Static Methods

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Before We Begin

- Make sure you have Java downloaded on your computer
  - can run `java -version` in terminal to check
- Make sure you have IntelliJ downloaded on your computer
- Download figure.txt onto your Desktop

- *Suggested:* Watch previous Java tutorials

Static Methods

Vocab Alert!

algorithm: A list of steps for solving a problem

structured algorithm: a solution split into coherent tasks

static method: A named group of statements

procedural decomposition: process of dividing a problem into methods

Algorithm Exercise

Take a few minutes and write an algorithm for make a peanut butter and jelly sandwich

Problems with Algorithms

lack of structure: many small steps; tough to remember

redundancy: consider making 2 sandwiches in sequence. You wouldn't want to have to resay all the steps over again

Syntax for a static method

```
// method declaration
public static void methodName() {
    // code goes here
}
```

```
public static void main(String[] args) {
    // calling method
    methodName();
}
```

Note on Method Names

Method names should follow the same convention as variable names:
- start with lowercase letter
- can contain letters and numbers
- follow camel case style
  - ex: methodName

Steps for Using Methods

1. Design the algorithm.
    a. Look at the structure, and which commands are repeated.
    b. Decide what are the important overall tasks.
    c. Good programmers do this BEFORE writing any code
2. Declare (write down) the methods.
    a. Arrange statements into groups and give each group a name.
3. Call (run) the methods.
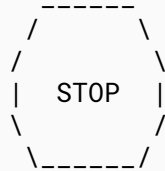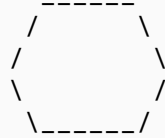   a. The program's main method executes the other methods to perform the overall task.

Important Points About Methods
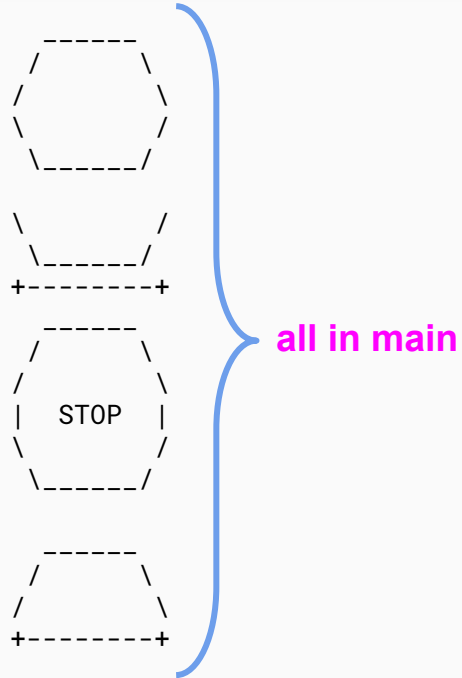
Methods can call other methods

Methods can be called as many times as needed/wanted

Static Method Walkthrough

```
       _____
      /       \
     /         \
     \         /
      _____/


      \         /
       _____/
      +---------+
       _____
      /       \
     /         \
     |  STOP   |
      \         /
       _____/


       _____
      /       \
     /         \
      +---------+
```

Unstructured Solution

```
      _____
     /       \
    /         \
    \         /
     _____/

     \       /
      \_____/
      +------+

      _____
     /       \
    /         \
    |  STOP   |
    \         /
     _____/

      _____
     /       \
    /         \
    +---------+
```

all in main

Structured Solution With Redundancy

```
 _____
/       \        egg
\       /
 \_____/
 \     /        tea cup
  \___/
 +-------+
 _____
/       \
|  STOP  |      stop sign
\       /
 \_____/
 _____
/       \       hat
+-------+
```
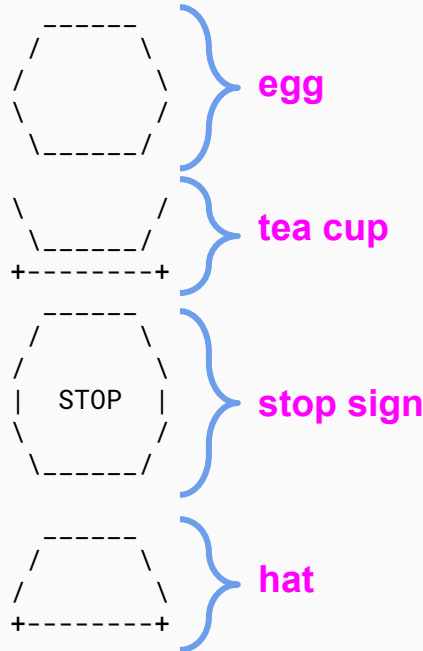
Structured Solution Without Redundancy

The End