

Object Interaction

Definition: Abstraction

The ability to ignore details of parts to focus attention on a higher level of a problem

Definition: Modularisation

The process of dividing a whole into well-defined parts, which can be built and examined separately, and which interact in well-defined ways

A class can have within it other classes

```
public class NumberDisplay
{
    private int limit;
    private int value;
}
```

```
public class ClockDisplay
{
    private NumberDisplay hours;
    private NumberDisplay minutes;
}
```

The variables in NumberDisplay are primitive types
The variables in ClockDisplay are object types

1 Objects creating objects

Formal parameter:

```
public NumberDisplay(int rolloverLimit);
```

Actual Parameter:

```
hours = new NumberDisplay(24);
```

2 Method calling

```
public void timeTick()
{
    minutes.increment();
    if(minutes.getValue() == 0) {
        // it just rolled over!
        hours.increment();
    }
    updateDisplay();
}
```

3 Internal Methods

```
/**  
 * Update the internal string that  
 * represents the display.  
 */  
private void updateDisplay()  
{  
    displayString =  
        hours.getDisplayValue() + ":" +  
        minutes.getDisplayValue();  
}
```

4 Method calls

Internal method calls

```
updateDisplay;  
private void updateDisplay()
```

External method calls

```
minutes.increment()
```