#### The S of SOLID

The Single Responsibility Principle

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# The Single Responsibility Principle

- Probably around since the 1970's
  - David L. Parnas, *On the Criteria To Be Used in Decomposing Systems into Modules*. Commun. ACM 15(12): 1053-1058 (1972)
- What does it say?
  - A module / class should only have one responsibility
  - A module / class should only have on reason to change (Robert C. Martin)
- What does it mean?
  - Separate things which are likely to change because of different reasons
  - Group things together which are likely to change for the same reason

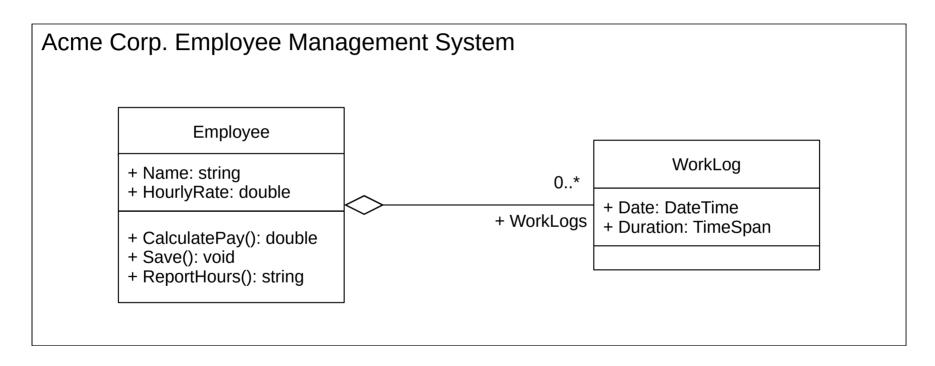
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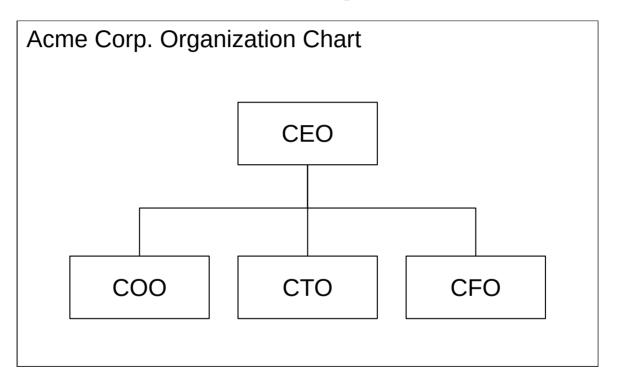
- Why is it a "good" thing to adhere to?
  - Change of requirements is immanent through the life cycle of most software
  - Decreases change impact, i.e. number of modules to alter
  - Decreases risk of regression because of human error, i.e. developer faults
    - ... uhm, basically aims to protect software against faulting developers?
  - Increases a software designs capability for adaption to change
    - ... uhm, "agile"?

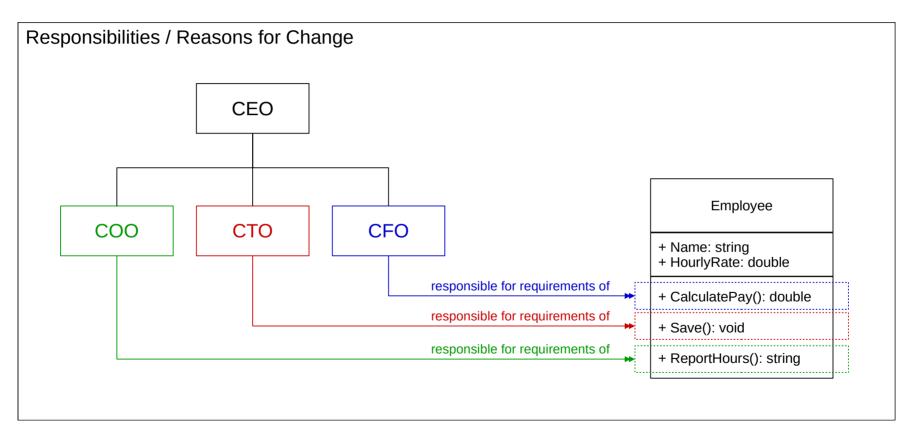
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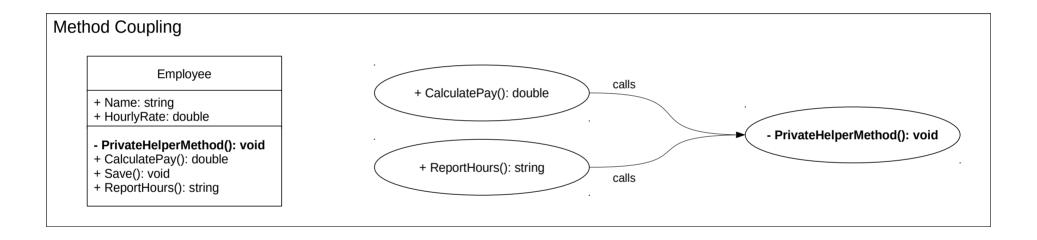
- What is a "reason to change"?
  - Changes to software are necessary because...
    - a)... requirements have literally changed
    - b)... of bugs, where requirements have not been met
  - Requirements originate from stake holders
  - Stake holders are who software must respond to
    - Hence: **Responsibility** Principle

The Acme Corp.
Employee Management System

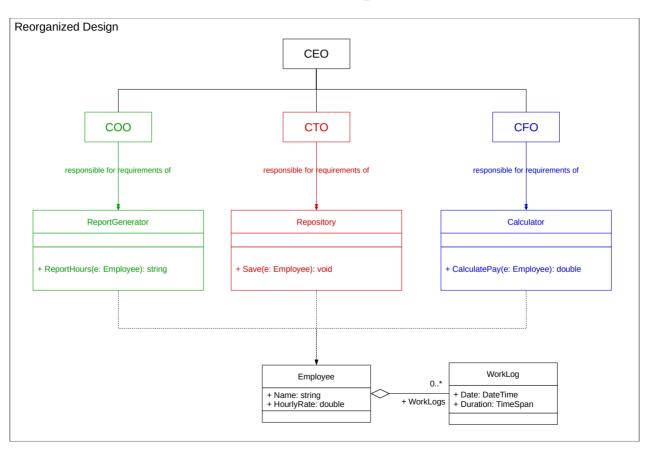


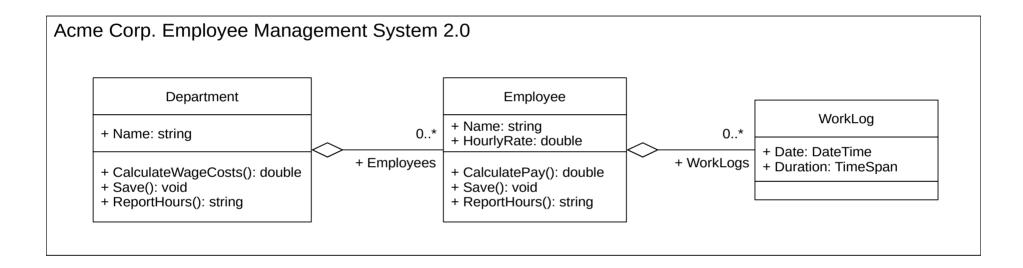


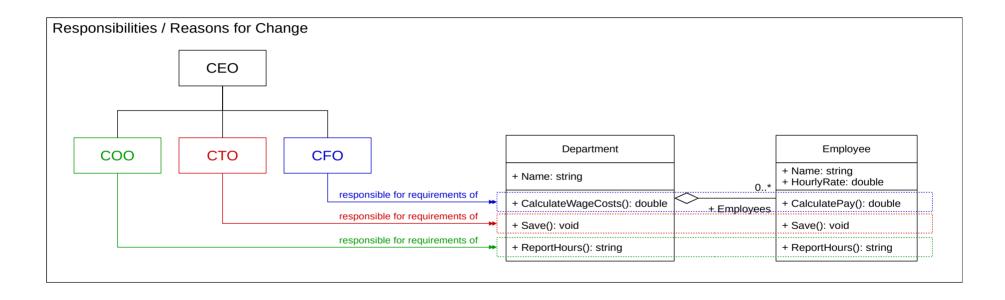


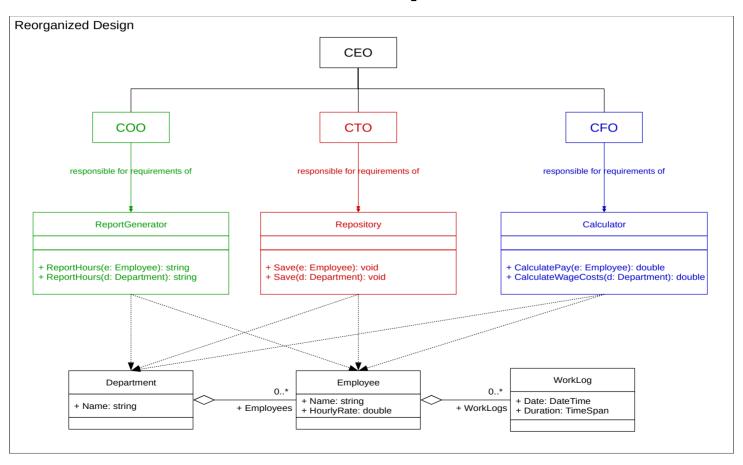


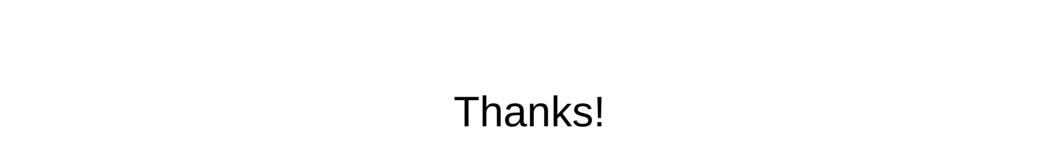
Aggregation of responsibility may lead to hidden coupling which facilitates human error / developer faults











#### References

- David L. Parnas, On the Criteria To Be Used in Decomposing Systems into Modules. Commun. ACM 15(12): 1053-1058 (1972)
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- Robert C. Martin. 2014. The Single Responsibility Principle. (May 2014). Retrieved April 22, 2019 from http://blog.cleancoder.com/uncle-bob/2014/05/08/SingleReponsibilityPrinciple.html
- James Ellis-Jones. 2017. Think you understand the Single Responsibility Principle? (October 2017). Retrieved April 22, 2019 from https://hackernoon.com/you-dont-understand-the-single-responsibility-principle-abfdd005b137