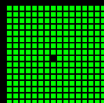


Creating libraries for Elm, lessons learned

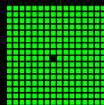
Elm Copenhagen October 2016 Meetup

@Bownty 2016-10-26



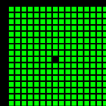
Overview – very few slides

- About me
- How to start ...
- ... and lessons learned
- Show me the code
- Q & A



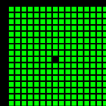
About me (very shortly)

- Ramón Soto Mathiesen
- MSc. Computer Science **DIKU** and minors in Mathematics **HCØ**
- **CompSci @ SPISE MISU ApS**
 - “***If I have seen further it is by standing on the shoulders of giants***”
 - **Isaac Newton** (Yeah Science, Bitch. Mostly Mathematics)
 - **Elm** with a bit of **Haskell** and a bit of **F#** (fast prototyping)
- Elm / Haskell / TypeScript / F# / OCaml / Lisp / C++ / C# / JavaScript
- Blog: <http://blog.stermon.com/>



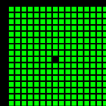
How to start ...

- Goal → Create a **pure** blockchain library in Elm
 - Pure = No Native JavaScript and no Port code are allowed
- In order to create a **pure** BC I would need all the underlying components to be **pure** as well:
 - **Merkle Tree**, no implementation available
 - **SHA256**, browser implementation is not accessible (`window.crypto` || `window.msCrypto`) due to purity



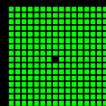
... and lessons learned (1/3)

- Use another library as template/base (use Evans)
 - This ensures README.md, examples, tests, changelogs, ...
- If you are porting code to **Elm**, try to find libraries with a lot of **stars** on **GitHub**
 - Most of these libraries are imperative. Once you have working code, **transform it to functional** and **BONUS:**
 - **SHA-2** allowed **SHA-1** to be implemented trivially ✓
- Hook **elm-format** up to file save. **Indispensable !!!**



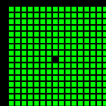
... and lessons learned (2/3)

- Not all of **JavaScript** is ported to **Elm**, so you might have to re-create some functionality on your own
 - A few examples: **escape/unescape**, **toString(16)**, ...
- Test thoroughly and make examples (good for **bug** finding and **refactoring**)
 - Use **Debug.log “Some Name” (... elm code ...)** to **console.log**
- Don't add images to main **README.md** (move to examples)



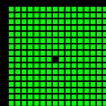
... and lessons learned (3/3)

- Ask for **feedback** and **constructive criticism** on **#slack**
- In ♥ with enforced semantic versioning for libraries (porting **bump** and **diff** to **.NET NuGet** packet manager as stand-alone tool)
- Library **must** be on **GitHub** (just create a **remote sync branch**)



Show me the code

- Elm packages (<http://package.elm-lang.org/>):
 - spisemisu/elm-utf8
 - spisemisu/elm-sha
 - spisemisu/elm-merkletree
 - ~~spisemisu/elm-blockchain~~ (coming soon)



Q & A

Any Questions?

