Clean Code

Clean code is simple and direct.

Clean code reads like well-written prose.

Grady Booch

Clean code always looks like it was written by someone who cares.

Michael Feathers

How to Clean Code?

- meaningful names
- reasonable abstractions
- appropriate formatting
- knowing how to use comments

Confusing names

Class Names

```
public class CtxSwitchGen104Impl {
   …
}
```

Variable Names

```
private int gd;
private int genymdhms;
```

Method Names

```
public void doStuff() {
   …
}
```

Meaningful names

Class Names

```
public class EmailSender {
   …
}
```

Variable Names

```
private int heatFactor;
```

Method Names

```
public void sendEmail() {
   …
}
```

Reasonable abstraction

```
public String printStatement() {
 double totalAmount = 0;
 int frequentRenterPoints = 0;
 final Iterator<Movie> rentals = this.rentals.keySet().iterator();
 String result = "Rental Record for " + getName() + "\n";
 while (rentals.hasNext()) {
  double thisAmount = 0;
  final Movie each = rentals.next();
  final int dr = this.rentals.get(each);
  switch (each.getPriceCode()) {
  case Movie.REGULAR:
   thisAmount += 2;
   if (dr > 2)
    thisAmount += (dr - 2) * 1.5;
   break;
  case Movie.NEW_RELEASE:
   thisAmount += dr * 3;
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  case Movie.CHILDRENS:
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  result += "\t" + each.getTitle() + "\t" + thisAmount + "\n";
  totalAmount += thisAmount;
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 result += "Amount owed is " + totalAmount + "\n";
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Reasonable abstraction

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public String printStatement() {
 return printHeaderStatement() + printBodyStatement() + printFooterStatement();
}

private String printHeaderStatement() {
 return "Rental Record for " + name + "\n";
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private String printBodyStatement() {
 return rentals.stream()
     .map(this::printLine)
     .collect(joining());
}

private String printFooterStatement() {
 return "Amount owed is " + calculateTotalPrice() + "\n" +
   "You earned " + calculateFrequentRenterPoints() + " frequent renter points";
}

private String printLine(Rental rental) {
 return "\t" + rental.getMovie().getTitle() + "\t" + rental.getPrice() + "\n";
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private double calculateTotalPrice() {
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☺

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Appropriate formatting

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Knowing how to use comments

- Comments = failure to write self-explanatory code
- Try to avoid commenting at all costs!
- Sometimes neccessary evil

Knowing how to use comments

- Inserting ToDo’s while WIP
  //TODO: Clean up this mess!

- Explaining complex algorithms

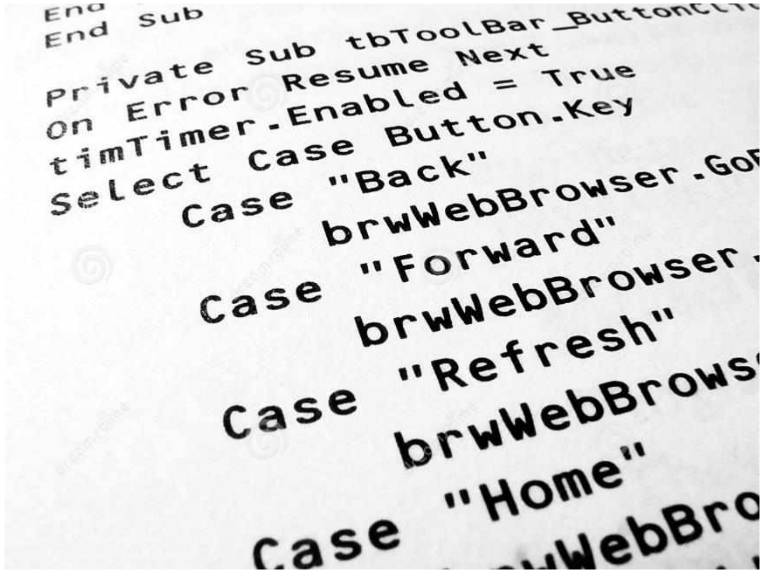
```
/**
* This class generates prime numbers
* up to a user specified maximum.
*/
```

- Explaining unorthodox approaches
  // Neccessary due to bug in apache library 2.0.5

Who do we code for?

Developer

Maschine language



```
End
End Sub

Private Sub tbToolBar_ButtonCl
On Error Resume Next
timTimer.Enabled = True
Select Case Button.Key
    Case "Back"
        brwWebBrowser.Go
    Case "Forward"
        brwWebBrowser.
    Case "Refresh"
        brwWebBrows
    Case "Home"
        wWebBro
```

Any fool can write code that a computer can understand.

Good programmers write code that humans can understand.

Martin Fowler