



Single Responsibility Principle

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SOLID Principles

S

Single Responsibility Principle

O

Open-Closed Responsibility Principle

L

Liskov Substitution Principle

I

Interface Segregation Principle

D

Dependency Inversion Principle



The “Troublemakers”



David Parnas



Edsger Dijkstra



Larry Constantine



Barbara Liskov



Bertrand Meyer



Robert C. Martin



Single Responsibility Principle

- A class should have only **one reason to change**.
- Every module or class should have **responsibility** over a **single part** of the functionality provided by the software, and that responsibility **should be entirely encapsulated by the class**.

Is My Code SRP-ed Yet!?



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High cohesion and low coupling

Coupling

- Interdependencies between modules

Cohesion

- How related are the functions within a single module

Single Responsibility Principle

- Gather together the things that **change** for the **same reasons**.
- Separate those things that **change** for **different reasons**.



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What does SRP Mean for the Employee class?

```
public class Employee {  
    public Money calculatePay( );  
    public String reportHours( );  
    public void save( );  
    public String findByID ( );  
}
```

Classic example used by Robert C. Martin

What things change for the same reasons?
What things change for different reasons?





What does SRP Mean for the Employee class?



Know “who” your class is and who it will be.

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public class Employee {  
    public Money calculatePay( );  
    public String reportHours( );  
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Classic example used by Robert C. Martin



“Meow. There, I said it and I’m glad.”

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Classic example used by Robert C. Martin



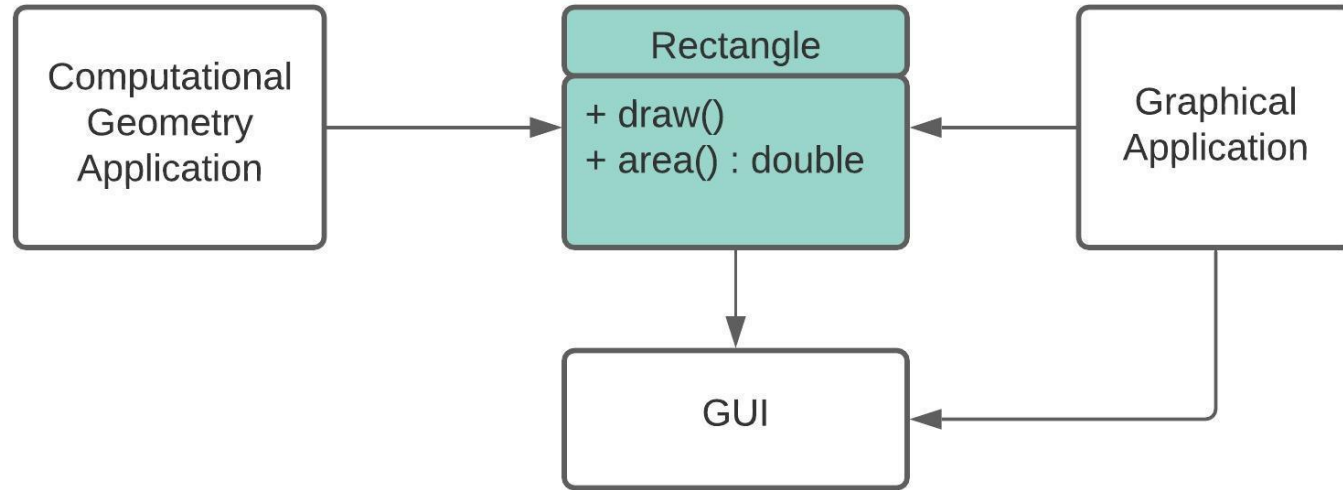
Who is the program responsible to?

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"OK, now that we all agree, let's all go back to our desks and discuss why this won't work."

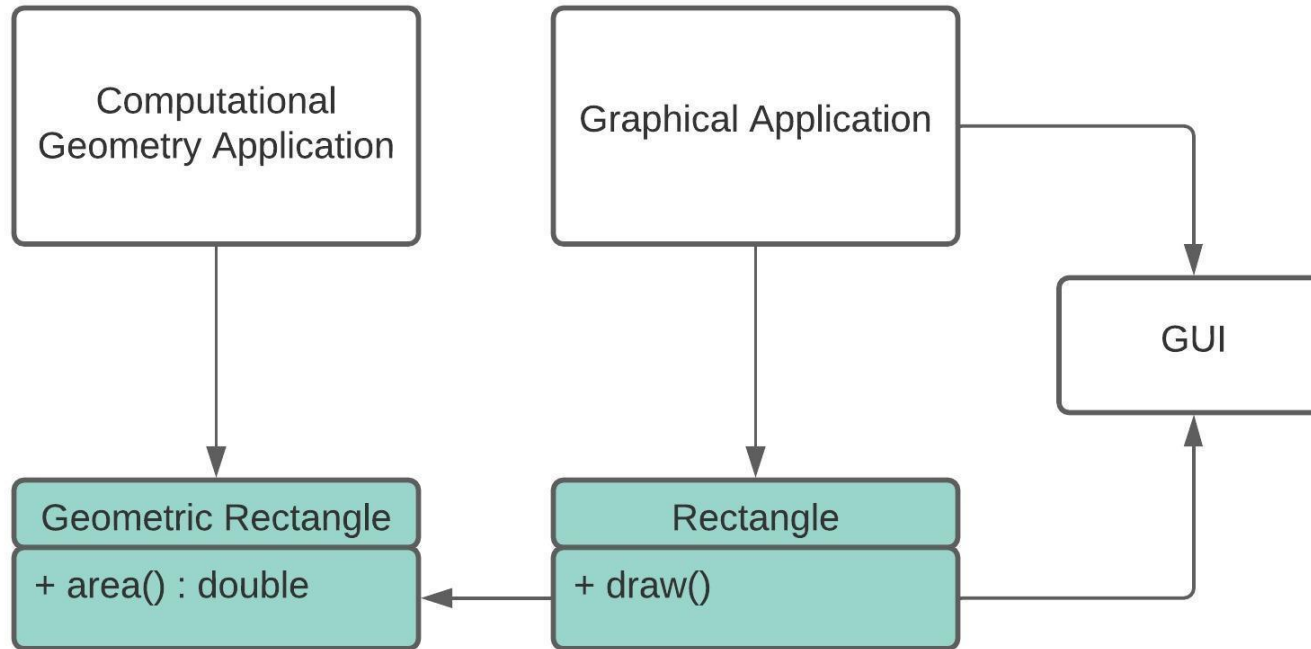
The Classic Example



More than one **responsibility**
(Robert C. Martin, 2006)

- **draw()**—draws the rectangle in the screen
- **area()**—computes the area of the rectangle

A SRP Implementation

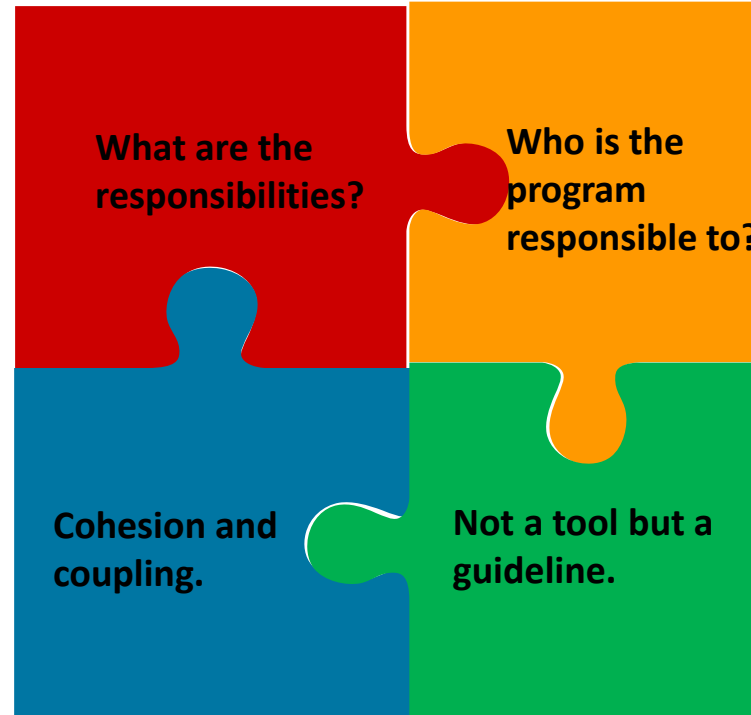


Separated **responsibilities**
(Robert C. Martin, 2006)

- Responsibility – reason for change
- Cohesion and coupling is not black and white



Conclusions





Thank you

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Bibliography

- Robert C. Martin (2006) “Agile Principles, Patterns, and Practices in C#”