Girls Who Code
Level 3, Week 3

Continuation of fundamentals and methods

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WIT Shout-out of the Week:

Joy Buolamwini

- Joy is a Ghanaian-American computer scientist and digital activist based at the MIT Media Lab
- She founded the Algorithmic Justice League, an organisation that looks to challenge bias in decision making software.
- She got her bachelor's degree in computer science from Georgia Institute of Technology, studied education at Oxford University on a fellowship, and got her Masters Degree from MIT in 2017

Girls Who Code HQ

- GWC Hq is the national sign in website to register yourself as part of the national organization
- Go to the link below to register:
- https://hq.girlswhocode.com/login?redirectTo=%2F

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Club Code: WI15176

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Review of Fundamentals

Methods (aka Functions)

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```
public static int methodName(int a, int b) {
    // body
}
```

- Way to minimize the amount of code in your main() and keep your code well organized
- We've already seen several different methods
  - Console.Write()
  - Console.Read()
  - Main (string[] args)
- Methods are always followed by ()
  - Sometimes data (called PARAMETERS) are passed within the ()
  - Note: if / else-if / for are also followed by (), but are NOT methods

Modifiers

```
public static int methodName(int a, int b) {
    // body
}
```

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public

The type or member can be accessed by any other code in the same assembly or another assembly that references it.

private

The type or member can be accessed only by code in the same class or struct.

protected

The type or member can be accessed only by code in the same class, or in a class that is derived from that class.

Return Type

```
public static int methodName(int a, int b) {
    // body
}
```

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- Think back to data types from last week
  - int
  - double
  - bool
  - string
  - char
  - etc.
- This is what the method will send back when it is called

Method Name

```
public static int methodName(int a, int b) {
    // body
}
```

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- Should be related to purpose of the method
- camelCase or use_underscores
- Will be used to access method

Parameters

```
public static int methodName( int a, int b) {
    // body
}
```

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- This is the data that will be used in the method
- Must declare data type
- Can have multiple parameters
  - Just put a comma between them as shown above
- Can have 0 parameters
  - Ex: Console.ReadLine();

How to Call a Method

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- Use the Method Name (write it exactly the same) and include any parameters you need
- Summing Example

Recursion

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When a method calls itself (creates a loop)

Show repl and work through it by hand before running program

Practice Problems

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- Create a method that takes two integers as parameters, compares them, and returns the highest value
- Create a method that recursively calls itself to increment an integer given by the user by 3 until it is greater than 100
- Write a program that takes an integer from user input (n) and either sums up all numbers from 1 to n AND calculates n!