

# Introducing Branching!

# Errors

- Three kinds of errors:
  - Syntax (project won't build)
  - Run-time (program crashes/fails while running)
  - Logic (program runs but does the wrong thing)



# Quick Review: Variables, Types, and Expressions

- Syntax for variable declaration
- Types we know about
- Syntax for variable assignment
- Expression examples



# Alice in Wonderland

[Video](#)

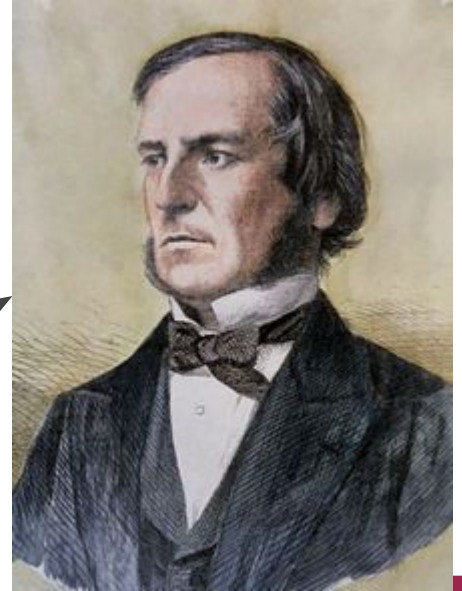
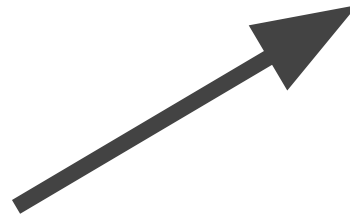
>>> Get your worksheets out <<<



# New Type: Boolean

- Type name: **bool**
- Possible values: **true** and **false**

George Boole



# Branching Statements: Doing the right thing

- Simple branching statement syntax:

```
if (<Boolean expression>)
```

```
{
```

```
    <statements>
```

```
}
```



# More statements: Doing the right thing...or not

- Simple branching statement syntax:

```
if (<Boolean expression>)
```

```
{
```

```
    <statements>
```

```
}
```

```
else
```

```
{
```

```
    <statements>
```

```
}
```



# Guess the Number game





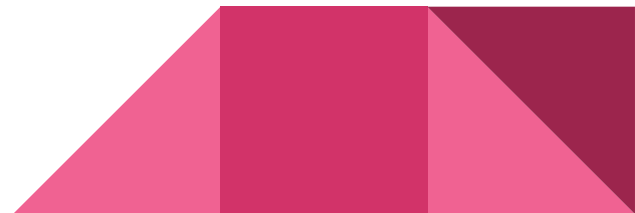
# Introducing Random Numbers!!!

- Declaration:


```
Random random = new Random();
```

- Usage:

```
int randomNumber =  
    random.Next(minValue, maxValue);
```



# Comparison Operators

- **value == value** (is equal to)
  - **value != value** (is NOT equal to)
  - **value < value** (is less than)
  - **value > value** (is greater than)
  - **value <= value** (is less than or equal to)
  - **value >= value** (is greater than or equal to)
- 

# Logical Operators


- **expression && expression** (true if both are true)
- **expression || expression** (true if either are true)
- **! expression** (opposite value)



# Complex Branching Statements

```
if (<Boolean expression>
{
    <statements>
}
else if (<Boolean expression>)
{
    <statements>
}
else
{
    <statements>
}
```

```
if (<Boolean expression>)
{
    <statements>
}
else if (<Boolean expression>)
{
    <statements>
}
else if (<Boolean expression>)
{
    <statements>
}
else
{
    <statements>
}
```



# Programming Assignment: Dice Game

