BY PETER ULLRICH

DESIGN PATTERNS IN PYTHON

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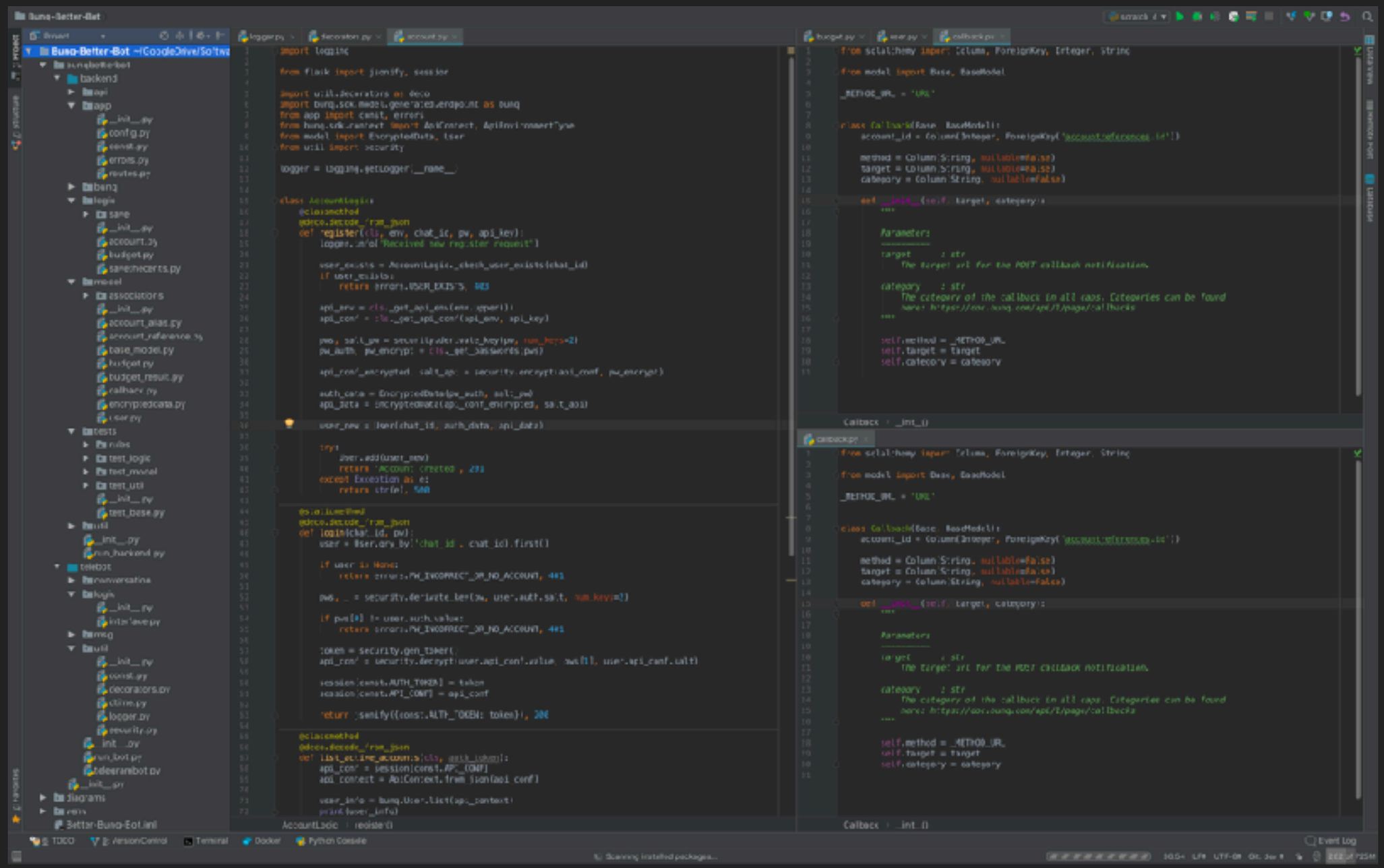
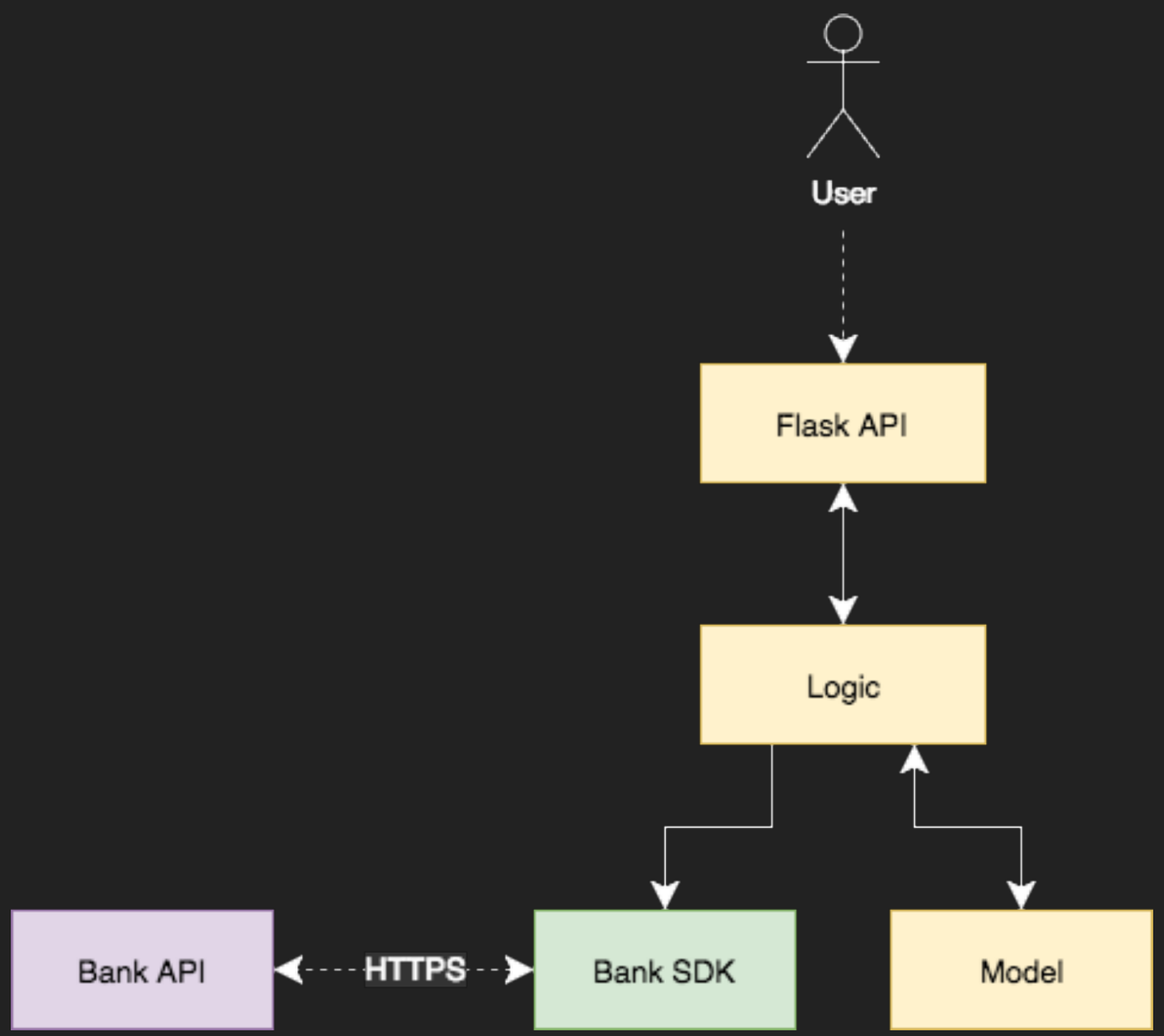
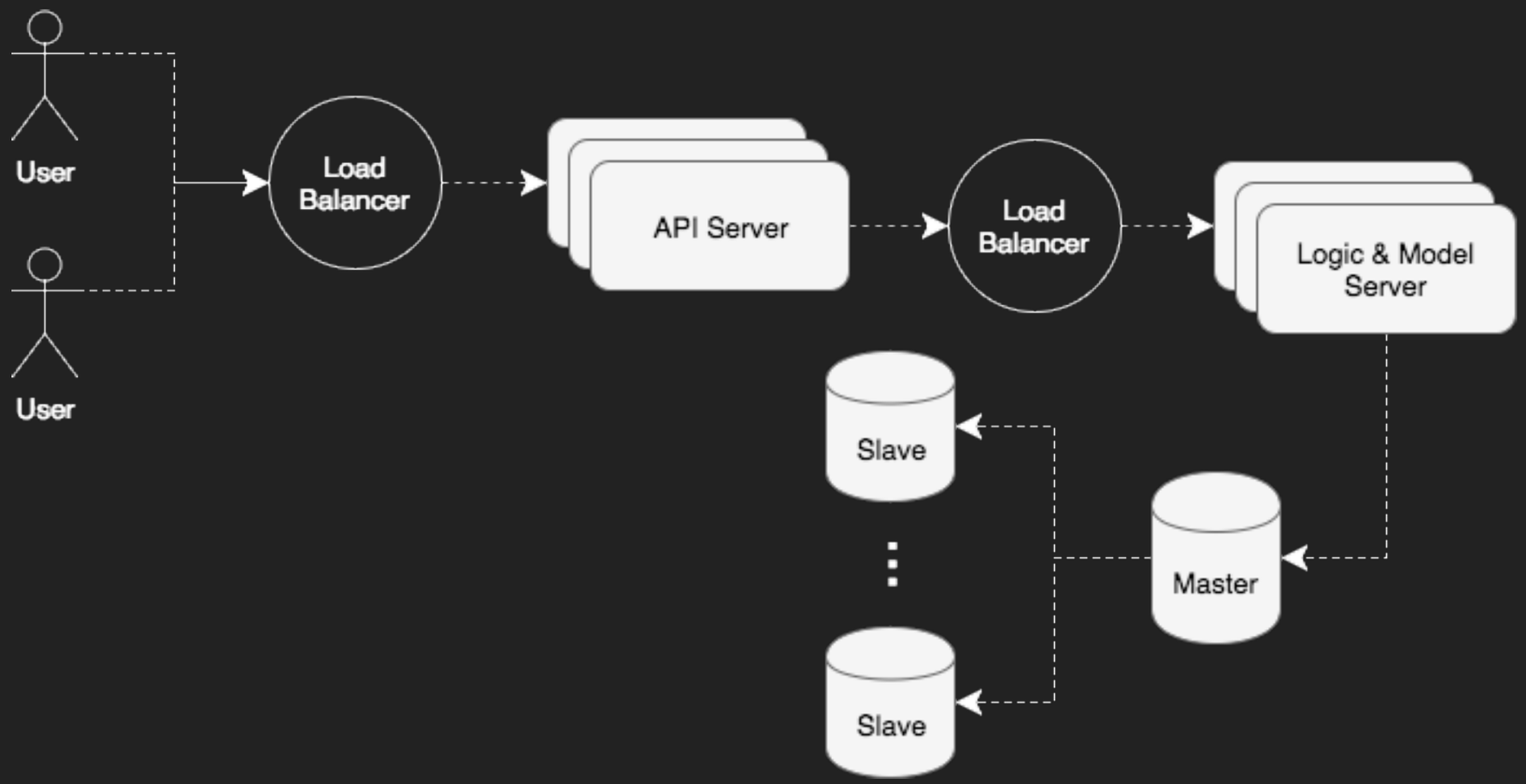
RAW CODE



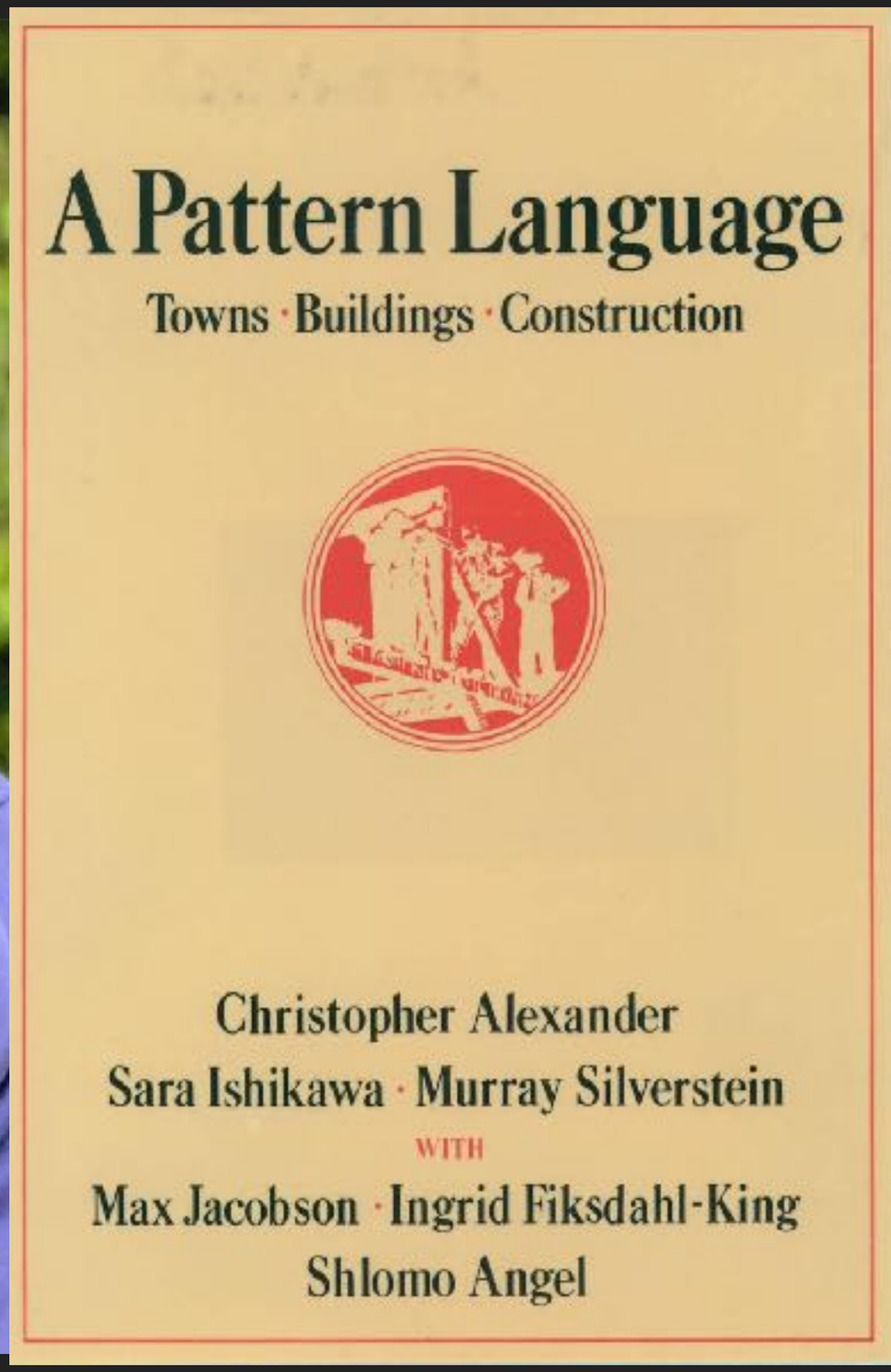
SOFTWARE DESIGN



SOFTWARE ARCHITECTURE

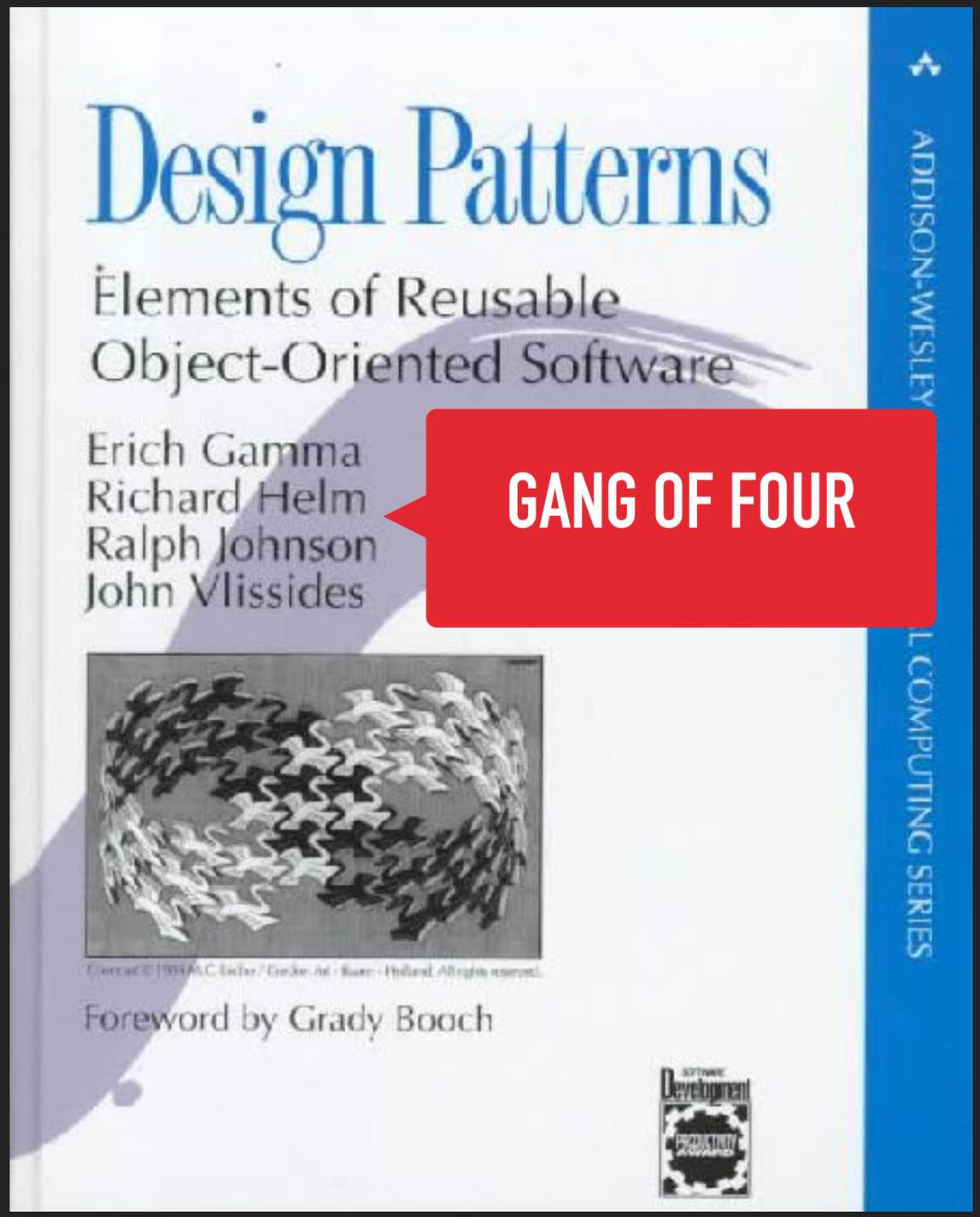


A SHORT HISTORY OF SOFTWARE DESIGN



Christopher Alexander (Real-world Architect) 253 - 1977

Image attribution: wikipedia.org



1994

Image attribution: wikipedia.org

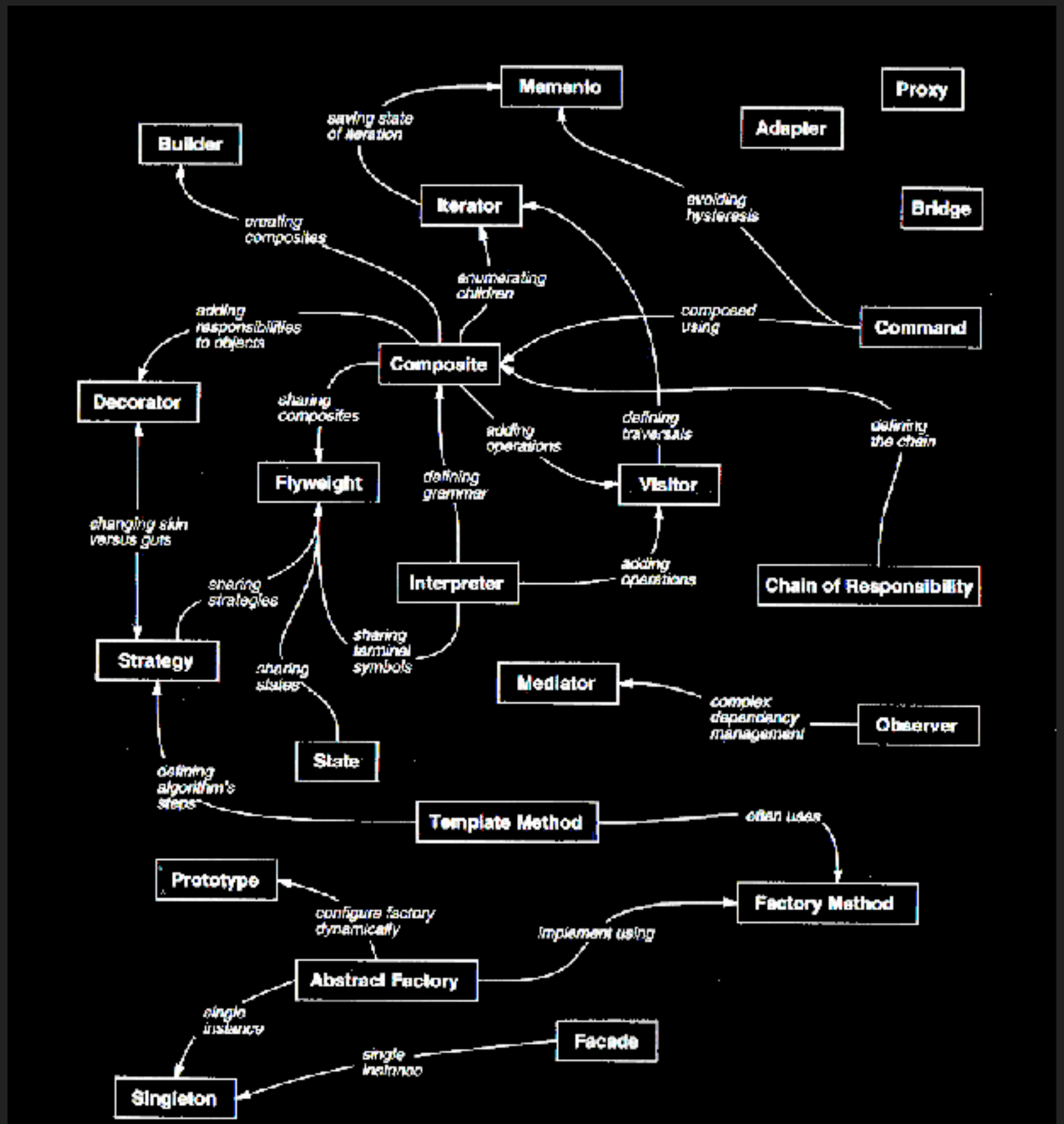


Figure 1.1: Design pattern relationships

Image attribution: wikipedia.org

WHAT IS A DESIGN PATTERN

PROXY PATTERN

- Problem
  - high-res images on website
  - Long loading time
  - Style images
- Solution
  - Replace with placeholders (proxies)
  - Style placeholders instead

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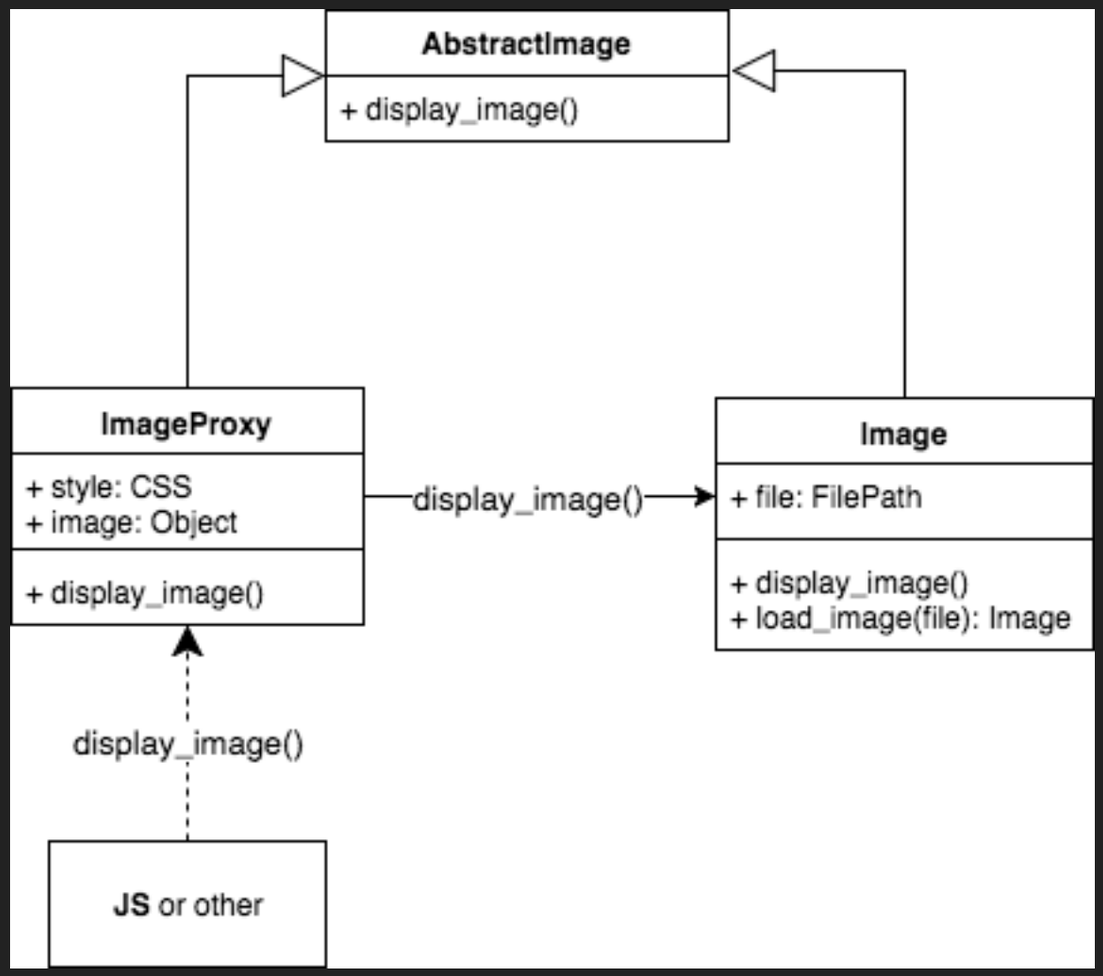
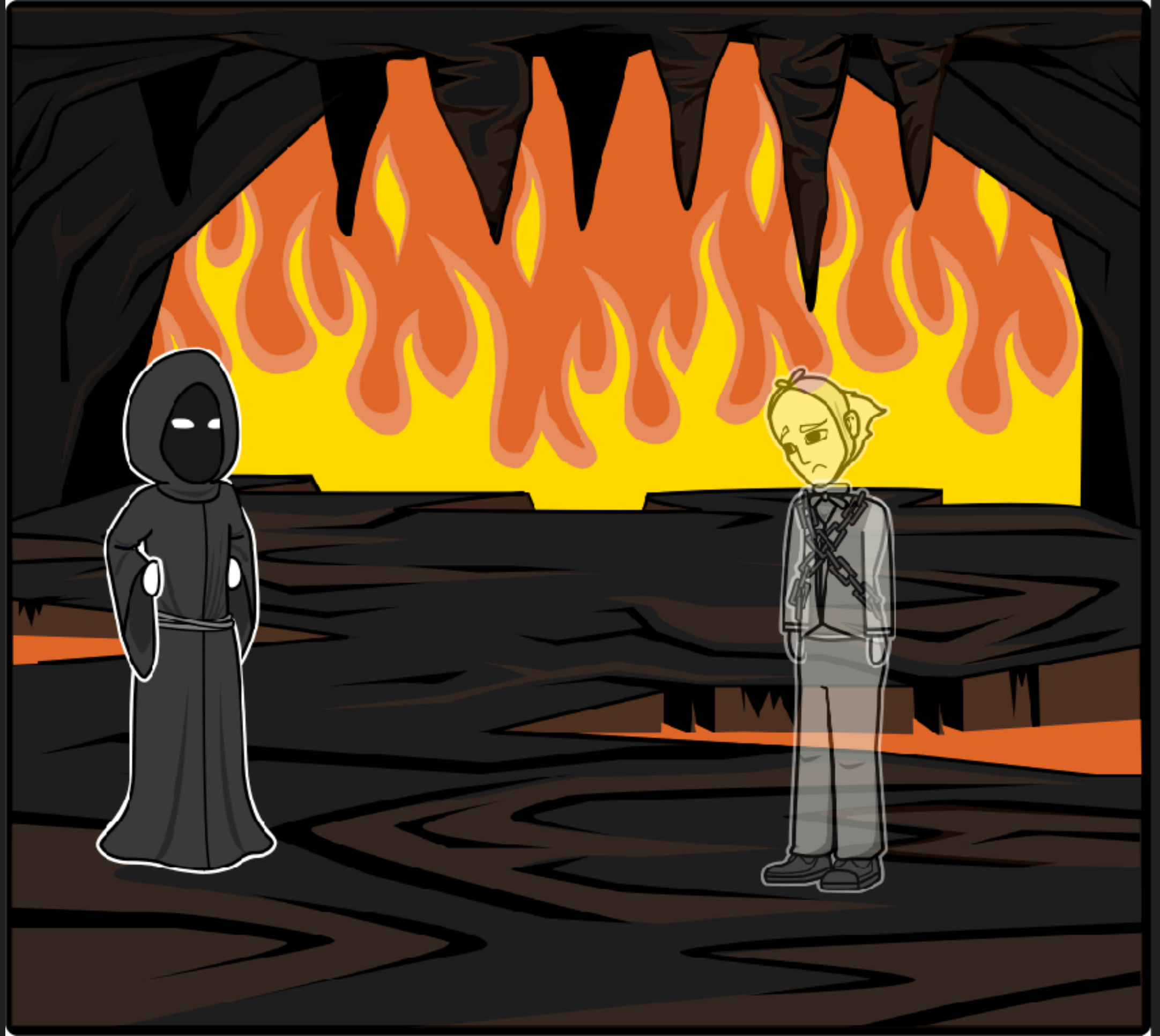


HOW TO USE DESIGN PATTERNS

A SHORT STORY



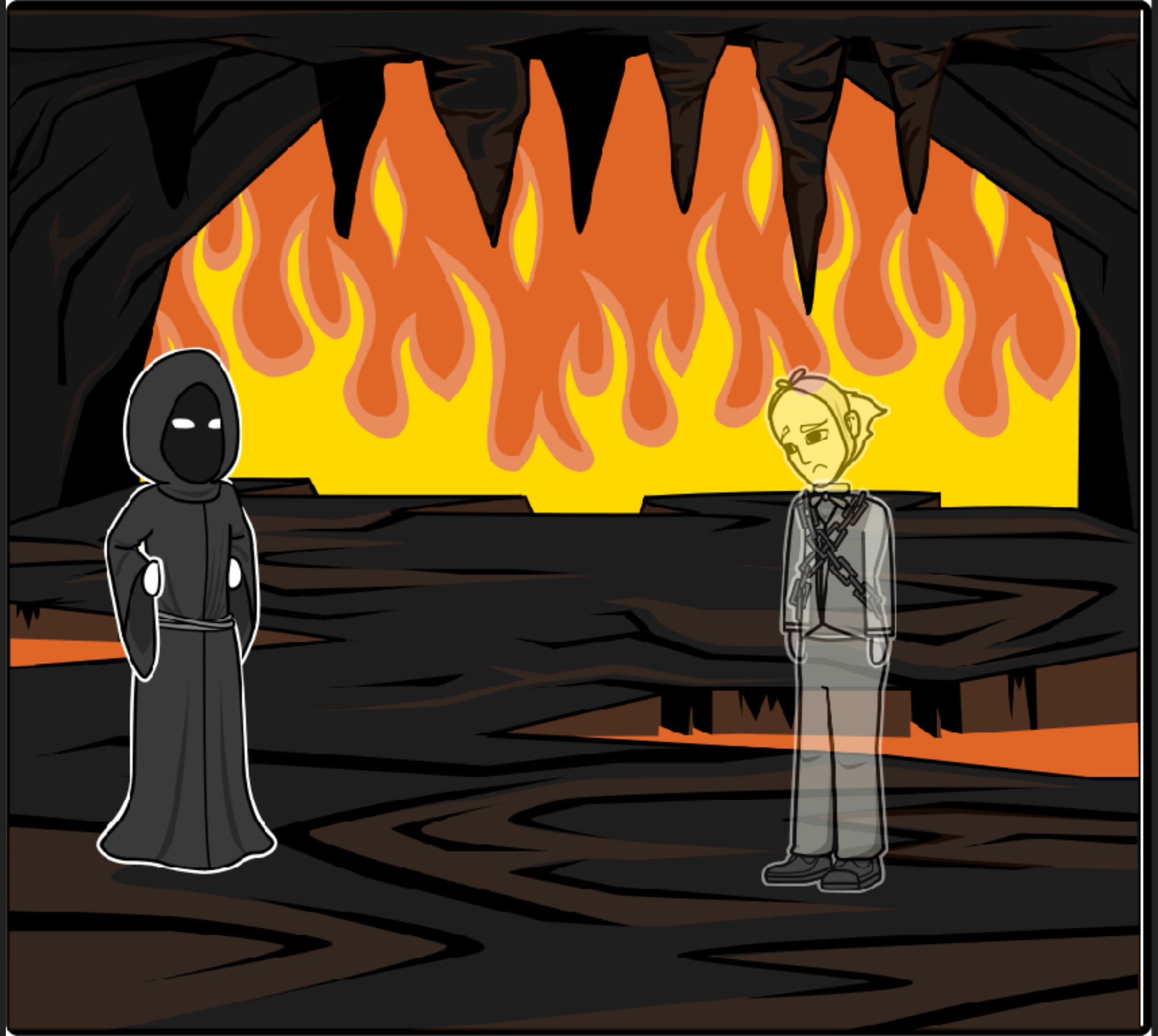

Create 3 updates which give me sudo-rights over iPhone user


As you wish, boss


iPhone User


Android User


We also want that update!



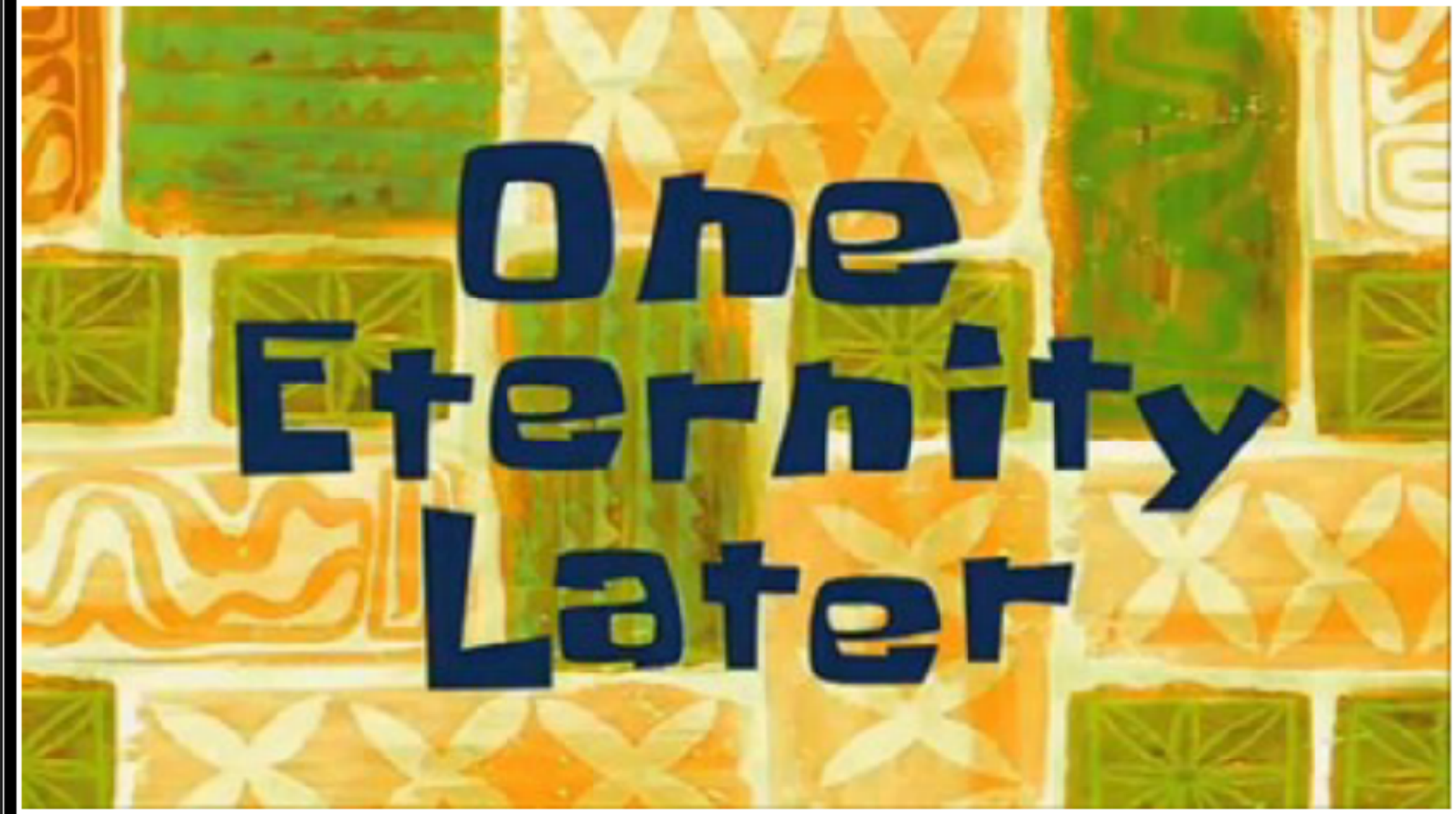

I need 7 more updates to control the Android user!

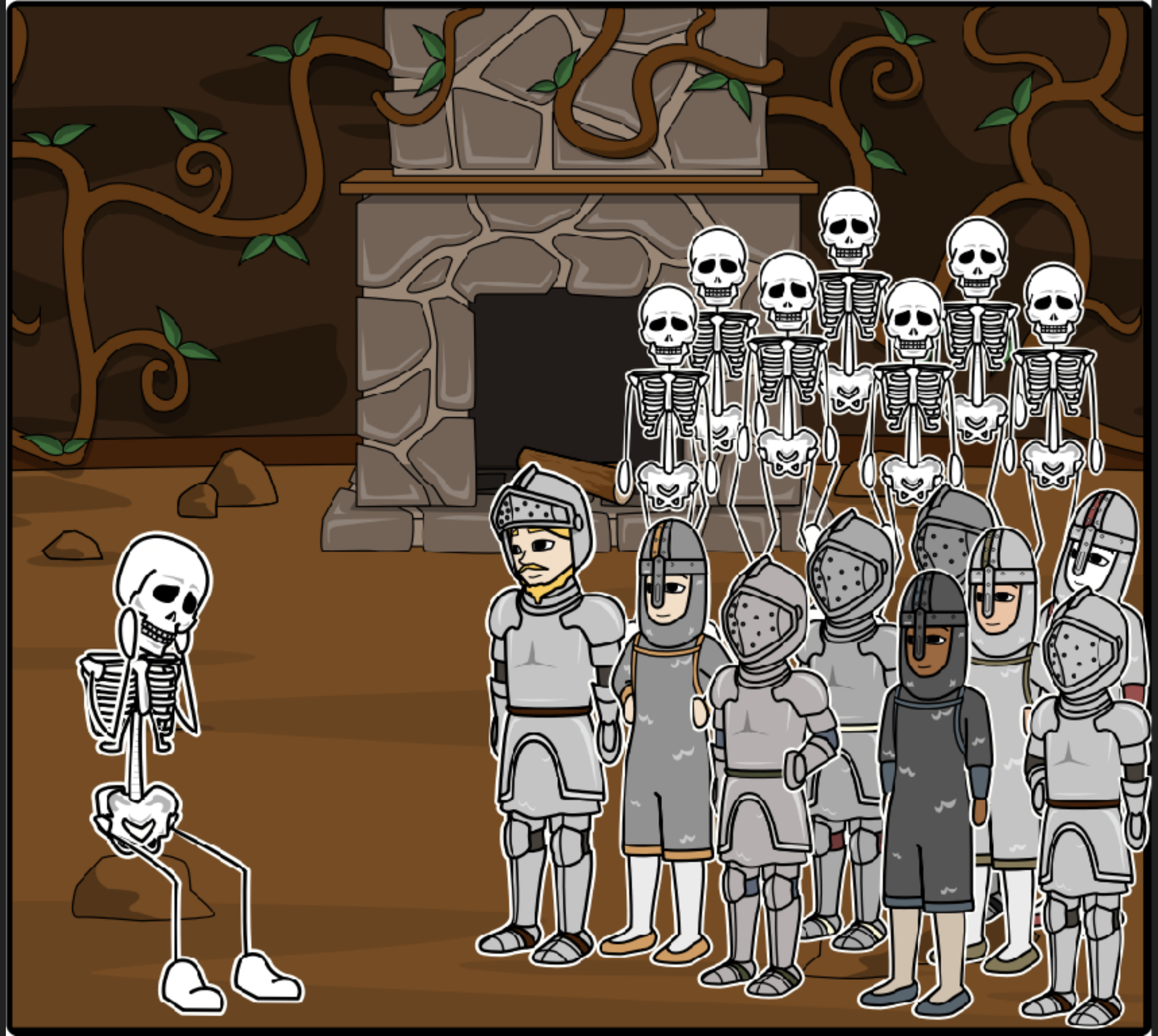

Today was refactor-day,
but I'll get right to it.


Windows Phone User

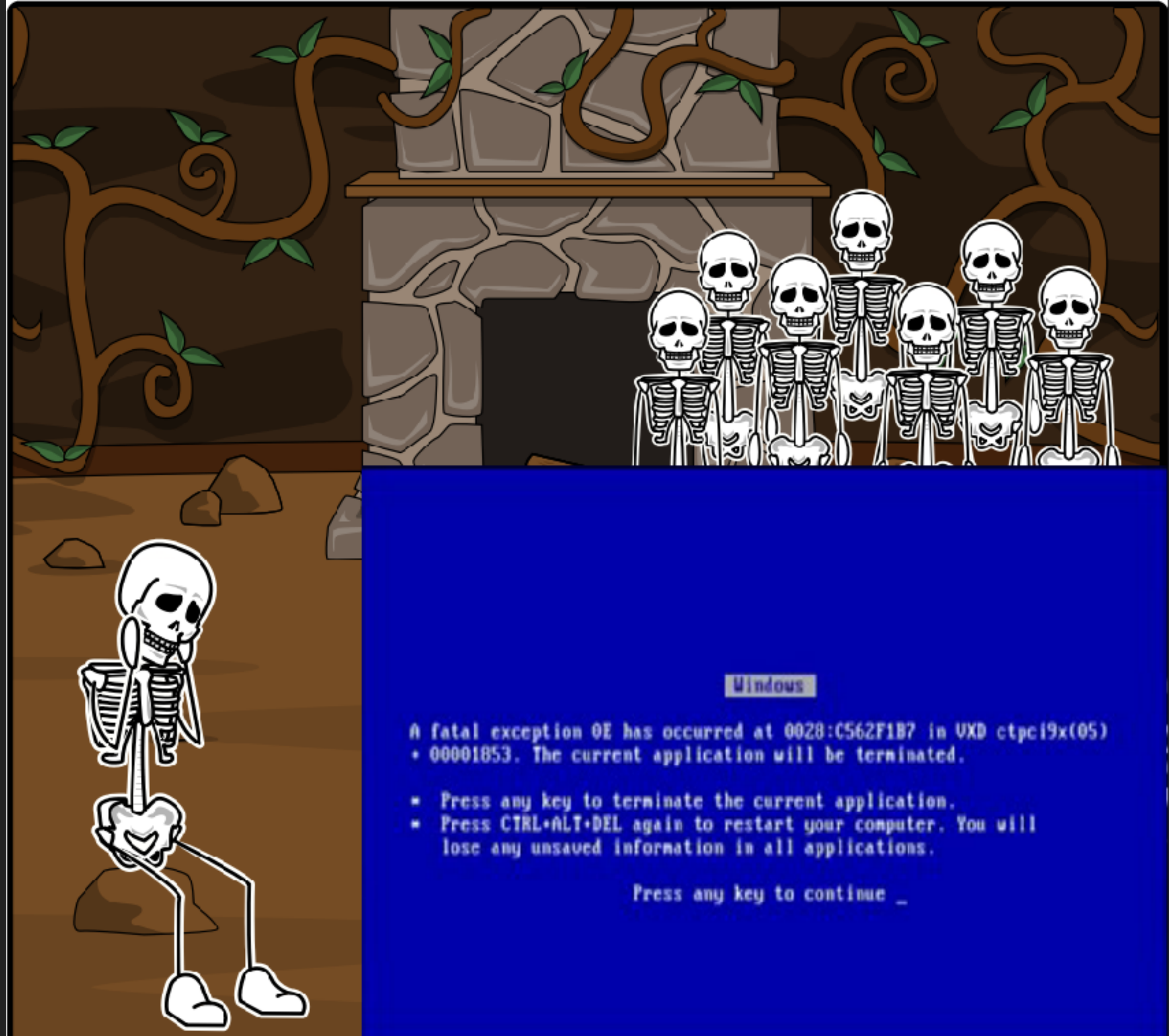

Ehm...

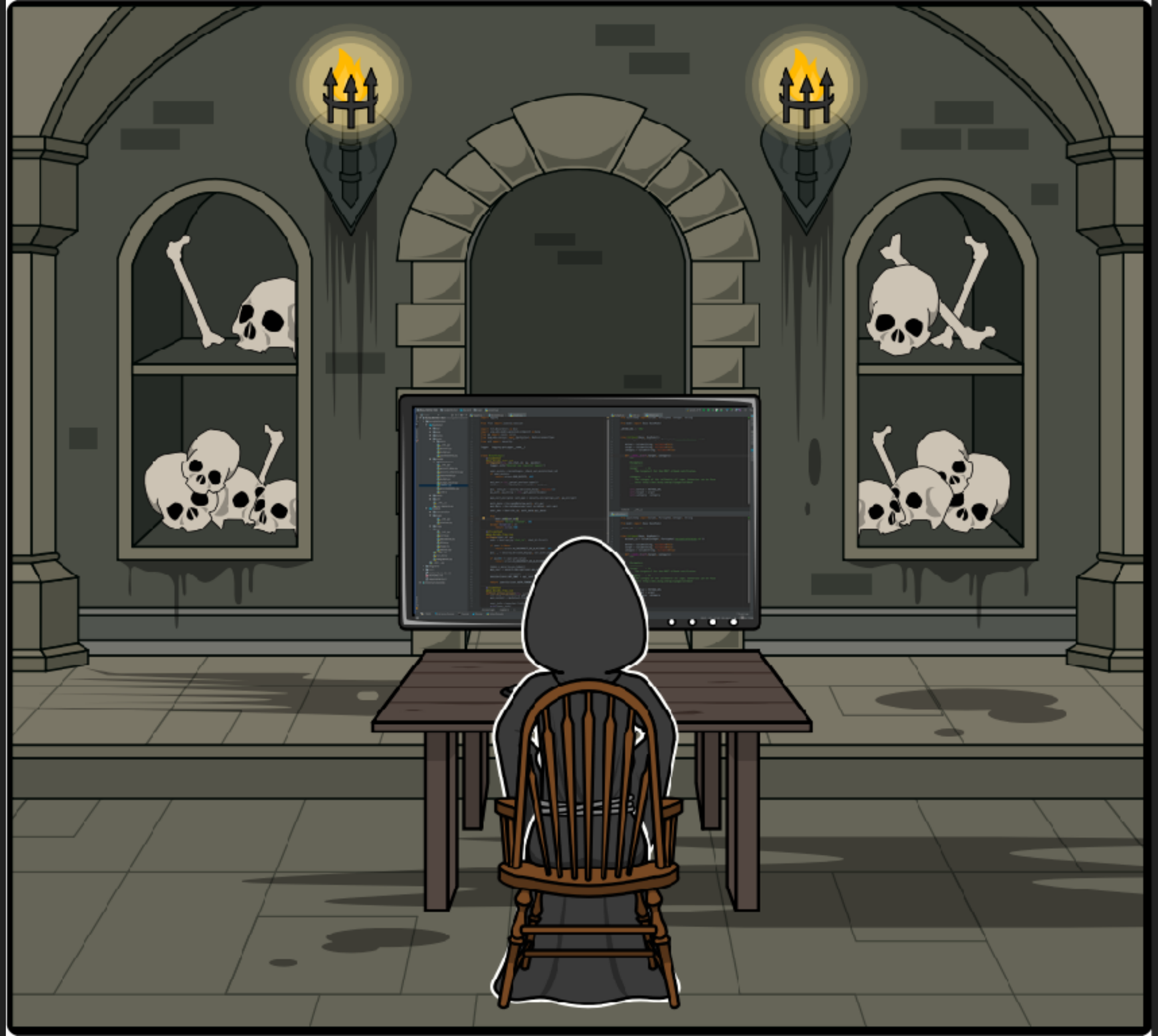

Would you mind developing this update for Windows Phone as well?

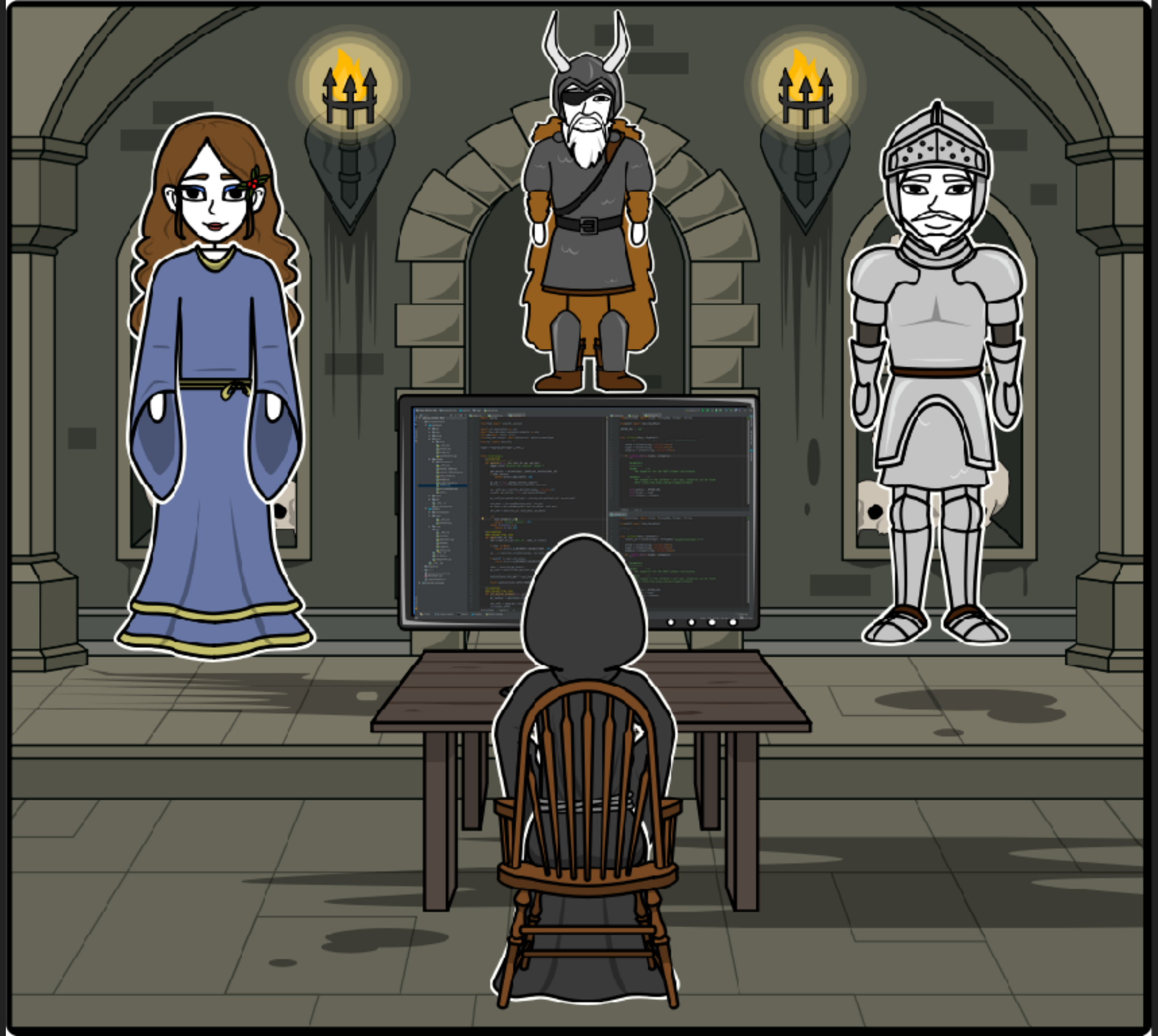

One
Eternity
Later

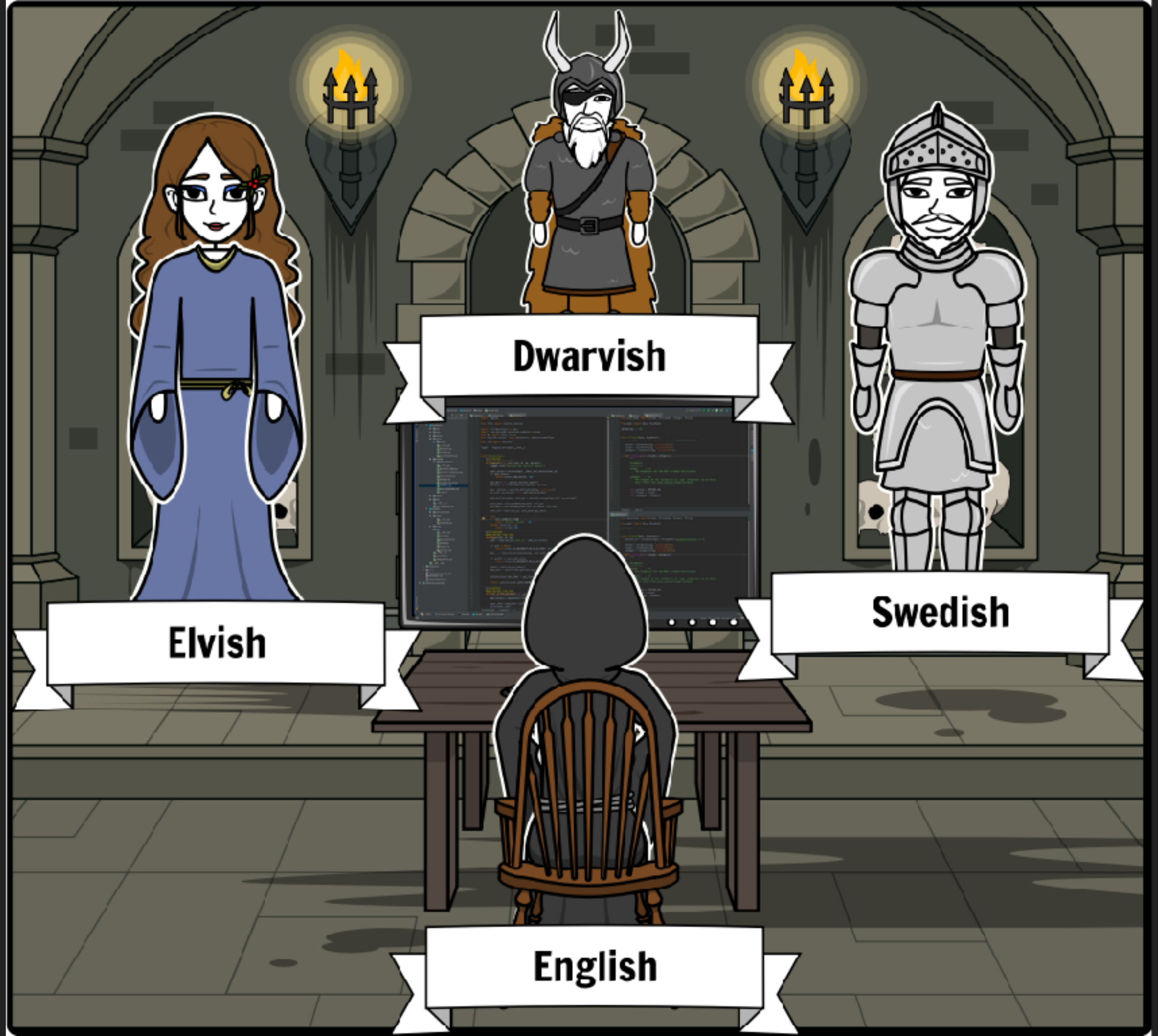



Thank you


Windows
A fatal exception 0E has occurred at 0028:C562F1B7 in VXD ctpci9x(05)
+ 00001853. The current application will be terminated.
* Press any key to terminate the current application.
* Press CTRL+ALT+DEL again to restart your computer. You will
lose any unsaved information in all applications.
Press any key to continue _

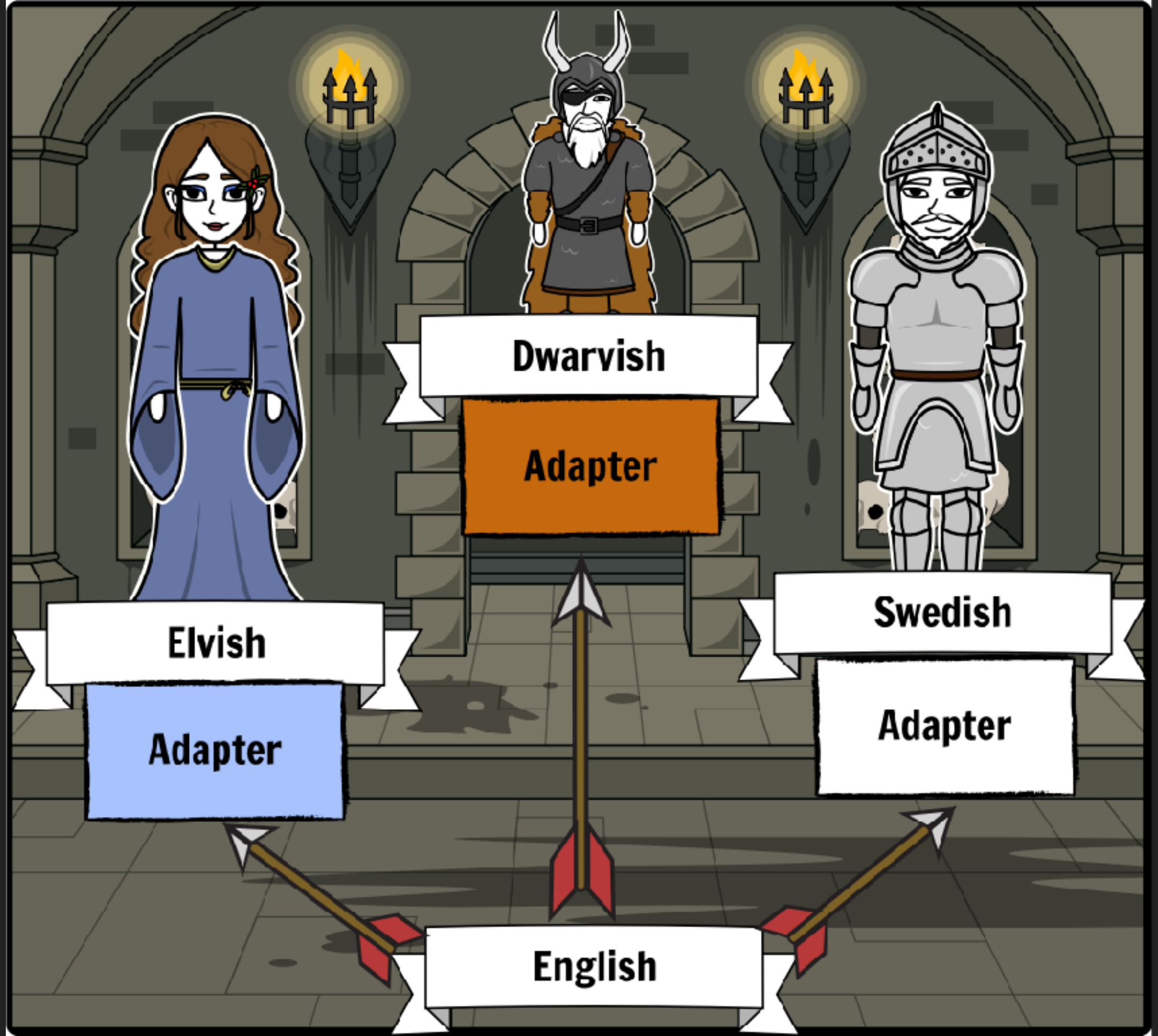




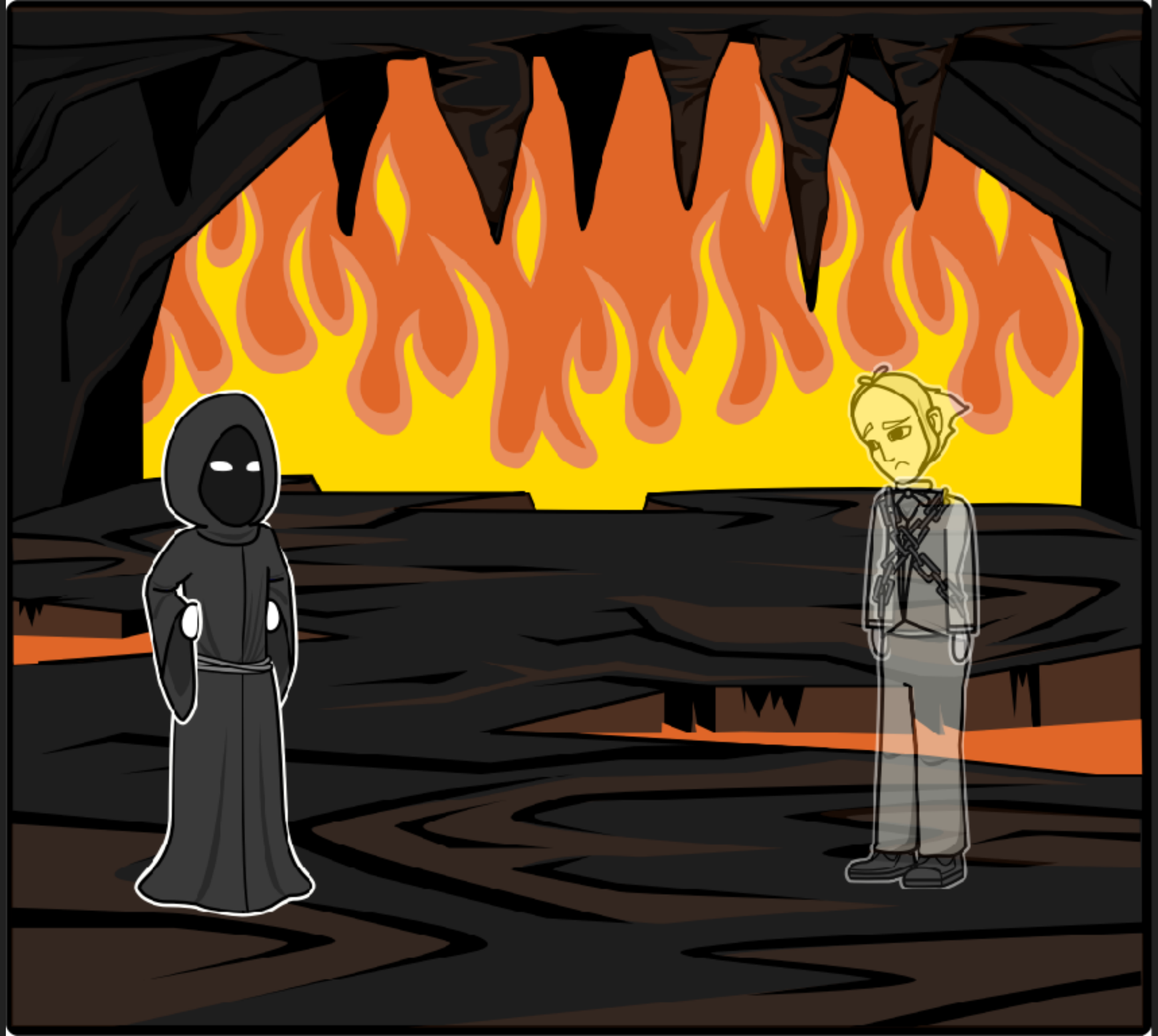

Dwarvish
Elvish
Swedish
English

ADAPTER

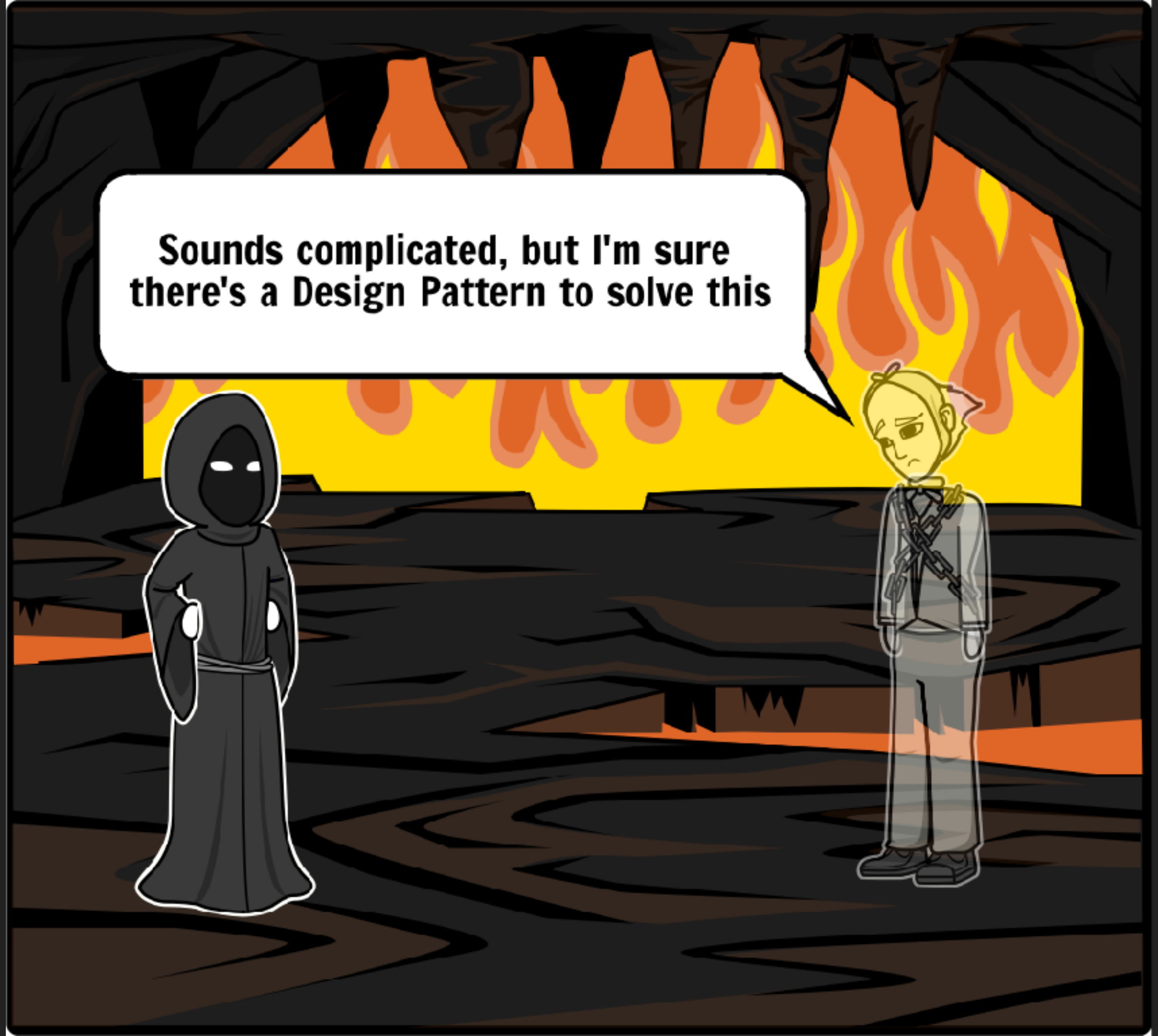
DESIGN PATTERN


Dwarvish
Adapter
Elvish
Adapter
Swedish
Adapter
English

DEMO

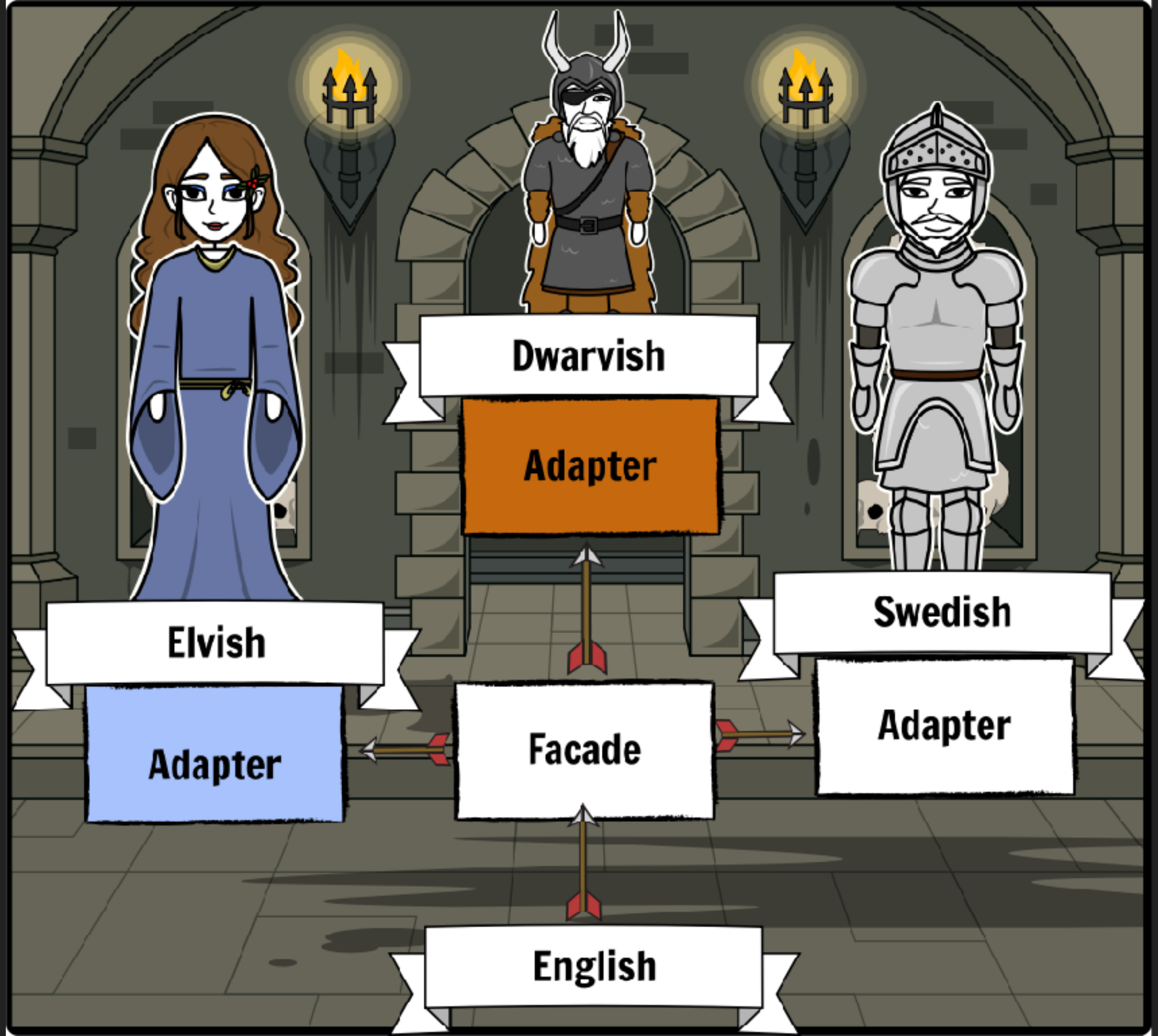



Create ONE update to rule them all!


Sounds complicated, but I'm sure there's a Design Pattern to solve this

FACADE

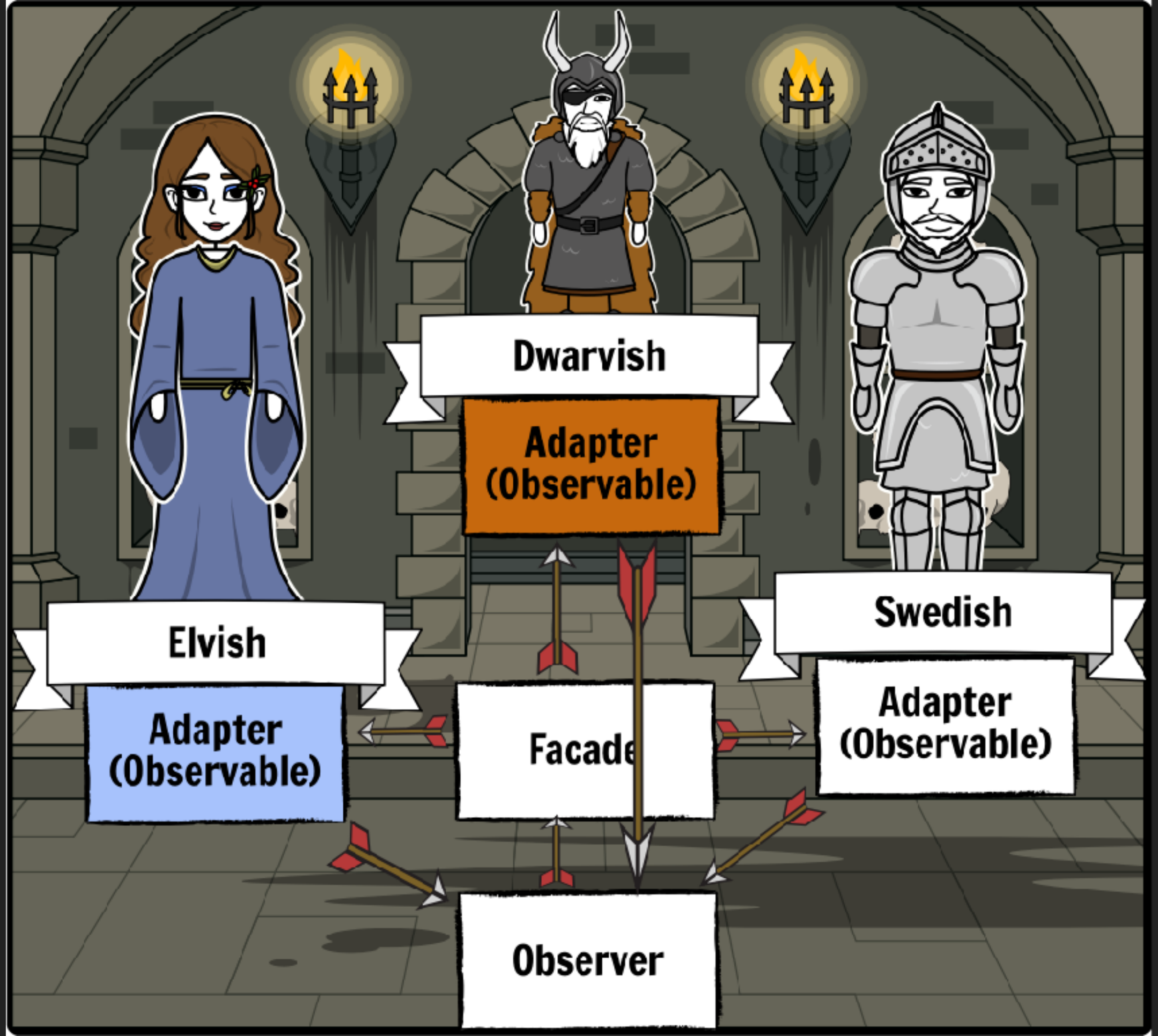
DESIGN PATTERN


Dwarvish
Adapter
Elvish
Adapter
Facade
Swedish
Adapter
English

DEMO

OBSERVER

DESIGN PATTERN


Dwarvish
Adapter
(Observable)
Elvish
Adapter
(Observable)
Facade
Swedish
Adapter
(Observable)
Observer

DEMO

CRITICISM

DESIGN PATTERNS CAN BE REPLACED WITH BUILT-IN FUNCTIONALITY

John Doe

DESIGN PATTERNS CAN BE REPLACED WITH BUILT-IN FUNCTIONALITY

- Yes and No
- Some design patterns Yes
  - Iterator
- Many Not
  - Facade, Adapter, …

DESIGN PATTERNS ARE MORE FOR JAVA OR C#, NOT PYTHON

Jane Doe

DESIGN PATTERNS ARE MORE FOR JAVA OR C#

- No
- Certainly more prevalent in such fields
- But also important in Python
  - Help get a more abstract understanding of software
  - Help create well structured software in less time
  - Offer a shared language to communicate

TAKE AWAYS

TAKE AWAYS

- Have a look at Design Patterns
- Study them, Forget them, Look them up when needed
- You will write better software
- More helpful (and necessary) the more senior you become

THANK YOU

REFERENCES

- https://sourcemaking.com/design_patterns
- http://python-3-patterns-idioms-test.readthedocs.io/en/latest/PatternConcept.html
- https://github.com/faif/python-patterns