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# Become a Professional Developer

CS580 Advanced Software Engineering

<http://cs580.yusun.io>

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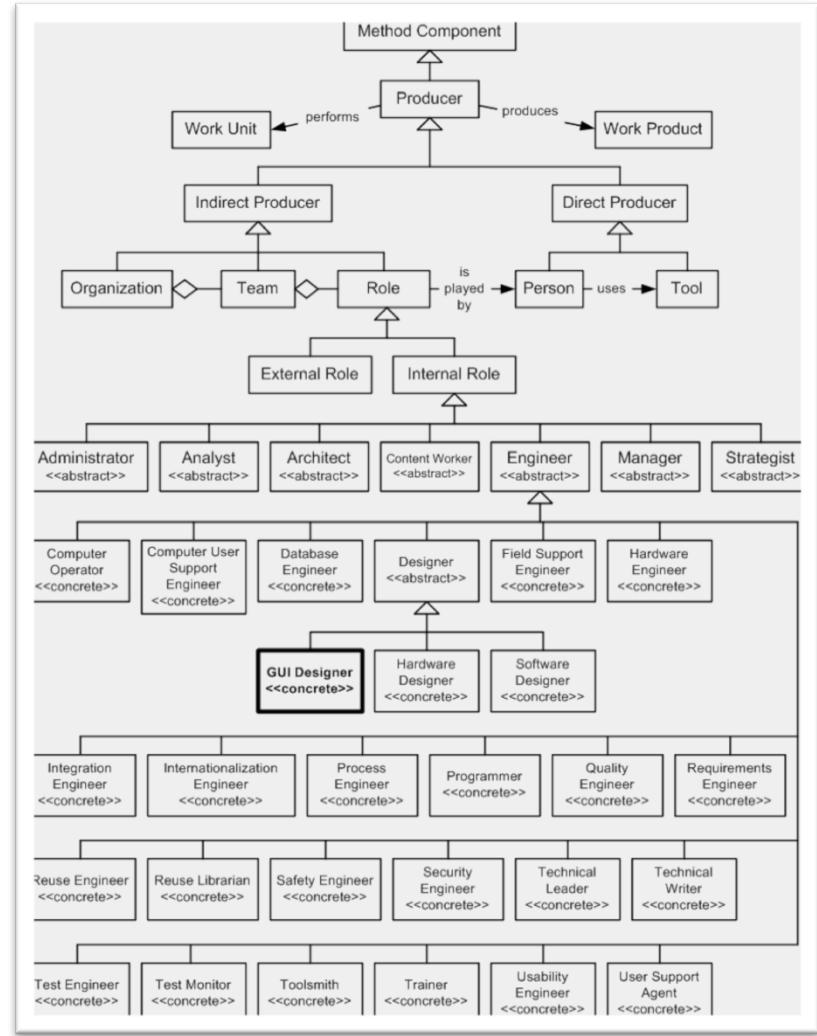
# Complex but Clear Interface/Inheritance



```
class Convertible {  
    // Key (private)  
    // Speed : 155 (miles / hour)  
    // Weight 1600 kg  
    // Engine : 3.2 L S54 inline-6  
}
```

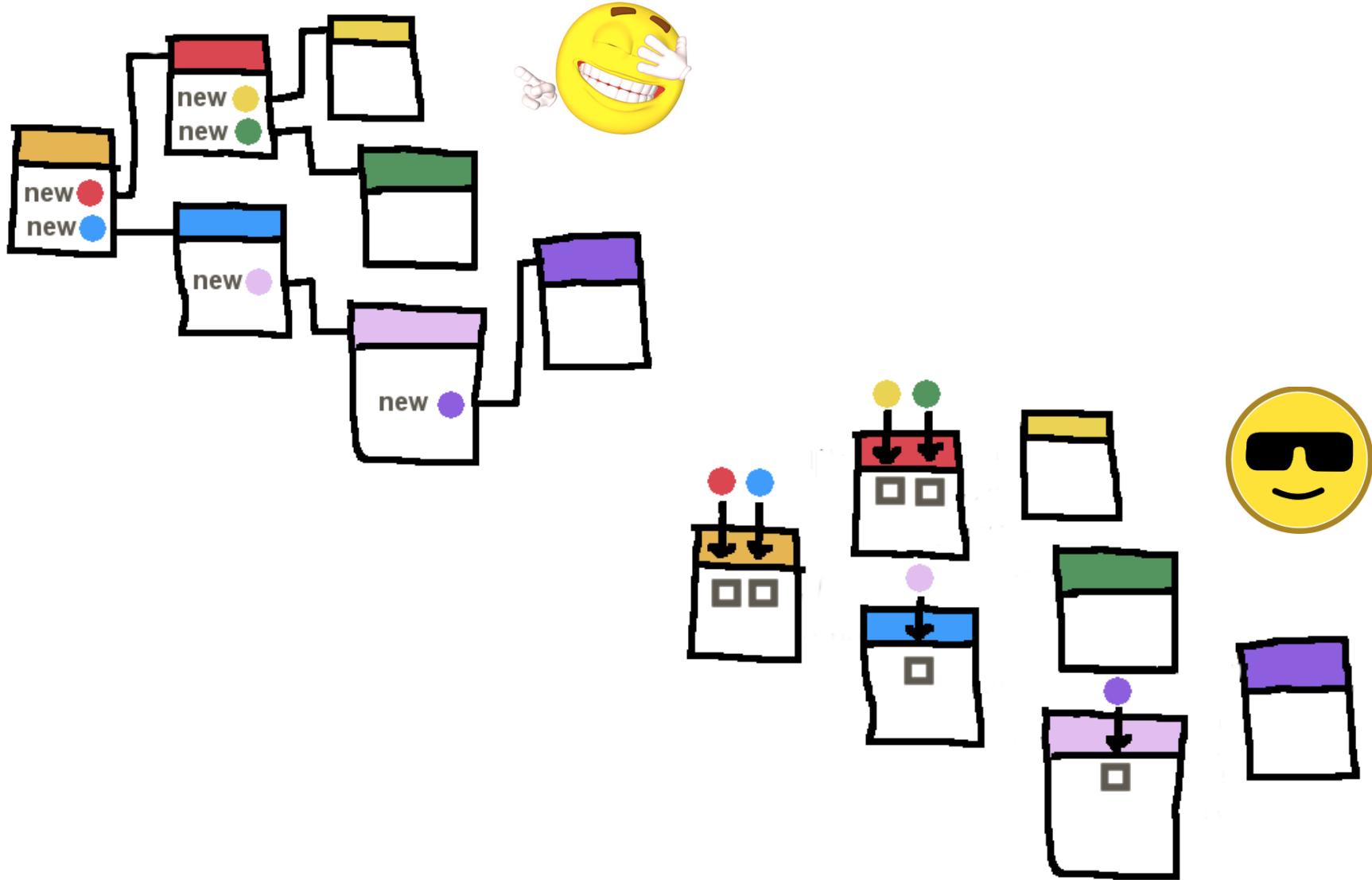


```
class Roadster extends Convertible {  
    // Speed : 165 (miles / hour)  
    // Weight 1399 kg  
}
```



# Use Dependency Injection

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# Write More Comments than Code

```
using (var sr = File.OpenText(filename))
{
    var reader = new JsonTextReader(sr);
    var sb = new StringBuilder();
    while (reader.Read())
    {
        switch (reader.TokenType)
        {
            case JsonToken.PropertyName:
                sb.AppendFormat("\t\t\t\t{0} = ", reader.Value);
                break;
            case JsonToken.Null:
                sb.Append("null," + Environment.NewLine);
                break;
            case JsonToken.Integer:
            case JsonToken.Float:
                sb.Append(reader.Value + "," + Environment.NewLine);
                break;
            case JsonToken.Boolean:
                sb.Append(reader.Value.ToString().ToLower() + "," + Environment.NewLine);
                break;
            case JsonToken.Date:
                var dt = DateTime.Parse(reader.Value.ToString());
                if (dt == DateTime.MinValue)
                    sb.AppendFormat("System.DateTime.MinValue," + Environment.NewLine);
                else if (dt == DateTime.MaxValue)
                    sb.AppendFormat("System.DateTime.MaxValue," + Environment.NewLine);
                else
                    sb.AppendFormat("new System.DateTime({0},{1},{2},{3},{4},{5}),{6}",
                        dt.Year, dt.Month, dt.Day, dt.Hour, dt.Minute,
                        dt.Second, Environment.NewLine);
                break;
            case JsonToken.String:
                sb.AppendFormat("{0}{1}{0},{2}", reader.QuoteChar.ToString(),
                    reader.Value, Environment.NewLine);
                break;
        }
    }

    Write(sb.ToString().Substring(0, sb.Length - ("," + Environment.NewLine).Length));
}
```



```
void OnContentControlMouseDown(
    object sender, RoutedEventArgs e )
{
    // Create a resource key which specifies that we want to
    // get the DataTemplate with no x:Key and the DataType
    // property is set to the Type object for our Foo class.
    DataTemplateKey key = new DataTemplateKey( typeof(Foo) );

    // Query the resource system for the Foo DataTemplate.
    DataTemplate fooTemplate =
        base.FindResource( key ) as DataTemplate;

    ContentControl contentCtrl = e.Source as ContentControl;

    // This code assumes that the ContentControl
    // has not been given a new ControlTemplate.
    // By default a ContentControl's first child
    // element is a ContentPresenter. If the
    // ContentControl's Template has been given
    // a new value, all bets are off.
    ContentPresenter contentPresenter =
        VisualTreeHelper.GetChild( contentCtrl, 0 )
        as ContentPresenter;

    // Search for the template's StackPanel named "stack"
    // within the ContentPresenter's visual tree. We need
    // to start the search with the ContentPresenter because
    // that is the templated element, not the ContentControl.
    StackPanel stack =
        fooTemplate.FindName( "stack", contentPresenter )
        as StackPanel;

    // Toggle the StackPanel's orientation setting.
    stack.Orientation =
        stack.Orientation == Orientation.Horizontal ?
        Orientation.Vertical :
        Orientation.Horizontal;
}
```



# Perfect Indentation

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```
<ul id="bigBarNavigation">
<li><a href="/">HOME</a>
</li><li><a href="/contact">CONTACT US</a></li><li>
    <a href="/about">ABOUT US</a></li></ul>
```

Confusing mess... 

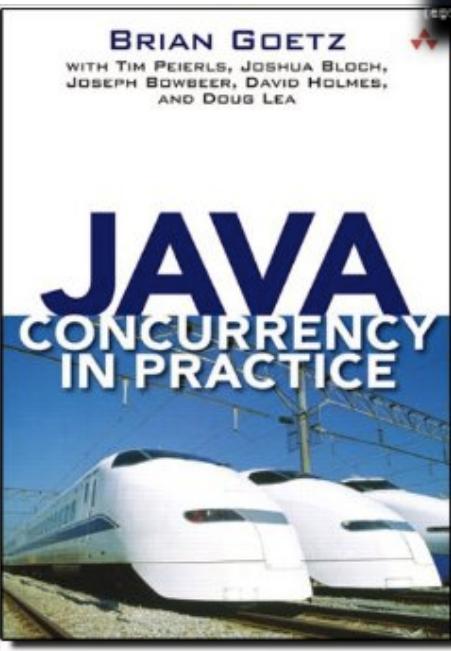
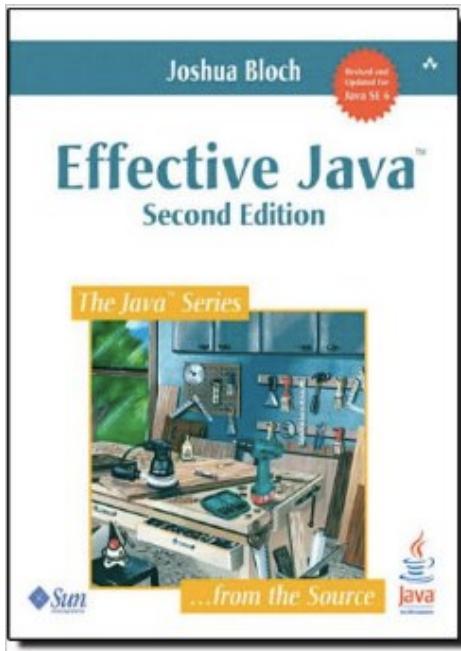
```
<ul id="bigBarNavigation">
    <li><a href="/">HOME</a></li>
    <li><a href="/contact">CONTACT US</a></li>
    <li>
        <a href="/about">ABOUT US</a>
        <div class="subMenu">
            <!-- Just an example to
                show indentation -->
        </div>
    </li>
</ul>
```

Nice and clean. mmmmmmmmm...



# Be a Master of 1 or 2 Languages

- ◆ One standard OOP
  - ◆ Java / C++
- ◆ One scripting language
  - ◆ Python / Ruby

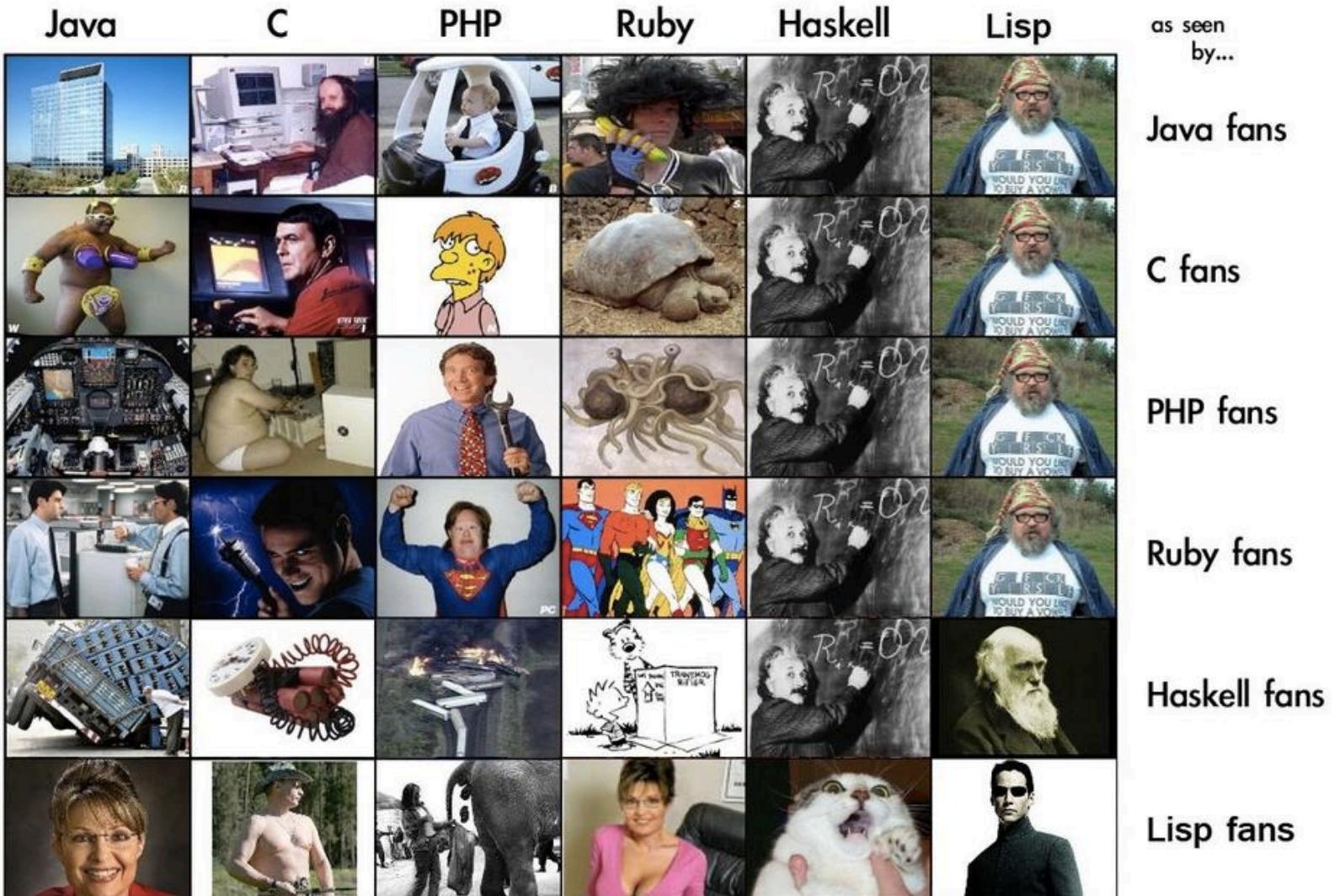


# Pick up New Languages Quickly

- ◆ Perl
  - ◆ Bash
  - ◆ Go
  - ◆ HTML/CSS
  - ◆ Javascript
  - ◆ XML
  - ◆ PHP
  - ◆ ...



# Knowing Languages is Trivial



# Professionals Focus on Problems

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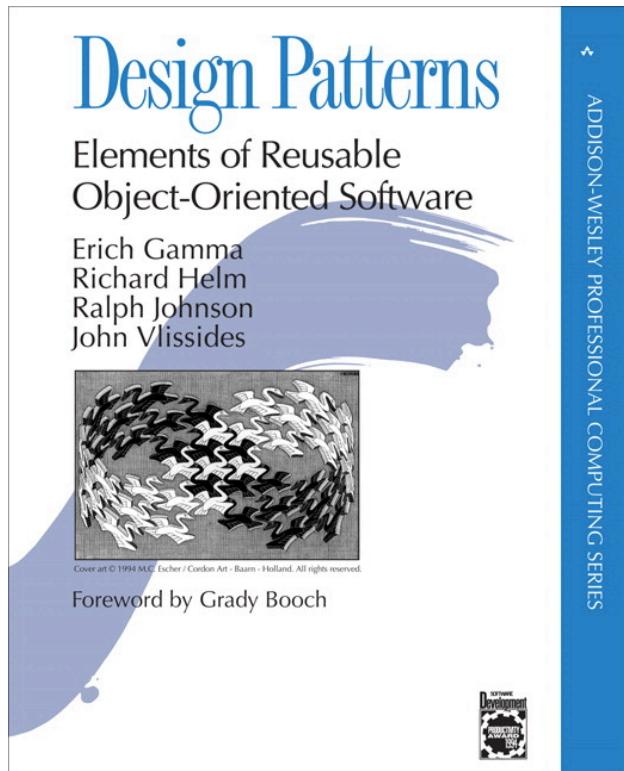


# Professionals Focus on Users

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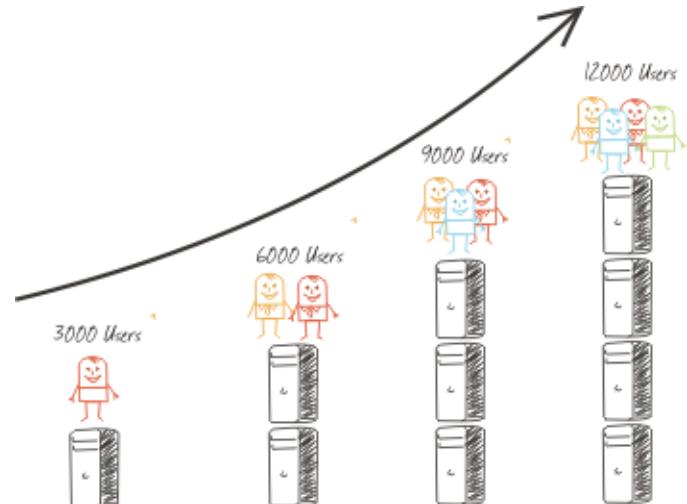


# Professionals Focus on Extensibility

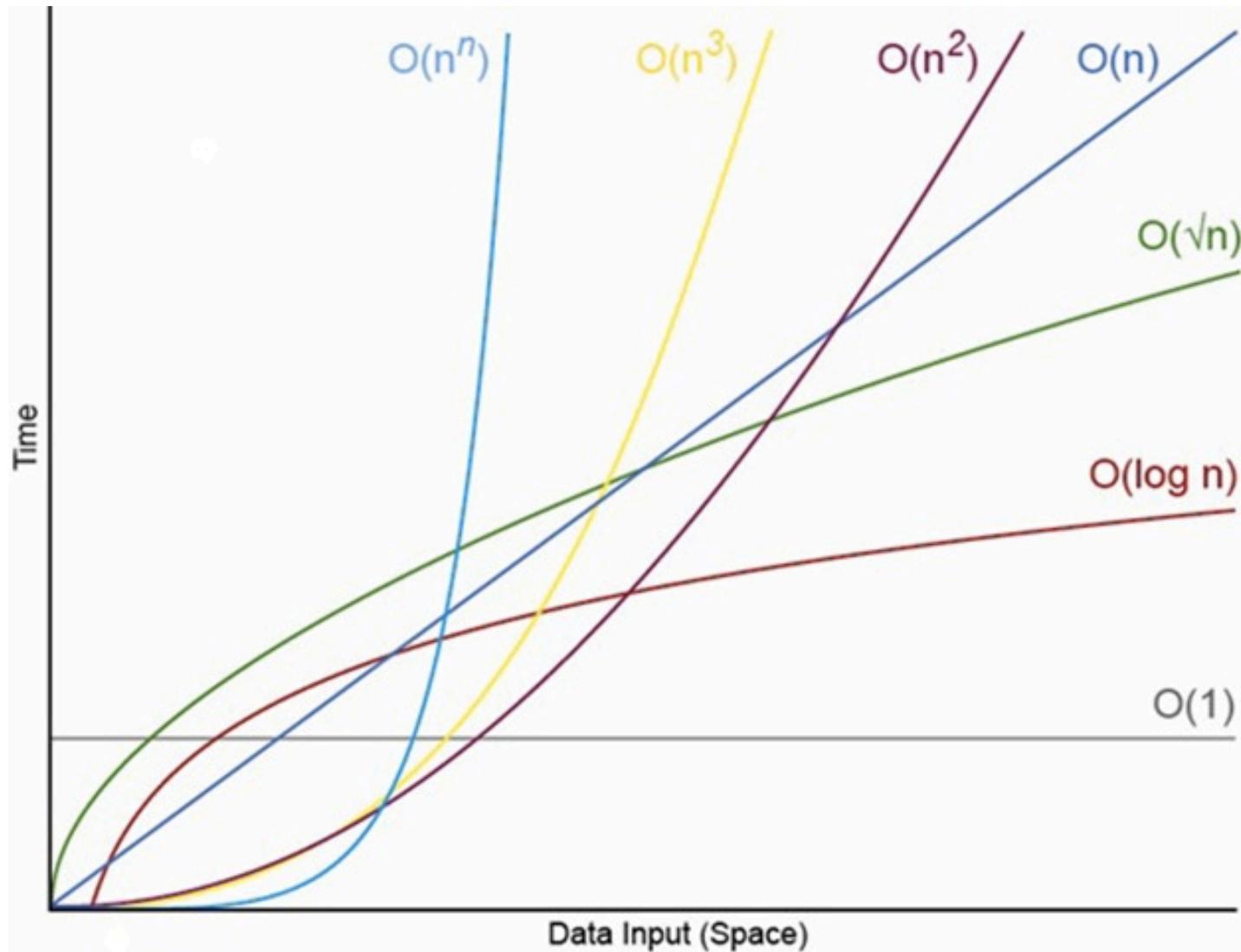


# Professionals Focus on Scalability

- ◆ Minimizing work
- ◆ Paging through large datasets
- ◆ Avoiding datastore contention
- ◆ Sharding counters
- ◆ Effective memcache

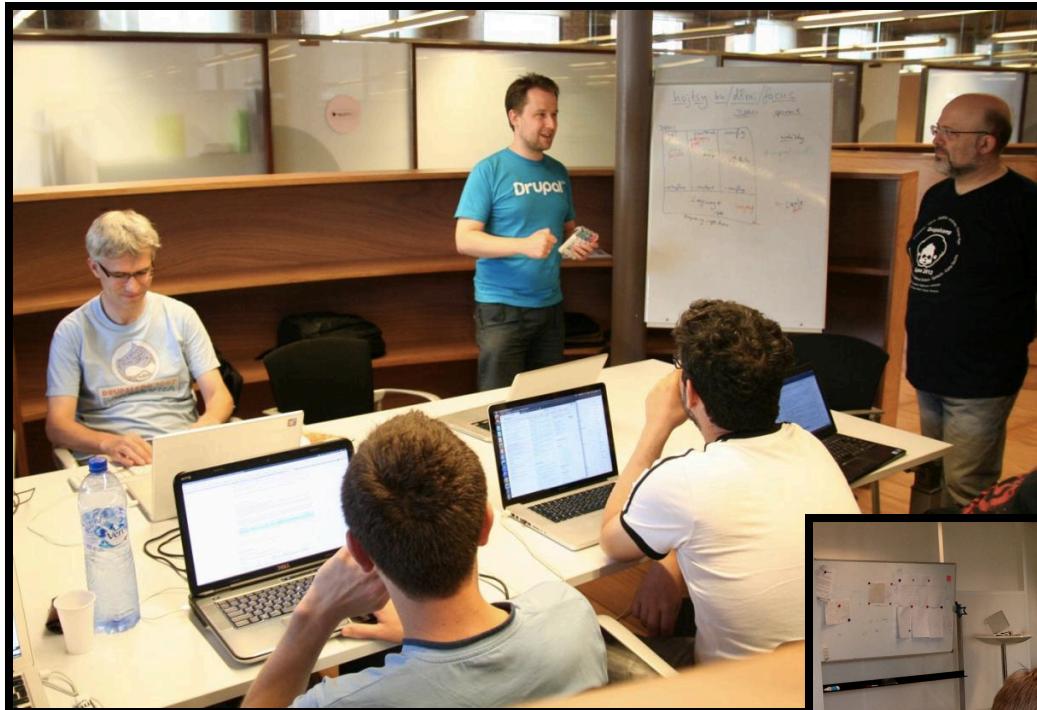


# Professionals Focus on Efficiency



# Communication Skill is Essential

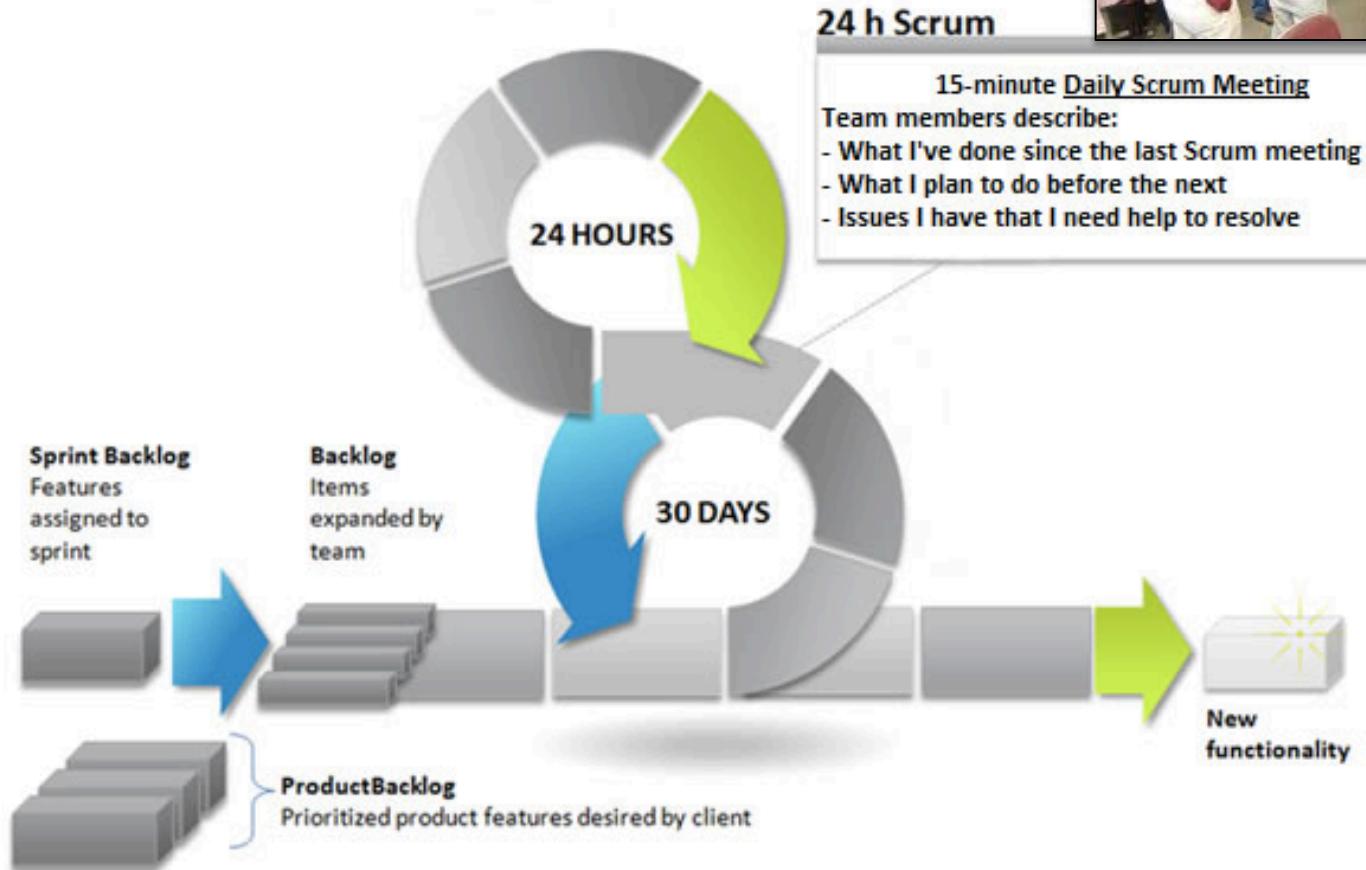
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# Learn Agile/Scrum



## SCRUM PROCESS



# Learn How to Give Update

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- ◆ Important for your performance evaluation
- ◆ Be prepared
- ◆ Update not just results
- ◆ Update **process and plan!**



# Be Patient As a Rookie

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- ◆ Prepare the tough start
- ◆ Just do it
- ◆ Ask for help



# Be Patient As a Rookie

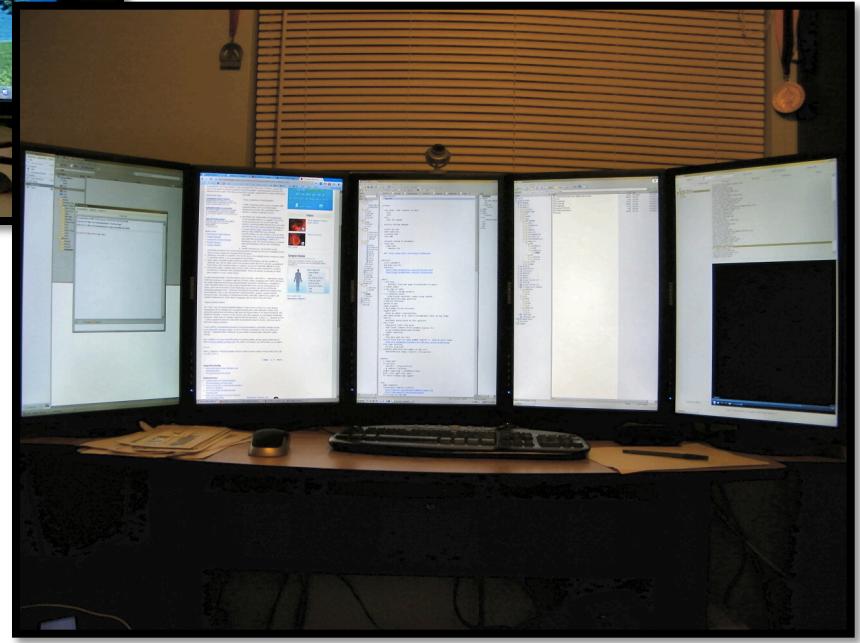
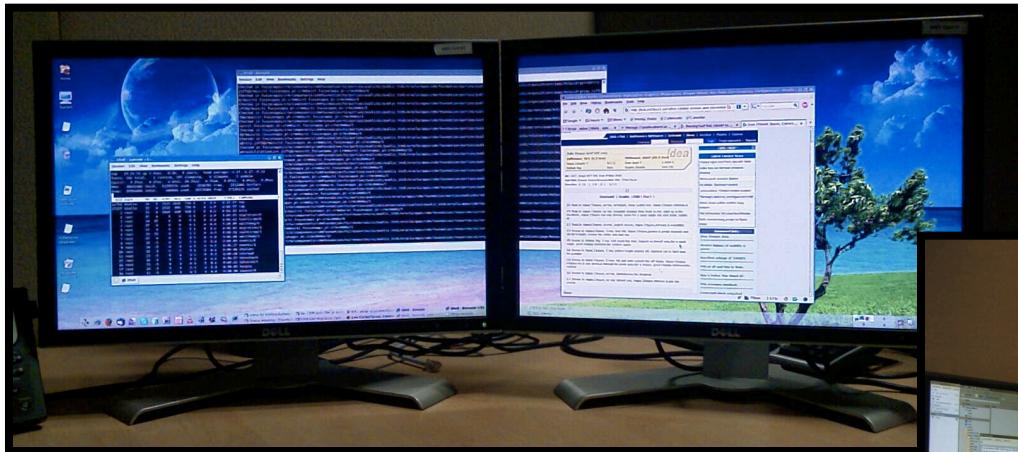
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- ◆ Don't give yourself pressure



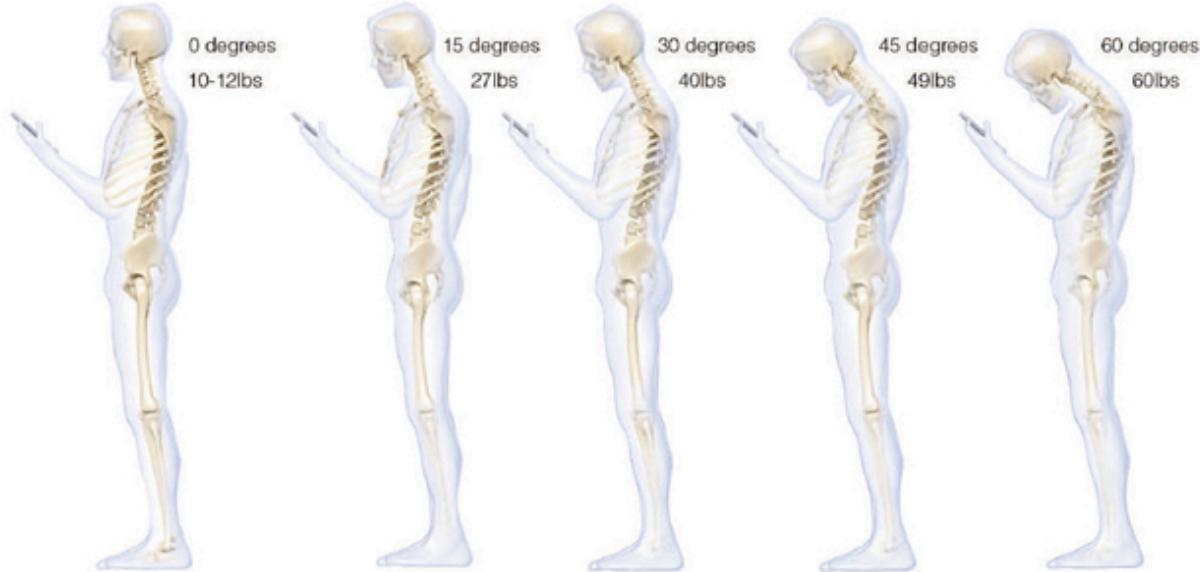
# Focus on the Important

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# Be Healthy

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<https://www.youtube.com/watch?v=wJYGHdzmHY8>

# PhDs?

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- ◆ PhDs are valuable in the long term
  - ◆ More career choices
  - ◆ Diverse experiences
  - ◆ Specialized fields

