Comp 110/401 Documentation: Comments

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Prerequisite

- State Properties

Programming Style: The Art of Programming

- Use Interfaces ✓
- Efficiency ✓
- Document Program
- Avoid Code Repetition ✓
- Giving Least Privilege ✓
- Use Named Constants ✓

COMMENT?

Any code in the program removed by the compiler.

Useful for documentation

```
double bmi; //computed by setWeight and setHeight
```

Also for enclosing debugging code

```
//        System.out.println(newHeight);
```

What to Comment?

- Any code fragment needing explanation
  - Class
    - Top-level algorithm, author, date modified
  - Variable declaration
    - Purpose, where used, how its value is computed
  - Method declaration
    - params, return value, algorithm, author, date modified
  - Statement sequence
    - Explanation
- Debugging code

Comment Types

Single line comments

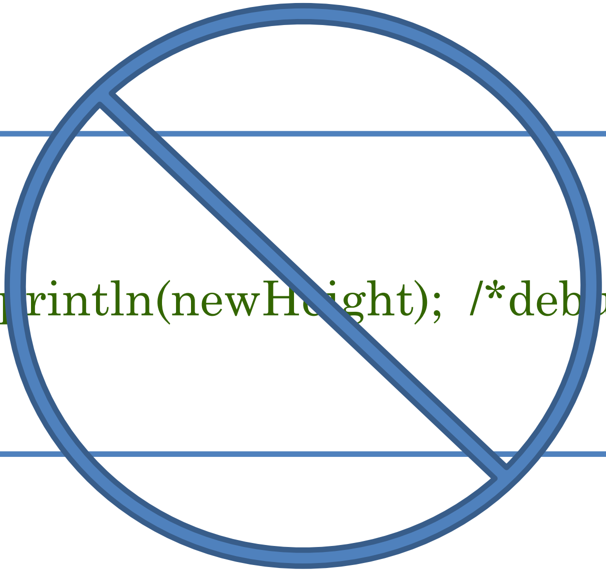
```
double bmi; //computed by setWeight and setHeight
```

Single or multi-line arbitrary comments

```
     /* recompute dependent properties */
     bmi = weight/(height*height);
```

```
      /* recompute dependent
        properties */
     bmi = weight/(height*height);
```

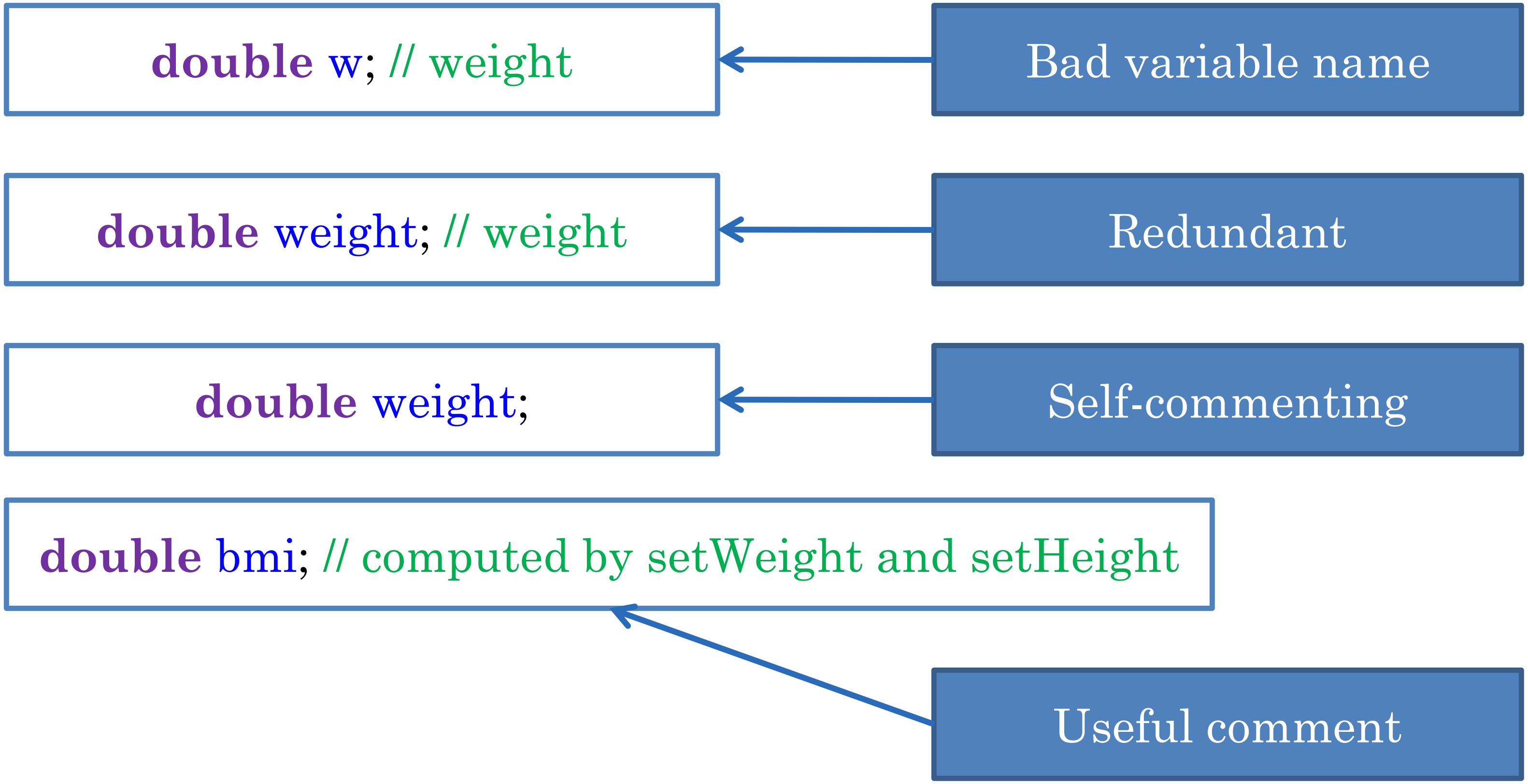
Removing Debugging Code



```
/*
 System.out.println(newHeight);  /*debugging statement */
 */
```

```
/*
System.out.println(newHeight);  // debugging statement
*/
```

What to Write in a Comment?



```
double w; // weight
```

Bad variable name

```
double weight; // weight
```

Redundant

```
double weight;
```

Self-commenting

```
double bmi; // computed by setWeight and setHeight
```

Useful comment

Self Commenting Variable Names

```
public static final int NUMBER_WITH_LARGE_FACTORIAL = 15;
```

Eclipse CTRL-SPACE will complete name for you

Method Decomposition

Comment→long identifier name

```
public static void modularReadAndPrintStrings() () {
  String[] strings = readStrings(readNumStrings());
  printStrings(strings);
  printString(strings[0]);// unsafe
}
```

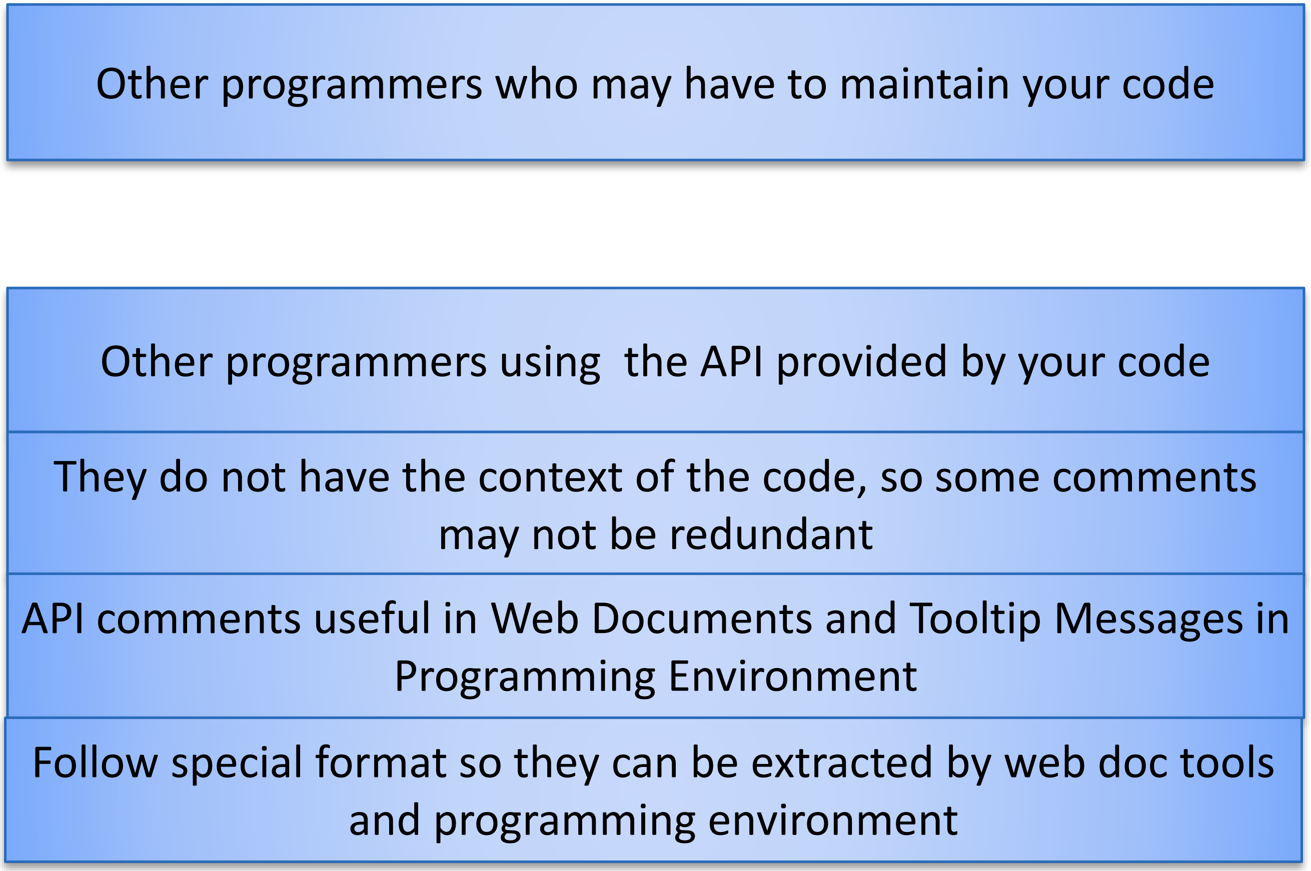
Eclipse CTRL-SPACE will complete name for you

```
public static int readNumStrings() {
  System.out.println("Number of Strings:");
  return Console.readInt(); // reads the next line as integer
}
```

```
public static String[] readStrings(int numElements) {
  System.out.println("Please enter " + numElements + " strings");
  String[] strings = new String[numElements]; // dynamic array
  for (int elementNum = 0; elementNum < numElements; elementNum++)
    strings[elementNum] = Console.readString();
  return strings;
}
```

Useful information assuming the reader does not know it

For Whom the Comments Toll



Other programmers who may have to maintain your code

Other programmers using the API provided by your code

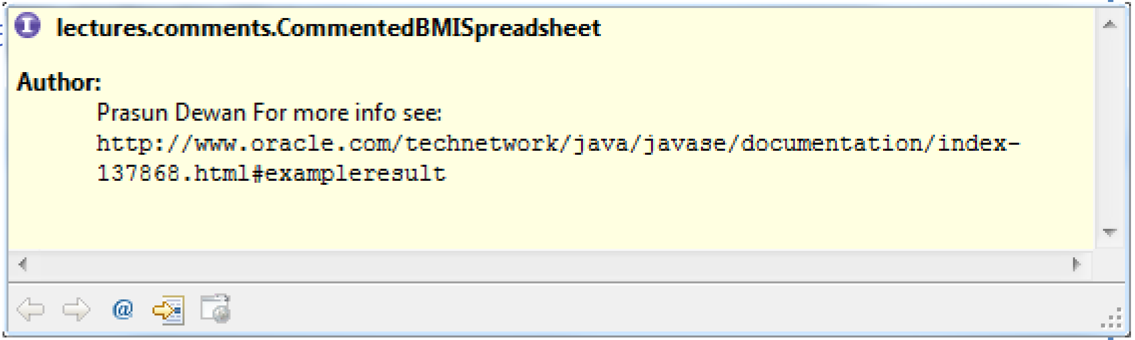
They do not have the context of the code, so some comments may not be redundant

API comments useful in Web Documents and Tooltip Messages in Programming Environment

Follow special format so they can be extracted by web doc tools and programming environment

JavaDoc Conventions For Headers (API)

```
/**
 * @author Prasun Dewa
 * For more info see:
 * {@link
http://www.oracle.com/te
137868.html#exampleresul
 */
public interface CommentedBMISpreadsheet {
```

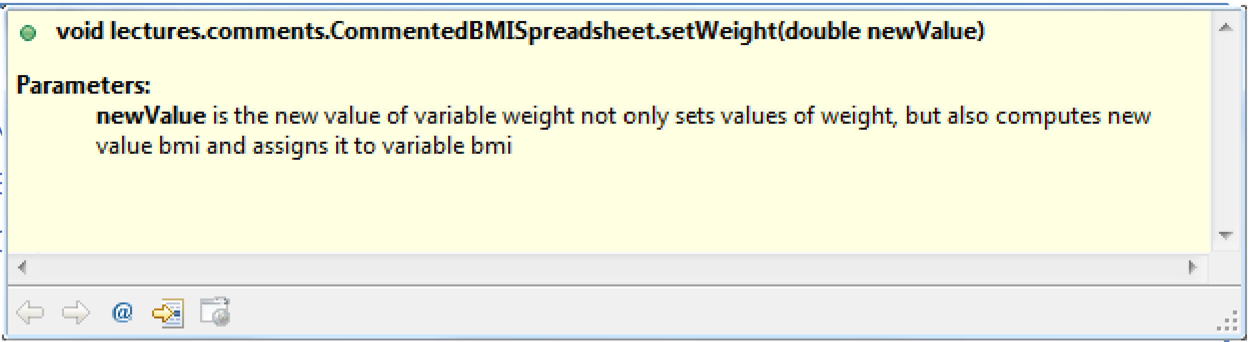


lectures.comments.CommentedBMISpreadsheet

Author:

Prasun Dewan For more info see:
`http://www.oracle.com/technetwork/java/javase/documentation/index-137868.html#exampleresult`

```
    /**
    * @param newV
    * not only se
    * but also co
    * assigns it
    */
    public void setWeight(double newValue);
```



void lectures.comments.CommentedBMISpreadsheet.setWeight(double newValue)

Parameters:

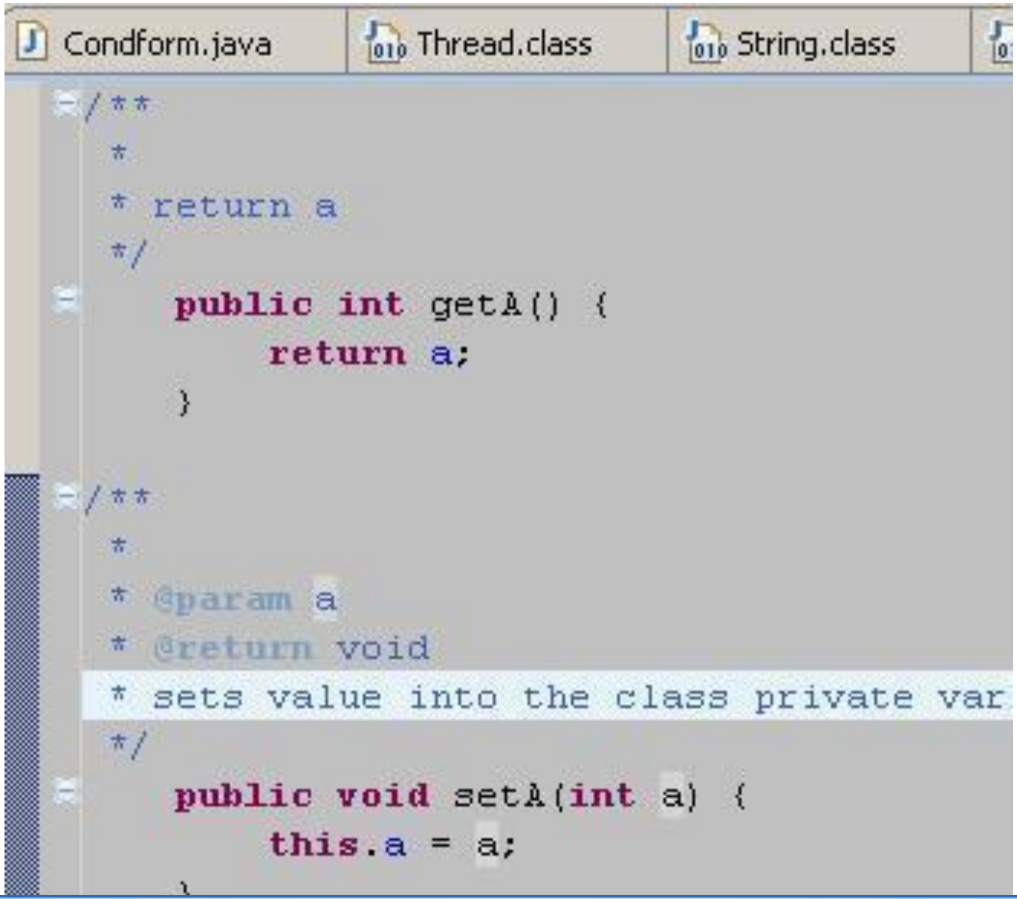
newValue is the new value of variable weight not only sets values of weight, but also computes new value bmi and assigns it to variable bmi

JavaDoc Tags

Interface or Class?

Interface is the API

Example



```
/**
 *
 * return a
 */
    public int getA() {
        return a;
    }

/**
 *
 * @param a
 * @return void
 * sets value into the class private var
 */
    public void setA(int a) {
        this.a = a;
```

In well written code, difficult to find opportunities to comment

Do not comment for the sake of commenting