Thinking in Objects

Key vocab:

- Class
- Object
  - Instance
- Attribute
- Value
  - Field
  - Variable
- Method

Thinking in Objects

One of the hardest parts of getting started in programming is the process of visualising and breaking down a problem...

There are two basic approachs...

Thinking in Objects

...Procedural

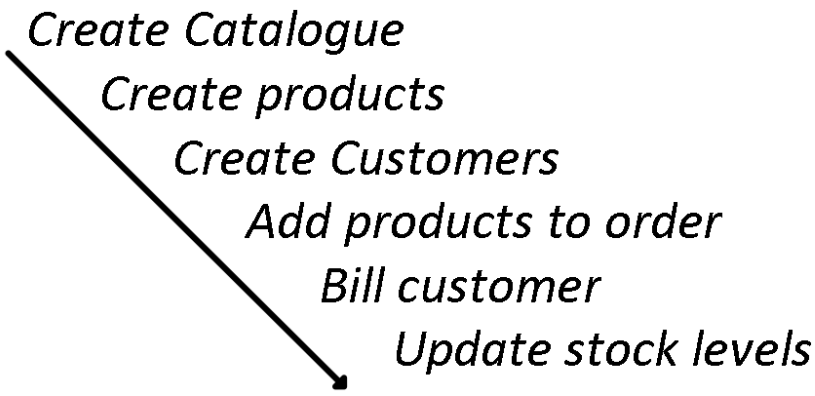
Where you look at what needs to be done in what order. (Languages like C work like this)

...Object Oriented

Where you look at what components make up the system, what we know about them, and ***then*** at what each of them do. (Java is this sort!)

Thinking in Objects

The example the courseware using is a product ordering system. A **procedural approach** might look something like...



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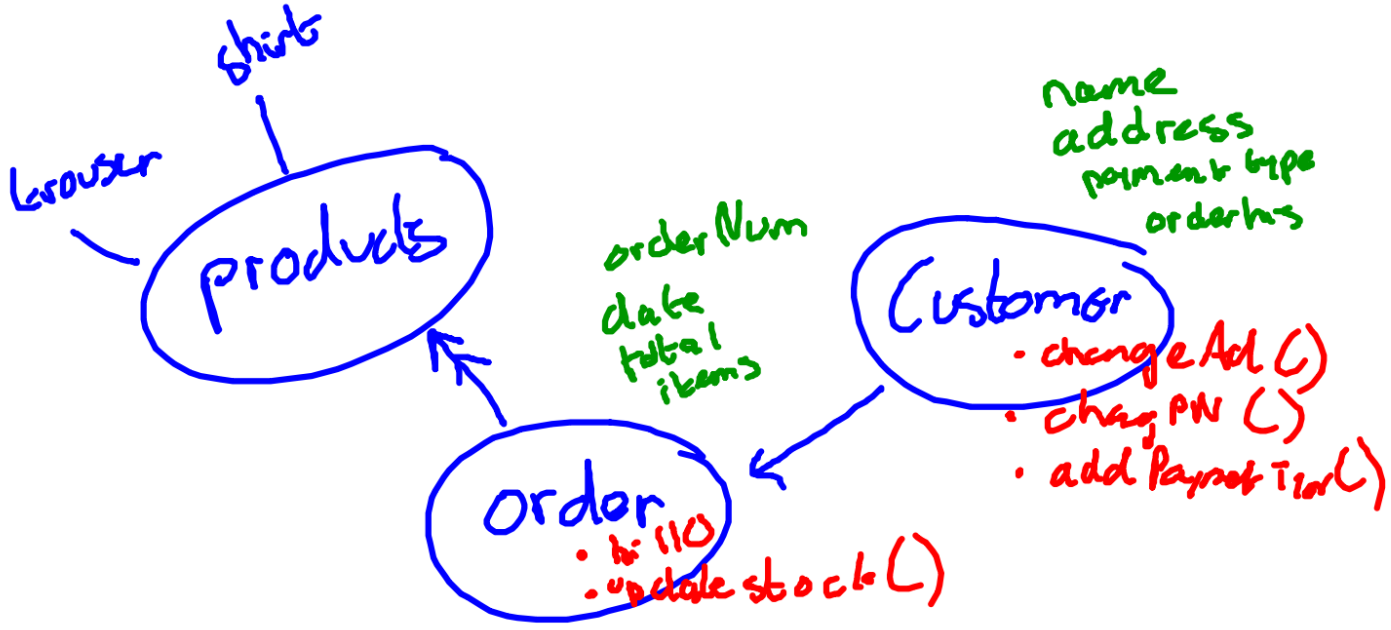
What might an **object oriented approach** look like?



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A **class** is the basic building block of Java.

*"Shirt" might be a class for example. It defines everything we **know** about shirts (Attributes) and everything we can **do** with them (Methods) in our system.*

Attributes	*Methods*
size [s,m,l]	discount()
colour [ ]	getStockLevel()
price	addtoOrder()
material	
stockLevel	

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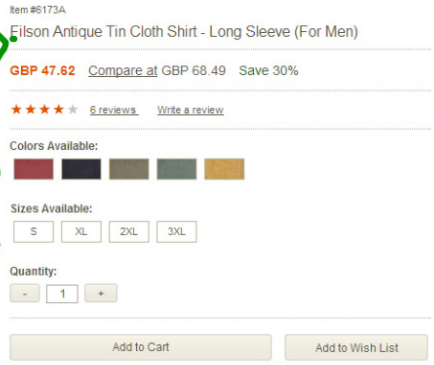
An **object** is a particular **instance** of a **class** - for example this shirt here...

Attributes	Values
desc	
price	£47.62
rating	4
colours	
sizes	
quantity	1



addToWish

addToCart()

Thinking in Objects

What other **classes** might make up our ordering system?

Thinking in Objects

What other **classes** might make up our ordering system?

Shirt	Customer	Order
productNum size colours[] sleeveLength price		
addToCart() addToWishlist() compare()		

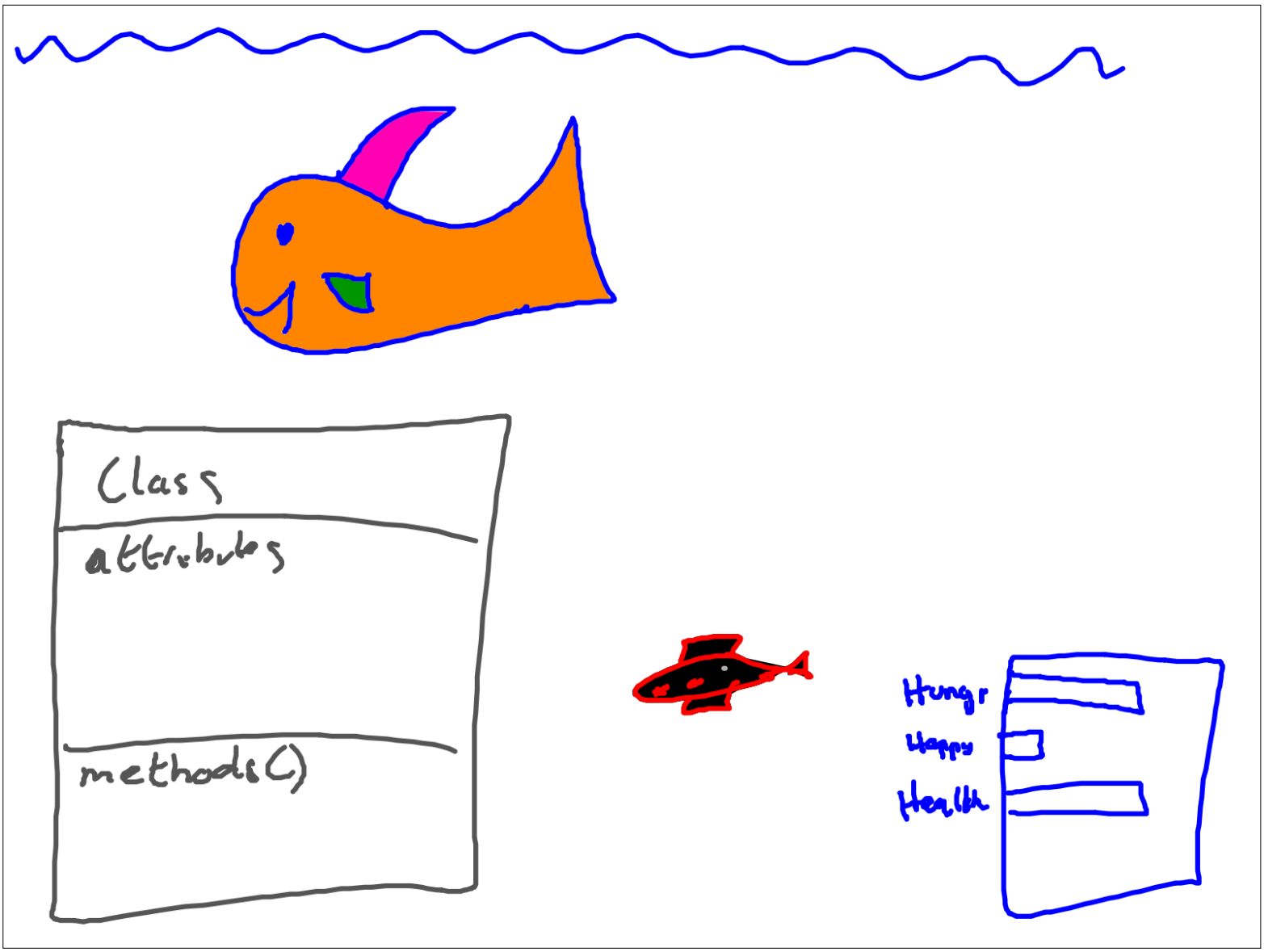
Thinking in Objects

Have a go at doing the same breakdown - Class, Attribute, Methods for some of the following:

House

Whale

Student


Class
attributes
methods()
Hungr
Happy
Health

Thinking in Objects

Classes can be hierarchical. You can save yourself time and troubleshooting by planning carefully.

Shirt
productNum size colours[] sleeveLength price
addToCart() addToWishlist() compare()

Trousers
productNum size colours[] legLength price
addToCart() addToWishlist() compare()

Can you see the duplication?

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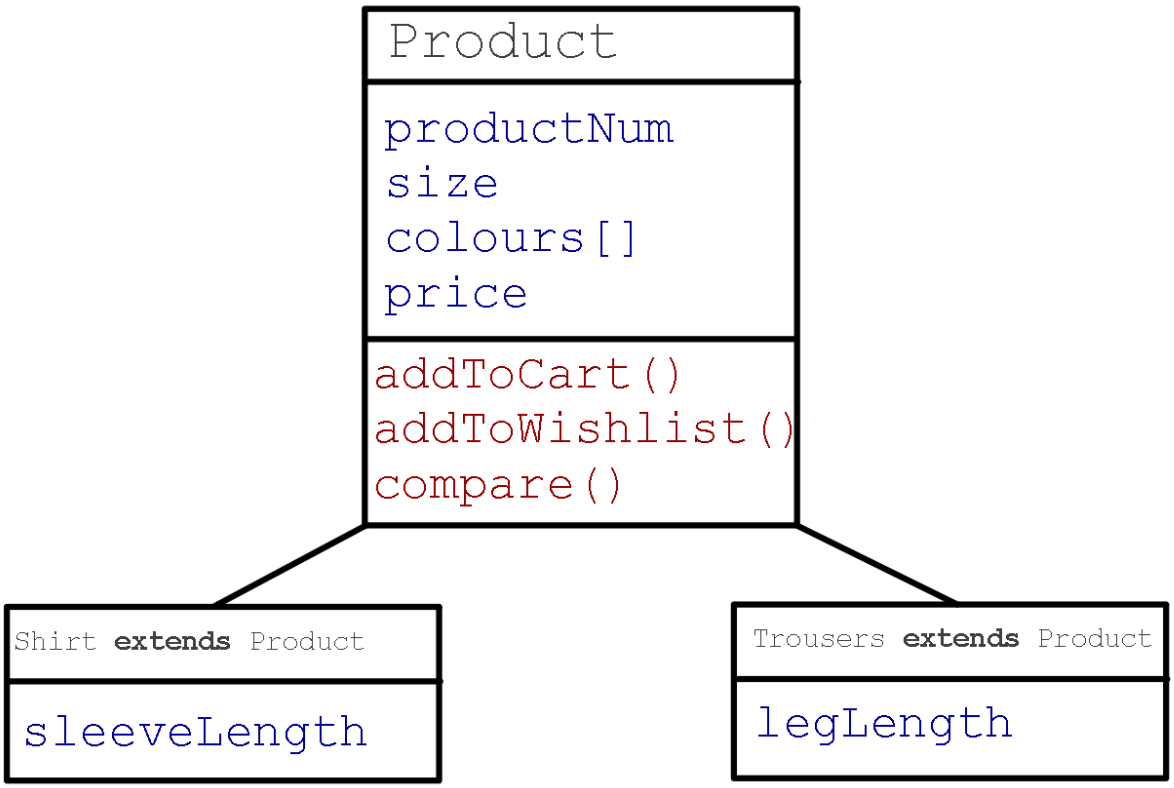

Greenfoot Working with Objects