
# ITEC 120

Lecture 6
Functions

## Review

- Questions
- Functions
  - Syntax
  - Function body and function call
  - File structure



## Objectives

- Mini-Exam next Friday
- Parameters
- Functions calling other functions
- Examples





## Example

```
import java.util.*;
public class FunctionContainer
{
   public void bill(String input)
   {
      String name = input.substring(0, input.indexOf('|'));
      double val = Double.valueOf(input.subString(
         input.indexOf('|')+1, input.length()));
      System.out.println("+--------------------+");
      System.out.println("Bill for: " + name);
      System.out.println("Amount due: " + val);
      System.out.println("_--------------------_");
   }
}
```

## Back to Basics

- Print a string with a custom class
  - io.println("Hello");
- Method

```
public class FunctionContainer
{
    public void println(String value)
    {
        System.out.println(value);
    }
}
```



## Parameters

- Allow information to be sent to functions
- Comma Separated List
- VariableType VariableName

```
public class FunctionContainer
{
    public void println(String value1, String value2)
    {
        System.out.println(value1);
        System.out.println(value2);
    }
}
```



## Example

- One file that has no math operations
- One file that is solely for math
- Need to add, subtract, multiply, and divide two numbers



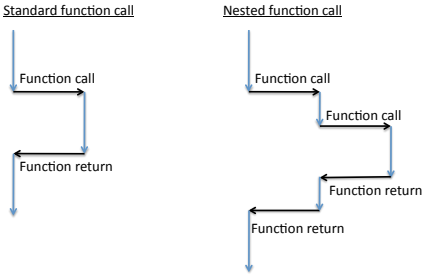
## Return Types

- Functions can return some work
- Functions don't have to
- Decide whether or not when writing them

```
public void doesNotReturn()
{
}
```

```
public int doesReturn()
{
    return 1337;
}
```

## Chaining calls




Functions

## Example

1. Template's main
2. FC's process
3. FC's readInt

```
import java.util.*;
public class FunctionContainer
{
   public void process()
   {
      int x = this.readInt();
      x=x*x;
      System.out.println(x);
   }
   public int readInt()
   {
      Scanner scan = new Scanner(System.in);
      return scan.nextInt();
   }
}
```

This is used to specify the object you created in template

Functions

## Example

```
import java.util.*;
public class FunctionContainer
{
   public double mystery()
   {
      double a,b,c;
      a = this.readDouble();
      b = this.readDouble();
      c = readDouble();
      return (-b + (Math.sqrt(b*b-4*a*c)/(2*a)));
   }
   public double readDouble()
   { Scanner scan = new Scanner(); return scan.nextDouble();}
}
```

Functions

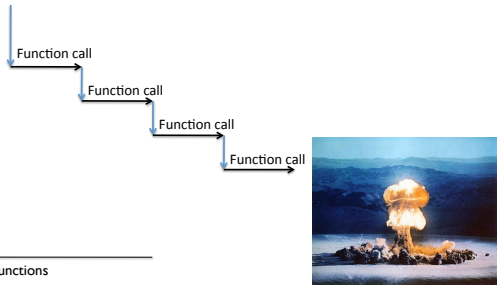
## Example

```
public class FunctionContainer
{
   public void process()
   {
      int lowHP=this.calcHP(50,.05,30);
      lowHP=this.calcHP(lowHP,.05,30);
   }
   public double calcHP(int hp, double armor, int damage)
   {
      return hp - (damage - (armor*damage));
   }
}
```

Functions

## Warning

- Don't call the same function you are inside of






## Example

- Write a program that takes"300|Name" as input and outputs Name owes $600
- Refactor to use functions



## Review

- Functions
- Parameters
- Chaining