Niklaus Wirth:

Algorithms + Data Structures = Programs

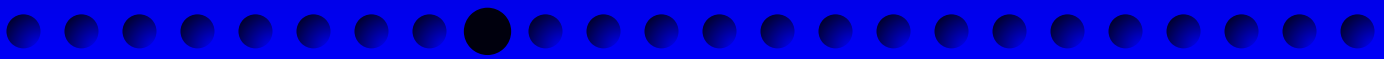
As told to K.V. Nori, his student:

RoW Pronounced *Veert*, i.e., call-by-name

NA Pronounced *Worth*, i.e., call-by-value

Algorithms + Data Structures = Documents

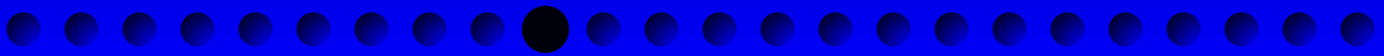
Wirth's Law: *"Software is getting slower more rapidly than hardware becomes faster."*



From TUG 2012 presentation:

Summary

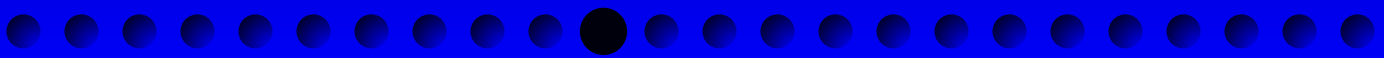
- It can be helpful to think of TEX as the “View” in an MVC framework.
- YAML (and other markup forms) affords an easy to edit, human-readable specification file format that interfaces well with Ruby.
- YAML also allows one to simulate pivot table aggregation.



TANSU is an implementation of YAWN

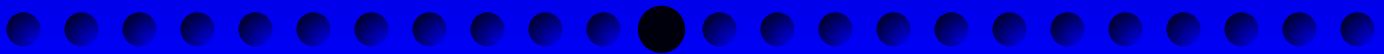
So YAWN introduced a framework or “design pattern” which is part of the effort to expand the notion of what constitutes a document and how to process such documents. Its use was demonstrated in the configuration of lighting control systems.

TANSU is another implementation of the same pattern; this time used to assist in cabinet layout design.



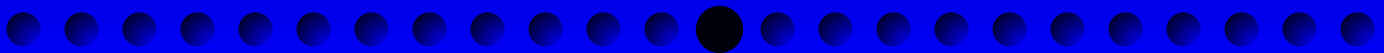
PART III

Demonstration I



PART IV

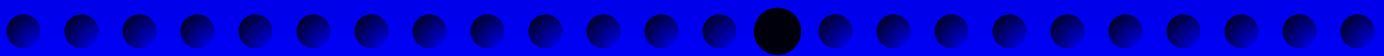
Why?



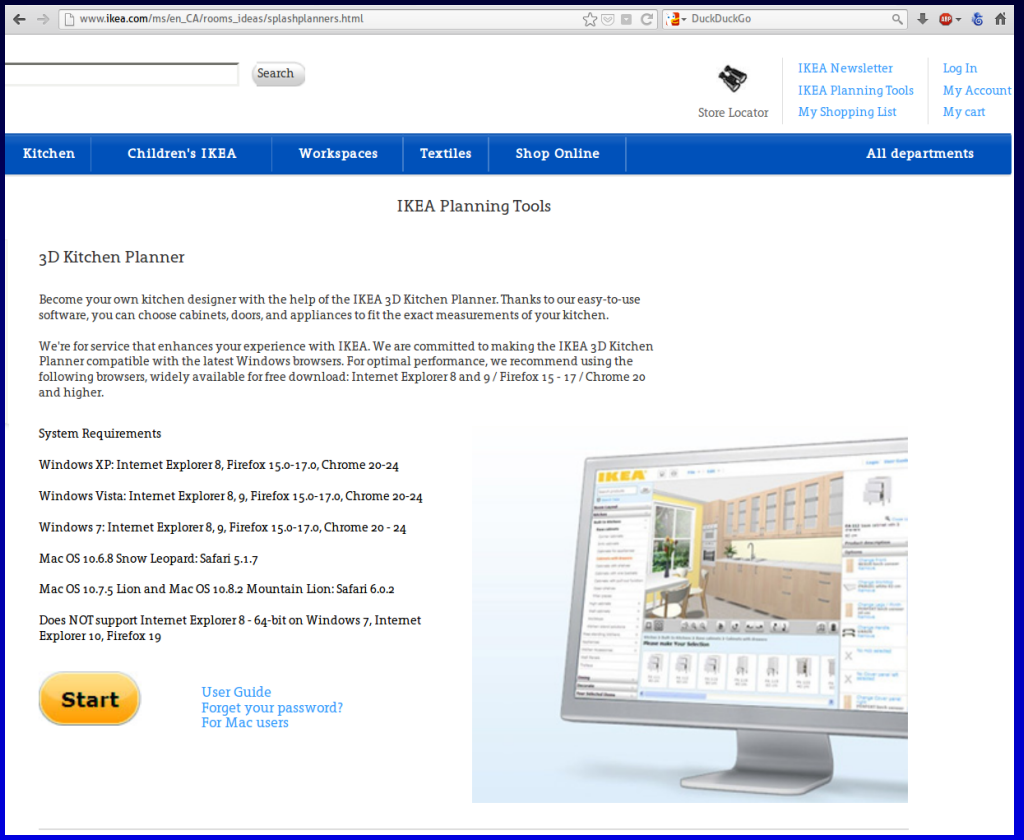
Requirements:

- Need to explore different layout options and their impact to space and cost constraints.
- Need to be able to explore different series of products from the same manufacturer.
- Need to be able to explore products from different manufacturers for the same configuration.

What we need is rapid estimating akin to rapid prototyping.



Why not use one of the online tools?

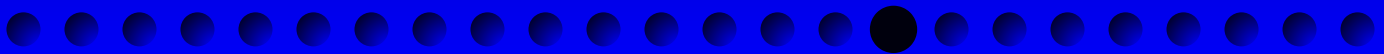


Why use YAML and not XML?

Two contrasting design patterns:

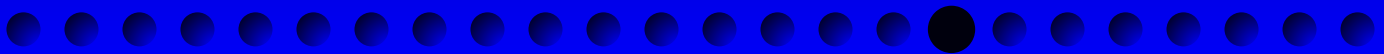
Singleton: HH, et al.

Simpleton: PA



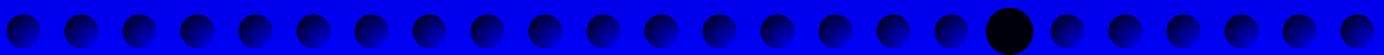
PART V

How?



Cabinet layout specification:

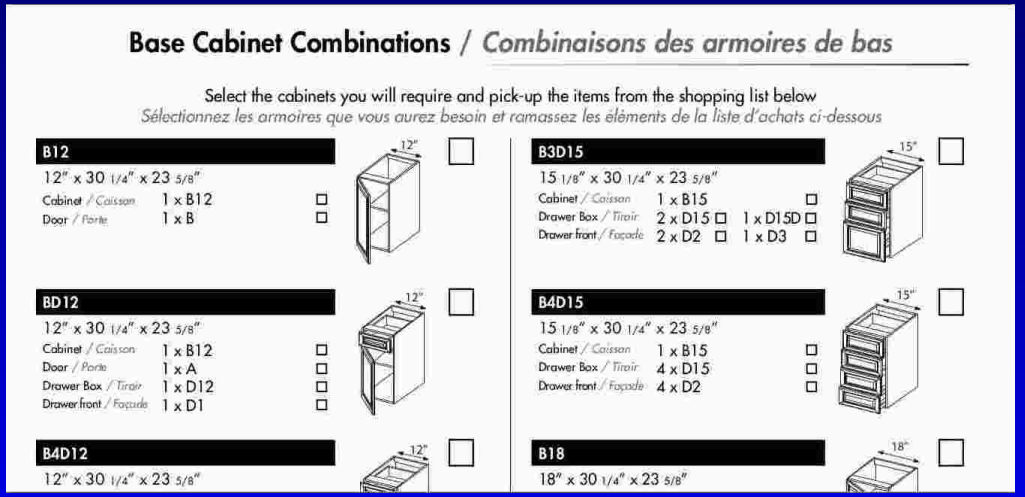
```
:projectID: 1923IMPHOT
:projectAddress:
    Imperial Hotel Apartments
    Frank Lloyd Wright Edition (1923)
    Tokyo, Japan
:clientName: Okura Kihachiro
:cabinetSpec:
    :manufacturer: Fabritec
    :series: EuroStyle
    :walls:
        -
            :wall:
                :name: East
                :baseCabinets:
                    - B24
                    - B2D24
                    - BSD30
                    - HD1584-R
                :wallCabinets:
                    - W1230
                    - W2430
                    - W1230-R
                    - W3015HZ
                    - HD1584-R
```



Cabinet catalogues often have common pieces:

They may have different part numbers, but many cabinet configurations from various manufacturers share common standard dimensions.

Even if they have a particular special configuration, TANSU can still handle these “exceptions” through the catalogue data representation.



Base Cabinet Combinations / *Combinaisons des armoires de bas*

Select the cabinets you will require and pick-up the items from the shopping list below

Sélectionnez les armoires que vous aurez besoin et ramassez les éléments de la liste d'achats ci-dessous

B12

12″ x 30 1/4″ x 23 5/8″

Cabinet / *Caisson* 1 x B12 ☐

Door / *Porte* 1 x B ☐

12″

B3D15

15 1/8″ x 30 1/4″ x 23 5/8″

Cabinet / *Caisson* 1 x B15 ☐

Drawer Box / *Tiroir* 2 x D15 ☐ 1 x D15D ☐

Drawer front / *Façade* 2 x D2 ☐ 1 x D3 ☐

15″

BD12

12″ x 30 1/4″ x 23 5/8″

Cabinet / *Caisson* 1 x B12 ☐

Door / *Porte* 1 x A ☐

Drawer Box / *Tiroir* 1 x D12 ☐

Drawer front / *Façade* 1 x D1 ☐

12″

B4D15

15 1/8″ x 30 1/4″ x 23 5/8″

Cabinet / *Caisson* 1 x B15 ☐

Drawer Box / *Tiroir* 4 x D15 ☐

Drawer front / *Façade* 4 x D2 ☐

15″

B4D12

12″ x 30 1/4″ x 23 5/8″

12″

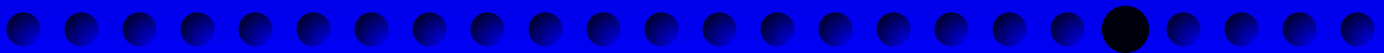
B18

18″ x 30 1/4″ x 23 5/8″

18″

Catalogue data file:

```
:name: Eurostyle
:manufacturer: Fabritec
:vendor: Home Depot
:models:
    :baseCabinets:
        :category: Base Cabinets
        :subcategories:
            :cabinets:
                :subcategory: Cabinets
                :items:
                    -
                        :model: B12
                        :width: 12"
                        :height: 30 1/4"
                        :depth: 23 5/8"
                        :desc: 12"W base cabinet
                        :doors:
                            -
                                -
                                    :swing: :default
                                    :width: 12"
                                    :height: 30 1/4"
                        :price: 160.66
```

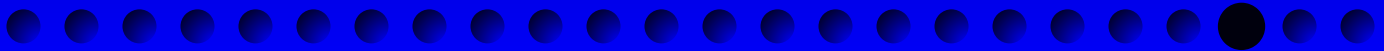


Parsing customary units of length

A stunning piece of regexp that parses fractional architectural units:

PART VI

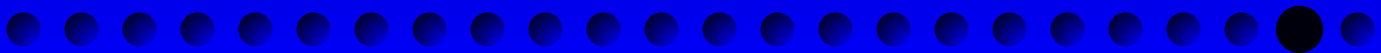
Demonstration II



Summary

- TANSU allows you to quickly and easily explore different cabinet lay-out and costing options.
- TANSU demonstrates that the YAWN worklow design pattern can be easily adapted to other problems.
- TANSU shows that we can/should expand the idea of our notion of what type of documents that the TEX toolset can handle.

Algorithms + Data Structures = Documents



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