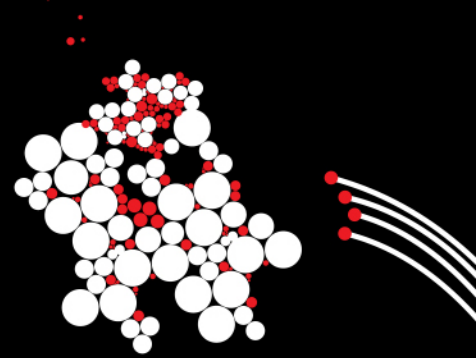
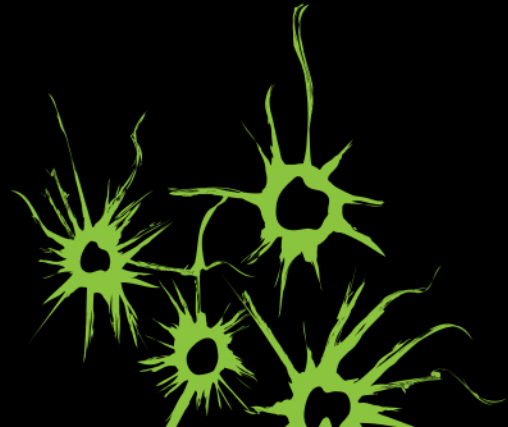
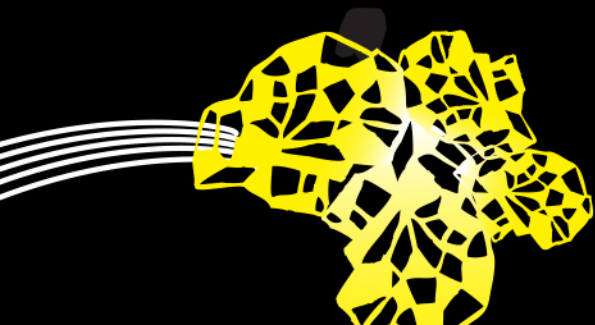


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# PROGRAMMING: METHOD AND SCOPING

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# METHOD

- A **method** is a sequence of instructions with a name.

- E.g. `println` is a method

Type of input variable (parameter)

Type of output variable

Name of the method

```
// This methods calculates the factorial of the number n.  
private static int factorial(int n) {  
    int factorial=1;  
    for (int i = 1; i <=n ; i++) {  
        factorial=factorial*i;  
    }  
    return factorial;  
}
```

input variable

argument of method

Output variable

Method call:

```
int n=5;  
int factorial=factorial(n);  
System.out.println("The factorial of of "+5+" is: "+ factorial);
```

# METHOD

---

```
// This method calculates and print the factorial
private static void printFactorial(int n) {
    int factorial=1;
    for (int i = 1; i <=n ; i++) {
        factorial=factorial*i;
    }
    System.out.println("The factorial of of "+n+" is: "+ factorial);
}
```

```
int n=5;
printFactorial(n);
```

# RECURSION

---

- Dividing a problem to smaller problem of same type.
  - A tool used to simplify design and implementation of algorithm.

```
// This methods calculates the factorial of the number n.  
private static int recursiveFactorial(int n) {  
    if(n==1) {  
        return 1;  
    }  
    return n*recursiveFactorial(n-1);  
}
```