

//TODO: Write A Better Comment

Adam McNeilly - @AdamMc331



Java  @java · Jun 2

Stop Writing Code Comments


#cleancoder

medium.com/@bpnorlander/s...

```
1 // this function sends an email
2 void sendEmail() {
3     ...
4 }
5
6 // this class holds data for an employee
7 public class Employee {
8     ...
9 }
10
11 /**
12  * @param title The title of the CD
13  * @param author The author of the CD
14  * @param tracks The number of tracks on the CD
```

 257

 298

 1K



This Is Bad Advice

"When you need to write a comment, it usually means that you have failed to write code that was expressive enough. You should feel a sharp pain in your stomach every time you write a comment."

You Are Not A Failure For Writing Comments

We Need To Stop Writing **Bad** Comments

Why Do We Have Comments?

To Provide Additional Insight

```
/**
```

```
 * There is certain functionality that we need to be consistent  
 * in all WebViews of our app.  
 * For some URLs, though, we need additional customization so we  
 * can extend this base class accordingly.
```

```
 */
```

```
class BaseWebViewClient(...) : WebViewClient
```


To Explain Why We Did Something

```
// The API returns the time in seconds  
// but we need to manipulate it as milliseconds.  
val timeInMillis = response.time * 1000
```

To Provide Documentation

```
interface AccountDAO {  
    /**  
     * Inserts an account into the database.  
     *  
     * @param[account] The account that we're inserting.  
     * @return The ID of the inserted account.  
     */  
    fun insert(account: Account): Long  
}
```

What Risks Do Comments Pose?

Changing Code Doesn't Guarantee We Change Comments

Describe Some Action

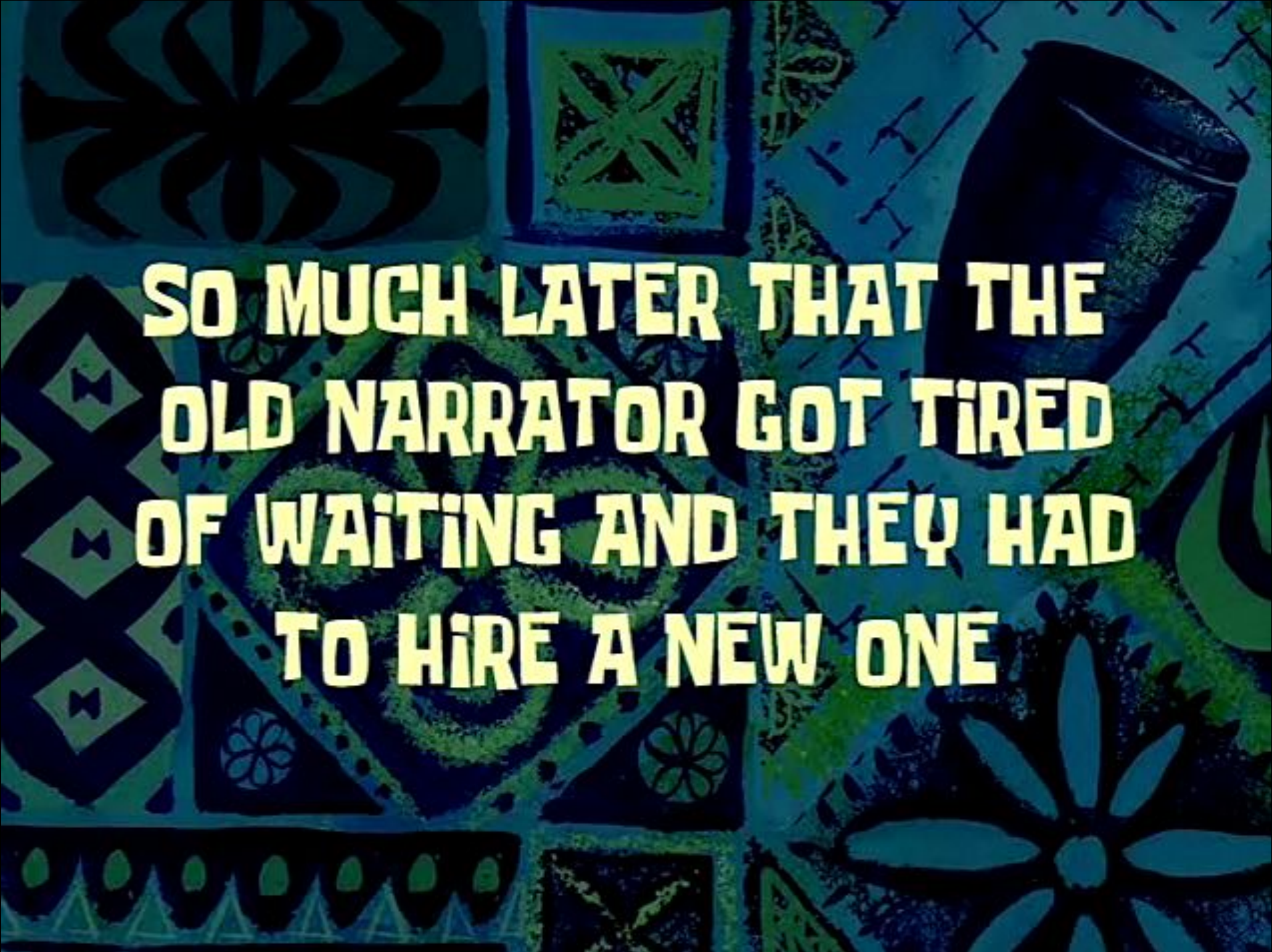
```
// We only want active users
val usersToDisplay = userList.filter { user ->
    user.isActive
}
```



**THREE
WEEKS
LATER...**

That Action Changed

```
// We only want active users
val usersToDisplay = userList.filter { user ->
    user.isActive && user.completedRegistration
}
```

**SO MUCH LATER THAT THE
OLD NARRATOR GOT TIRED
OF WAITING AND THEY HAD
TO HIRE A NEW ONE**

Which Is Right? 🤔

```
// We only want active users
val usersToDisplay = userList.filter { user ->
    user.isActive && user.completedRegistration
}
```

Three Types Of Comments

Three Types Of Comments

- Comments that are unnecessary

Three Types Of Comments

- Comments that are unnecessary
- Comments that are unhelpful

Three Types Of Comments

- Comments that are unnecessary
- Comments that are unhelpful
- Comments that are helpful

Unnecessary Comments

Bad: Repeating the code

```
interface AccountDAO {  
    /**  
     * Inserts an account into the database.  
     *  
     * @param[account] The account that we're inserting.  
     * @return The ID of the inserted account.  
     */  
    fun insert(account: Account): Long  
}
```

Good: Remove what we don't need

```
interface AccountDAO {  
    /**  
     * @return The ID of the inserted account.  
     */  
    fun insert(account: Account): Long  
}
```


Change Code To Avoid Needing Comments

Good: Clarifying Behavior

```
// Saves data to database  
fun saveData() {  
    // ...  
}
```

Better: More Expressive Code

```
fun saveDataToDatabase() {  
    // ...  
}
```

Good: Break Up Method

```
fun transferMoney(fromAccount: Account, toAccount: Account, amount: Double) {  
    // create withdrawal transaction and remove from fromAccount  
    // ...  
  
    // create deposit transaction and add from toAccount  
    // ...  
}
```

Better: Extract Functionality

```
fun transferMoney(fromAccount: Account, toAccount: Account, amount: Double) {  
    withdrawMoney(fromAccount, amount)  
    depositMoney(toAccount, amount)  
}
```

Now What?

Now What?

- We removed any redundant comments

Now What?

- We removed any redundant comments
- We changed code to avoid comments

Now What?

- We removed any redundant comments
- We changed code to avoid comments
- How do we ensure the comments we do write are helpful?

Comments Tell You **Why**, Code Tells
You **What**

Comments That Tell Us What

```
/**  
 * A list of updated questions to be replaced in our list by an interceptor.  
 */  
private val updatedQuestions: MutableMap<Long, Question> = HashMap()
```

Comments That Tell Us Why

```
/**  
 * The `PagedList` class from Android is backed by an immutable list.  
 * However, if the user answers a question locally, we want to update the display  
 * without having to fetch the data from the network again.  
 *  
 * To do that, we keep this local cache of questions that the user has  
 * answered during this app session, and later when we are building  
 * the list we can override questions with one from this list, if it exists.  
 * That's determined by the key of this HashMap, which is the question ID.  
 */  
private val updatedQuestions: MutableMap<Long, Question> = HashMap()
```

Comments With Examples

Okay: No Examples

```
class Pokedex {  
    /**  
     * @param[name] The name of the Pokemon.  
     */  
    fun addPokemon(name: String, number: Int) {  
  
    }  
}
```

Better: With Examples

```
class Pokedex {  
    /**  
     * @param[name] The name of the Pokemon (Bulbasaur, Ivysaur, Venusaur).  
     */  
    fun addPokemon(name: String, number: Int) {  
  
    }  
}
```

Links To Additional Resources

To StackOverflow

```
/**
 * A ViewPager that cannot be swiped by the user,
 * but only controlled programmatically.
 *
 * Inspiration: https://stackoverflow.com/a/9650884/3131147
 */
class NonSwipeableViewPager(
    context: Context,
    attrs: AttributeSet? = null
) : ViewPager(context, attrs) {
    // ...
}
```

To Internal Documentation

```
/**  
 * Implementation of some feature that I was asked to build.  
 *  
 * Design/Product Spec: https://confluence.com/some/feature  
 */  
class SomeFeatureFragment : Fragment() {  
    // ...  
}
```

To Reported Issues

```
/**
 * The carousel library we use does not support a
 * specific functionality that we need. We've extended
 * this class to modify it ourselves.
 *
 * Issue reported: https://github.com/library/issues/1
 */
class MyCustomCarousel : Carousel() {
    // ...
}
```


Actionable Comments

//TODO: Comments

If you're not going to do it now, create accountability with links to issue trackers.

```
//TODO: Consolidate both of these classes
// since we only have one activity now.
// AAA-123
class MainActivity : BaseActivity() {
    // ...
}
```

Deprecation Comments

Bad: No Explanation

```
@Deprecated
public interface DefaultBehavior {
    // ...
}
```

Better: Provide Alternative

```
/**
 * @deprecated Use {@link AttachedBehavior} instead
 */
@Deprecated
public interface DefaultBehavior {
    // ...
}
```

Other General Suggestions

ASCII Art?²

```
130 * <p>ChipDrawable's horizontal layout is as follows:
131 *
132 * <pre>
133 *   chipStartPadding   iconEndPadding   closeIconStartPadding   chipEndPadding
134 *   +                 +                 +                 +
135 *   |                 |                 |                 |
136 *   | iconStartPadding | textStartPadding textEndPadding | closeIconEndPadding |
137 *   | +                 | +                 + |                 + |
138 *   | |                 | |                 | |                 | |
139 *   v v                 v v                 v v                 v v
140 * +-----+-----+-----+-----+-----+-----+-----+
141 * | | | | | XX | | | | XX X X X XXX | | | | X X | | | |
142 * | | | | | XX | | | | X X X X X X X | | | | XX XX | | | |
143 * | | | | | XX XX | | | | X XXXX X XXX | | | | XX | | | |
144 * | | | | | XXX | | | | X X X X X X X | | | | XX XX | | | |
145 * | | | | | X | | | | XX X X X X X | | | | X X | | | |
146 * +-----+-----+-----+-----+-----+-----+
147 *           ^           ^           ^
148 *           |           |           |
149 *           +           +           +
150 *           chipIconSize   *dynamic*   closeIconSize
151 * </pre>
152 *
```

² <https://github.com/material-components/material-components-android/blob/master/lib/java/com/google/android/material/chip/ChipDrawable.java#L130-L151>

Summarize Large Sections Of Code



SyntaxSeed (Sherri W)  

Jun 13 

Comments are valuable when they enable me to skip over reading a section of code.

Yes, clear, expressive code is important, but sorry to burst egos- I don't want to read every line of even beautiful code. I'm a busy woman.

Write comments to summarize sections & reveal gotchas & important details. It's just more efficient that way.



5

REPLY

Reference Definitions

Reference Definitions

- Helps survive refactoring of a definition

Reference Definitions

- Helps survive refactoring of a definition
- IDE lets you click into references

Reference Definitions

- Helps survive refactoring of a definition
- IDE lets you click into references
- Will create links for auto generated documentation

Without References

```
/**  
 * Retrieves the primary Type for a Pokemon.  
 */  
val firstType: Type?  
    get() = currentState.pokemon?.sortedTypes?.firstOrNull()
```

Refactor class name...

```
/**  
 * Retrieves the primary Type for a Pokemon.  
 */  
val firstType: PokemonType?  
    get() = currentState.pokemon?.sortedTypes?.firstOrNull()
```

With References

```
/**
 * Retrieves the primary [Type] for a [Pokemon].
 */
val firstType: Type?
    get() = currentState.pokemon?.sortedTypes?.firstOrNull()
```

Refactor class name...

```
/**
 * Retrieves the primary [PokemonType] for a [Pokemon].
 */
val firstType: PokemonType?
    get() = currentState.pokemon?.sortedTypes?.firstOrNull()
```

Use Consistent Language

Use Consistent Language

- When documenting methods that return booleans, try to always describe the true condition

Use Consistent Language

- When documenting methods that return booleans, try to always describe the true condition
- Don't describe the true response for some methods and the false response for others

Inconsistent Documentation

```
/**
 * @return True if the user has signed on within the last 24 hours.
 */
fun isActive(): Boolean {
    // ...
}
```

```
/**
 * @return False if the user is not a staff member for our team.
 */
fun isStaff(): Boolean {
    // ...
}
```

Consistent Documentation

```
/**  
 * @return True if the user has signed on within the last 24 hours.  
 */  
fun isActive(): Boolean {  
    // ...  
}
```

```
/**  
 * @return True if the user is a staff member of our team.  
 */  
fun isStaff(): Boolean {  
    // ...  
}
```

Recap

Recap

- Remove redundant comments

Recap

- Remove redundant comments
- Write expressive code

Recap

- Remove redundant comments
- Write expressive code
- Write helpful comments

Recap

- Remove redundant comments
- Write expressive code
- Write helpful comments
 - Explain **why**

Recap

- Remove redundant comments
- Write expressive code
- Write helpful comments
 - Explain **why**
 - Provide examples

Recap

- Remove redundant comments
- Write expressive code
- Write helpful comments
 - Explain **why**
 - Provide examples
 - Give guidance

Recap

- Remove redundant comments
- Write expressive code
- Write helpful comments
 - Explain **why**
 - Provide examples
 - Give guidance
 - Leverage IDE tools

Recap

- Remove redundant comments
- Write expressive code
- Write helpful comments
 - Explain **why**
 - Provide examples
 - Give guidance
 - Leverage IDE tools
 - Use consistent language

Thank You!

<https://github.com/AdamMc331/TODO-DCNYC19>