Long form notes demo

Contents

1 Testing Boxes

I use blue boxes for examples.

Important boxes are green.

And proofs are in yellow.

Box colours and names can be altered in ilke_boxes.sty.

2 Outlines

This isn't anything custom, just a package from the internet

- ▷ But it's a very useful, very manual, way of doing dot point lists
  - • sometimes itemize and enumerate get too bulky
    - ◇ level 3
      - – level 4 is the max
- \+ a pro is the easy custom bullet points too
- \- a con is you have to manually change levels if you change your mind about order

3 Algorithms

Sometimes it's nice to write algorithms out in pseudocode, and you want to have a nice list of all of them (**cough* data structures and algorithms *cough**).

Algorithm 1: Insertion Sort

Input: A sequence of n numbers $(a_1, a_2, \ldots, a_n)$
Output: A reordering $(b_1, b_2, \ldots, b_n)$ of the input sequence such that $b_1 \leq b_2 \leq \ldots \leq b_n$

```
1 for j = 2 to length(A) do                    // c1, n (condition is checked n times)
2     key = A[j]                               // c2, n − 1 (loop executed once less)
3     i = j − 1                                // c3, n − 1
4     while i > 0 and A[i] > key do            // c4, ∑_{j=2}^{n} (t_j + 1)
5         A[i = 1] = A[i]                      // c5, ∑_{j=2}^{n} (t_j)
6         i = i − 1                            // c6, ∑_{j=2}^{n} (t_j)
7     A[i + 1] = key                           // c7, n − 1
```

List of Algorithms

4 Code

5 Maths

See the maths equation

$$R_H = \frac{V_H \times t}{B \times I} = \frac{1}{q \times n} = \rho\mu$$

The *conditions* environment from ilke_maths can be used to create a nice table of definitions for terms in the equation, like below. *conditions** does the same thing, but wraps according to linewidth (takes marginally longer to compile if that matters)

I = current through the sensor
B = the flux density (T)
t = thickness of sensor (m)
q = electronic charge ($1.5 \times 10^{19} C$)
n = carrier density (m^{-3})
μ = carrier mobility ($cm^2 V^{-1} s^{-1}$)
ρ = resistivity (Ωm^{-1}) of the material

6 Margin Notes

This is a very useful setup if you are printing your notes (like when an exam is open book but limited to printed materials in the exam room).
Hyperlinks work great in files on computers, but not so much on paper.
Beware, that this package is a little finicky and may not graphically look as you might want straight away. Index entries might overlap text, page numbers might disappear, etc. But nothing should properly break, it just won't be formatted as nicely (which may be a dealbreaker tbh). Disclaimer

Subentries exist too, but only one level deep. Disclaimer – Subentry

Note that the index will always put itself on a new page. And seems to break headers, but only on the first page of the index.

It may be useful to add extra space to the margins, especially if your index is long and many are close together.
See, the index margin notes are overlapping. Wow what a very very very long index entry Oops

You can also set up the document as a twosides, with the index entries showing on the opposite margins sides (so they're always on the outside of the two page spread) (set twoside, openright in the documentclass options)

This is a good setting for margins: usepackage[a4paper, inner=2cm, outer=4cm, bottom=2cm, marginparwidth=3.5cm]geometry

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