

Modifiability

Outline

- **Introduction**
- Compile time changes
- Build time changes
- Installation time changes
- Run time changes

Modifiability

- Modifiability is the ability to make a change to the behavior of a system.
- The changes can occur at
 - Compile time through code changes
 - Build time through incorporation of different dependencies
 - Initialization time through configuration parameters or discovery
 - Run time through either configuration parameters or particular types of input.

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Compile time changes

Key concepts are coupling and cohesion.

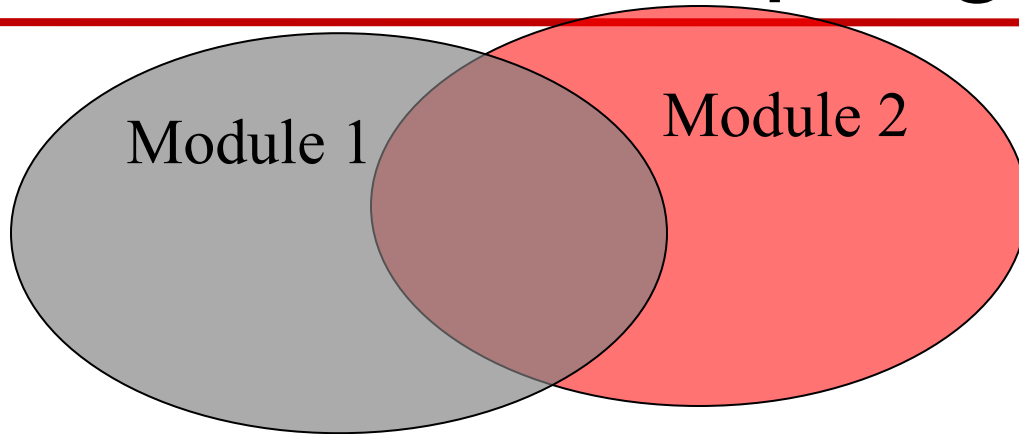
Coupling: An overlap in responsibilities among modules.

Cohesion: The relation between the responsibilities in one module.

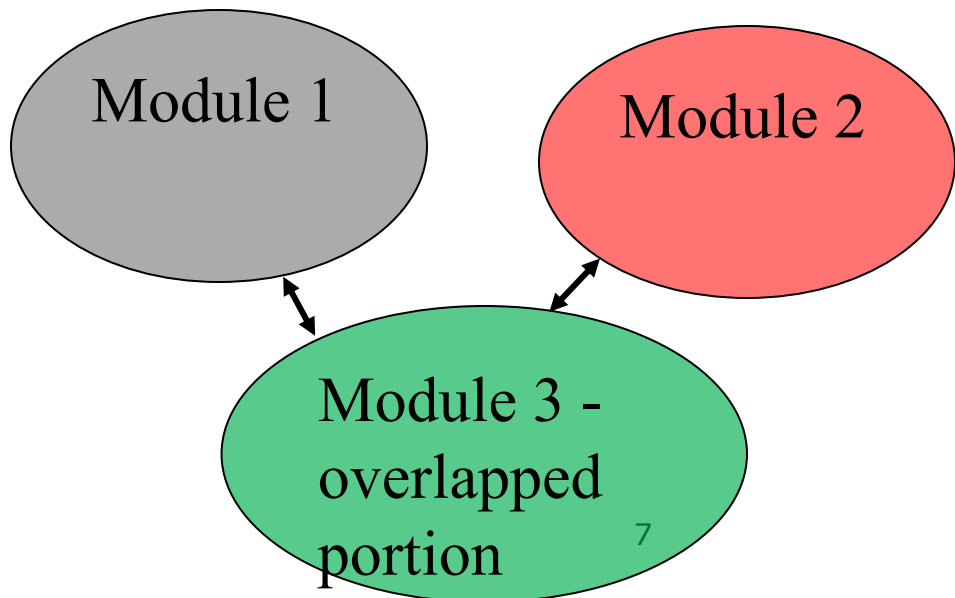
Make modifications easier

- Modifications localized to one module are easier.
- Strive for high cohesion and low coupling.
- Makes it more likely that changes are localized to one module.
- Test with change scenarios

Coupling



- High Coupling
- Responsibilities overlap



- Move overlap to 3rd module
- Low coupling

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Build time changes

- Choose environment based dependency to reflect different environment

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Initialization time changes

- When system is invoked it acquires configuration parameters
 - From a special file in a known location
 - From OS environment variables
 - From configuration database
 - From a special tool
- Values of configuration parameters will affect the behavior of a system.

Uses of initialization time changes

- Configuration parameters allow a system to operate in different environments.
- E.g. make database URL a configuration parameter. This allows a different database to be used during development than during production.

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Run time changes

- Values read in during run tie will affect behavior.
- System is coded to depend on input values.

Summary

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