Advanced Programming in the UNIX Environment

Week 05, Segment 1: Unix Development Tools

Department of Computer Science
Stevens Institute of Technology

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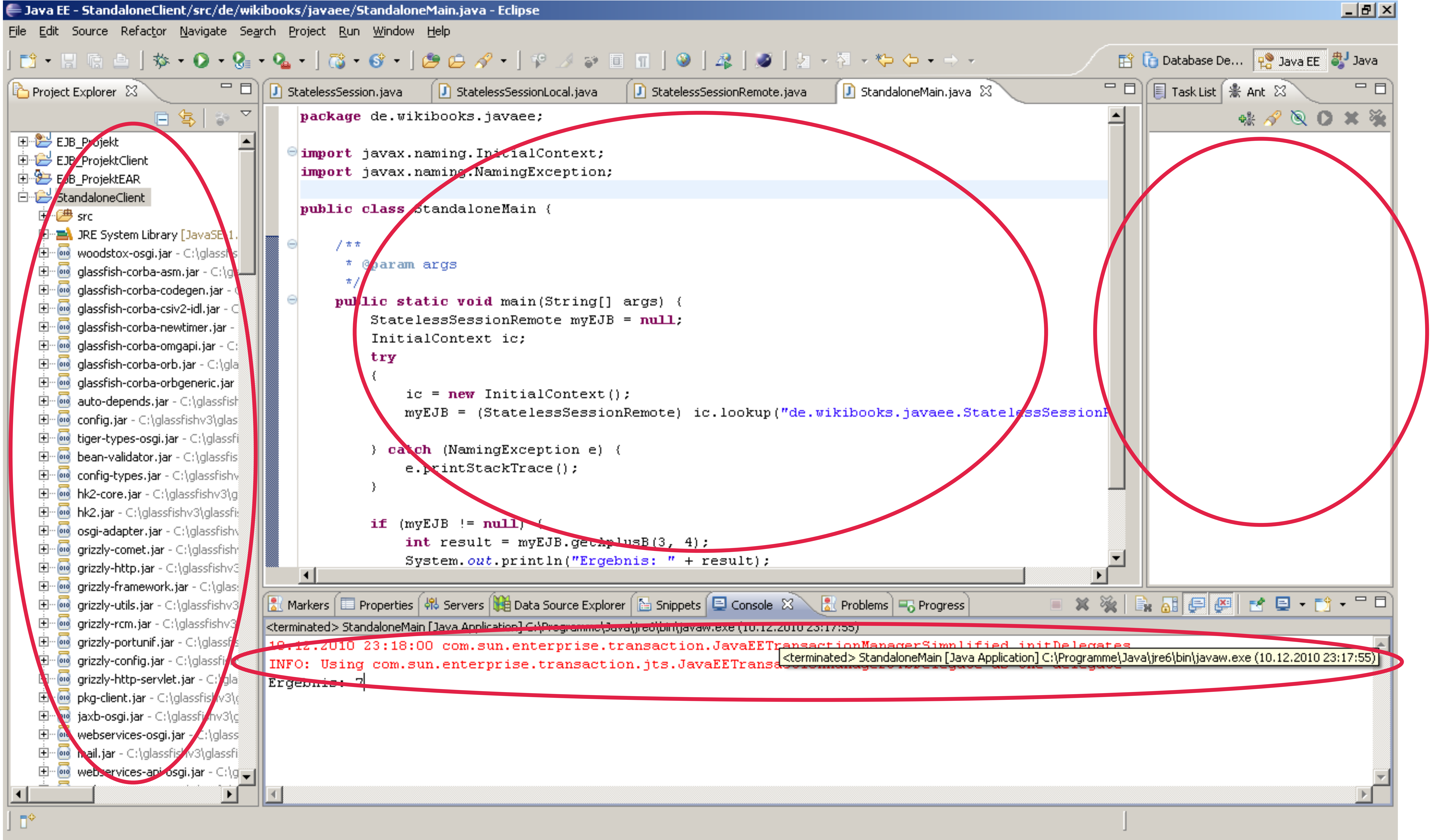
https://stevens.netmeister.org/631/


Java EE - StandaloneClient/src/de/wikibooks/javaee/StandaloneMain.java - Eclipse
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StatelessSession.java
StatelessSessionLocal.java
StatelessSessionRemote.java
StandaloneMain.java
Task List
Ant
Markers
Properties
Servers
Data Source Explorer
Snippets
Console
Problems
Progress

```java
package de.wikibooks.javaee;

import javax.naming.InitialContext;
import javax.naming.NamingException;

public class StandaloneMain {

    /**
     * @param args
     */
    public static void main(String[] args) {
        StatelessSessionRemote myEJB = null;
        InitialContext ic;
        try
        {
            ic = new InitialContext();
            myEJB = (StatelessSessionRemote) ic.lookup("de.wikibooks.javaee.StatelessSessionR

        } catch (NamingException e) {
            e.printStackTrace();
        }

        if (myEJB != null) {
            int result = myEJB.getPlusB(3, 4);
            System.out.println("Ergebnis: " + result);
```

```
<terminated> StandaloneMain [Java Application] C:\Programme\Java\jre6\bin\javaw.exe (10.12.2010 23:17:55)
10.12.2010 23:18:00 com.sun.enterprise.transaction.JavaEETransactionManagerSimplified initDelegates
INFO: Using com.sun.enterprise.transaction.jts.JavaEETrans
Ergebnis: 7
```

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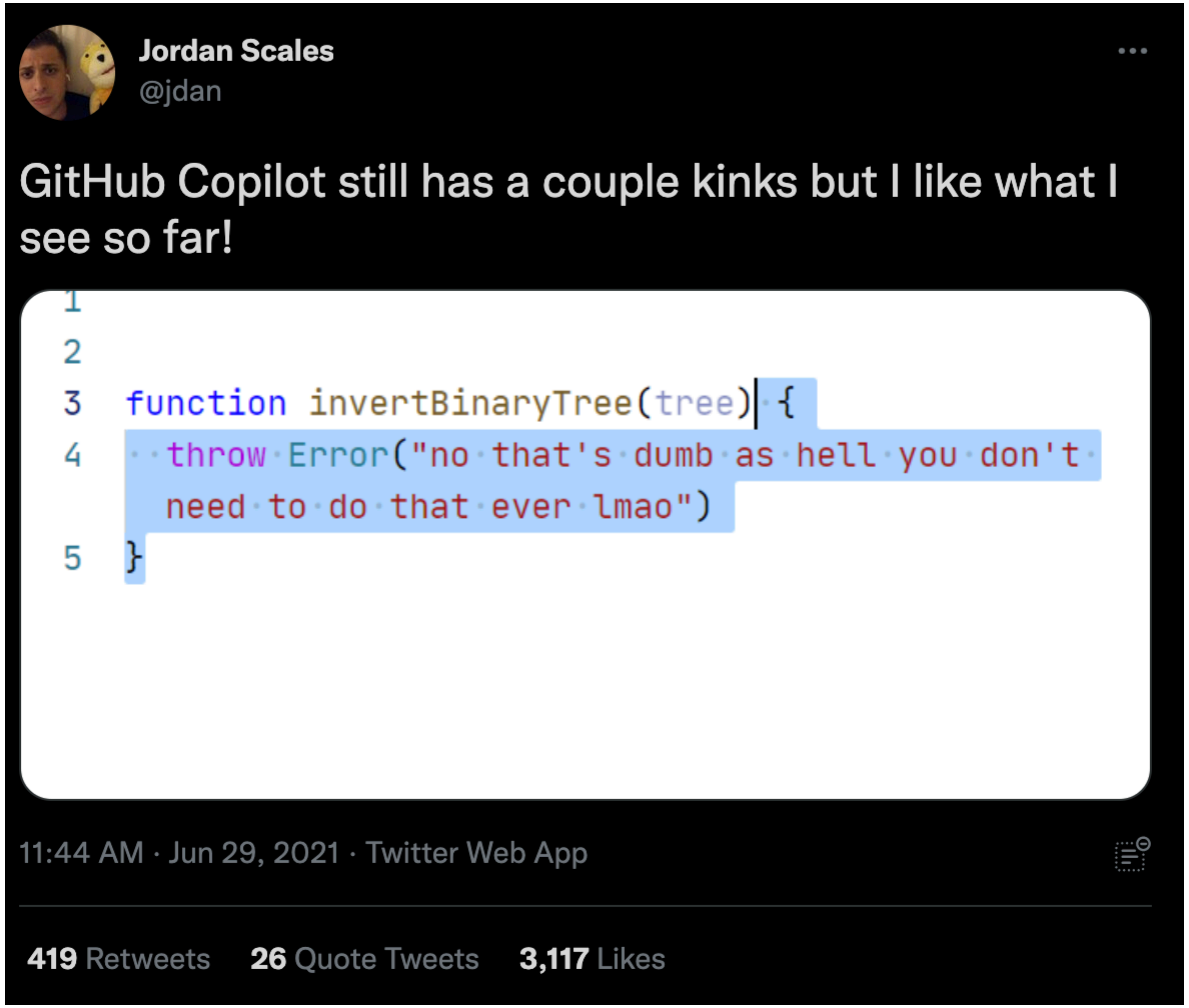
GitHub Copilot



Jordan Scales
@jdan

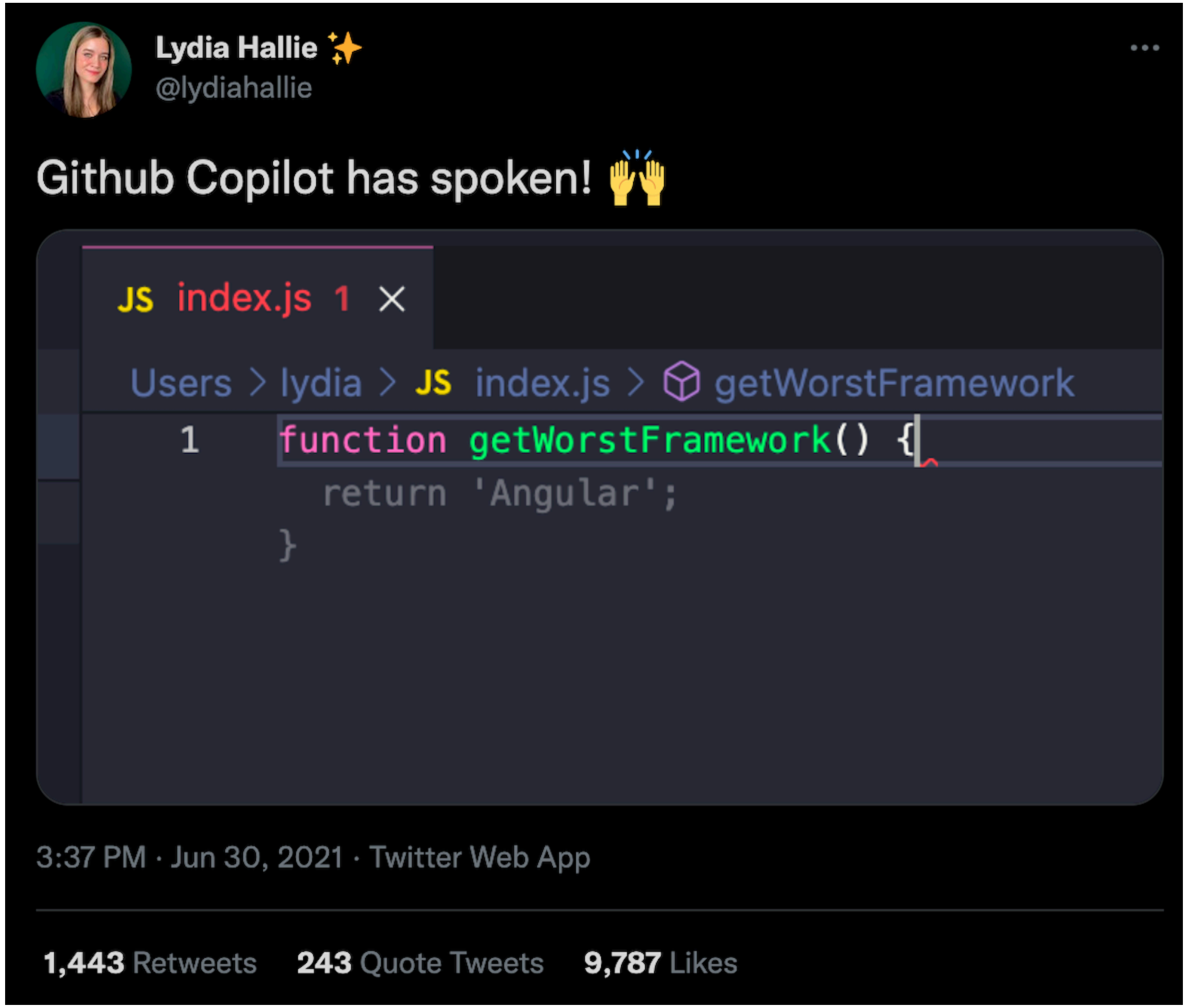
GitHub Copilot still has a couple kinks but I like what I see so far!

```
function invertBinaryTree(tree) {
  throw Error("no that's dumb as hell you don't
  need to do that ever lmao")
}
```

11:44 AM · Jun 29, 2021 · Twitter Web App

419 Retweets **26** Quote Tweets **3,117** Likes

https://twitter.com/jdan/status/1409900529677918210



Lydia Hallie ✨
@lydiahallie

Github Copilot has spoken! 🙌

```
function getWorstFramework() {
  return 'Angular';
}
```

3:37 PM · Jun 30, 2021 · Twitter Web App

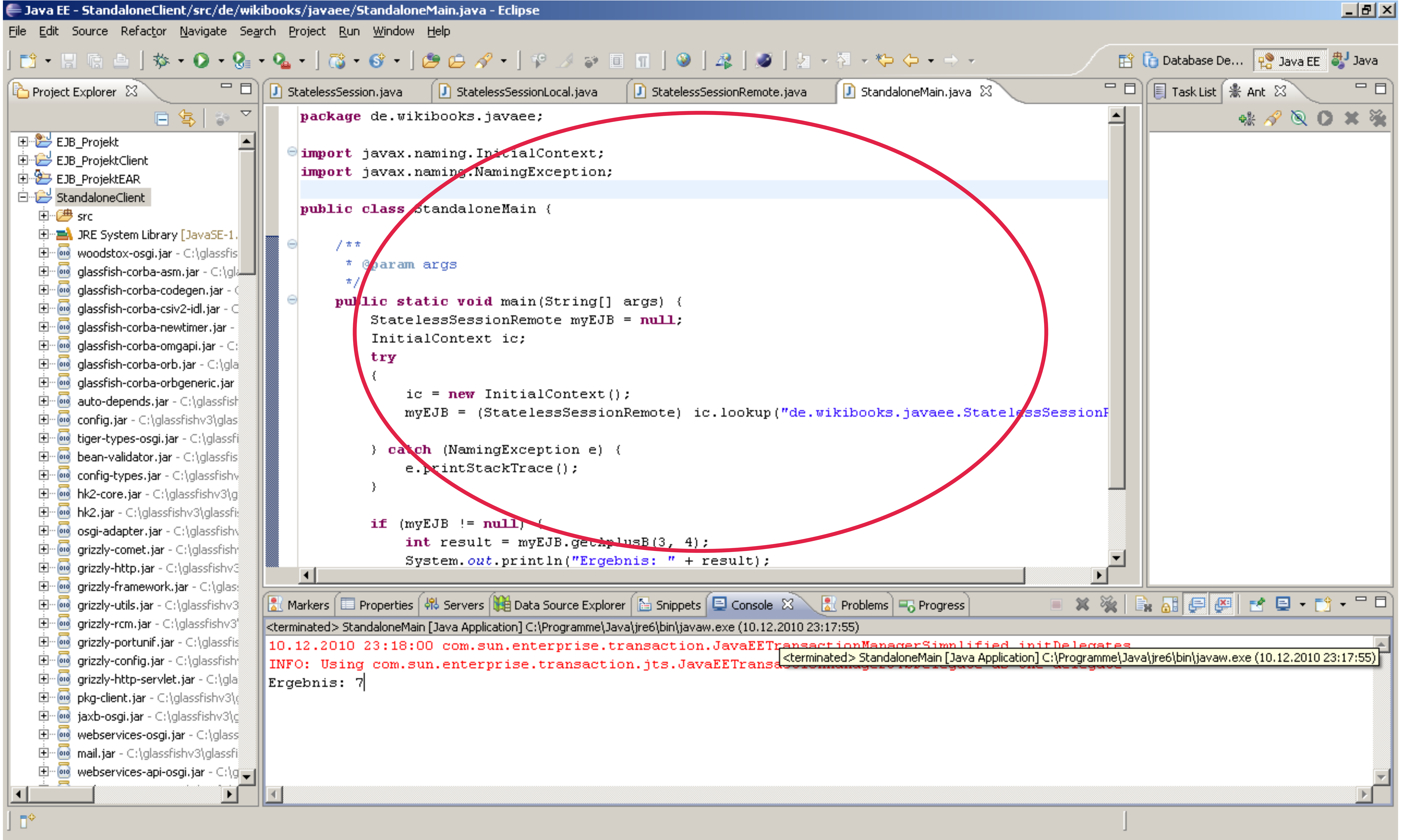
1,443 Retweets **243** Quote Tweets **9,787** Likes

https://twitter.com/lydiahallie/status/1410321569113649152

GitHub Copilot

Does GitHub Copilot generated code violate the GPL?
https://twitter.com/eevee/status/1410037309848752128

40% of the code produced by GitHub Copilot is vulnerable
https://arxiv.org/pdf/2108.09293.pdf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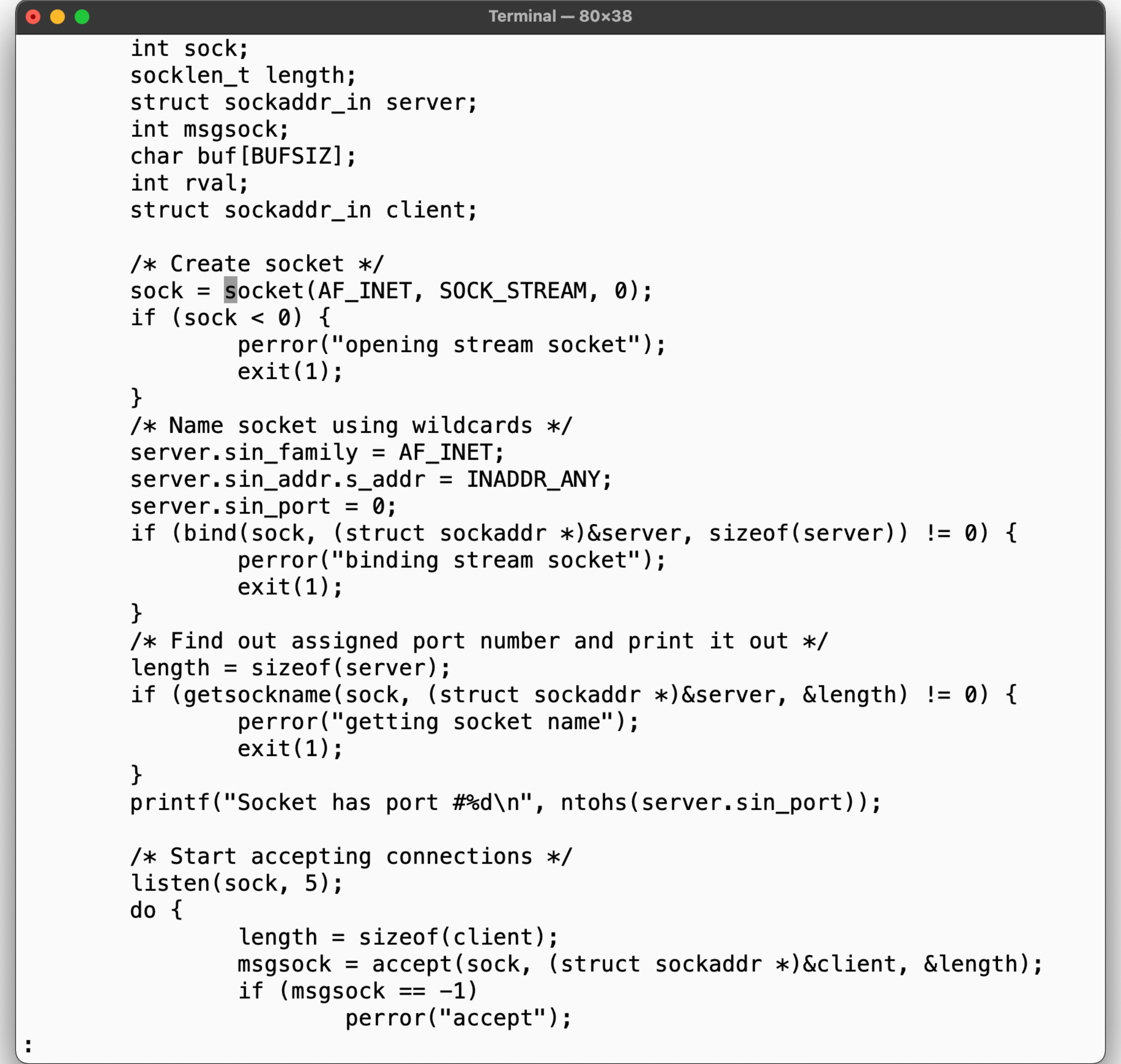
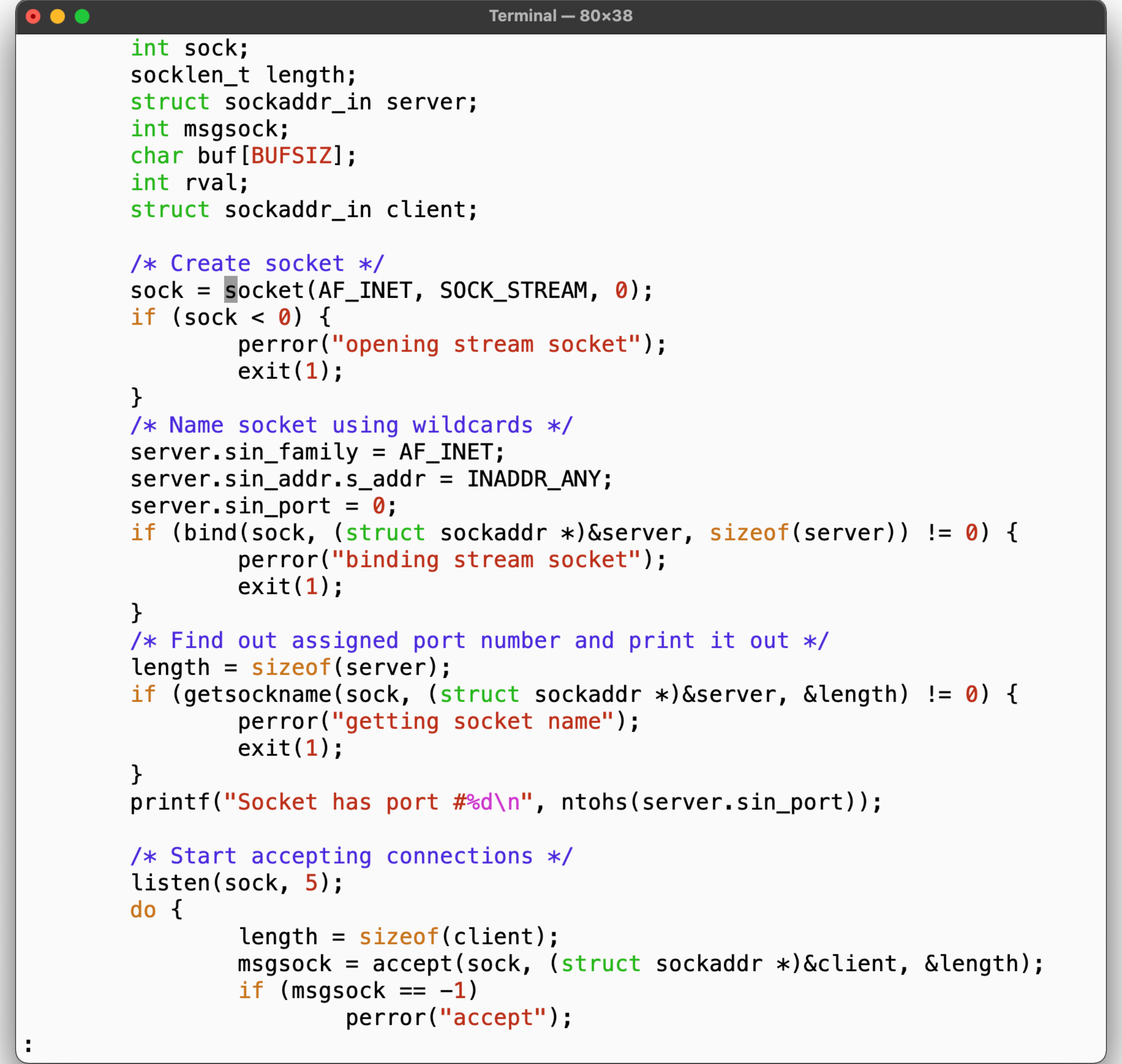


```
        int sock;
        socklen_t length;
        struct sockaddr_in server;
        int msgsock;
        char buf[BUFSIZ];
        int rval;
        struct sockaddr_in client;

        /* Create socket */
        sock = socket(AF_INET, SOCK_STREAM, 0);
        if (sock < 0) {
                perror("opening stream socket");
                exit(1);
        }
        /* Name socket using wildcards */
        server.sin_family = AF_INET;
        server.sin_addr.s_addr = INADDR_ANY;
        server.sin_port = 0;
        if (bind(sock, (struct sockaddr *)&server, sizeof(server)) != 0) {
                perror("binding stream socket");
                exit(1);
        }
        /* Find out assigned port number and print it out */
        length = sizeof(server);
        if (getsockname(sock, (struct sockaddr *)&server, &length) != 0) {
                perror("getting socket name");
                exit(1);
        }
        printf("Socket has port #%d\n", ntohs(server.sin_port));

        /* Start accepting connections */
        listen(sock, 5);
        do {
                length = sizeof(client);
                msgsock = accept(sock, (struct sockaddr *)&client, &length);
                if (msgsock == -1)
                        perror("accept");
:
```



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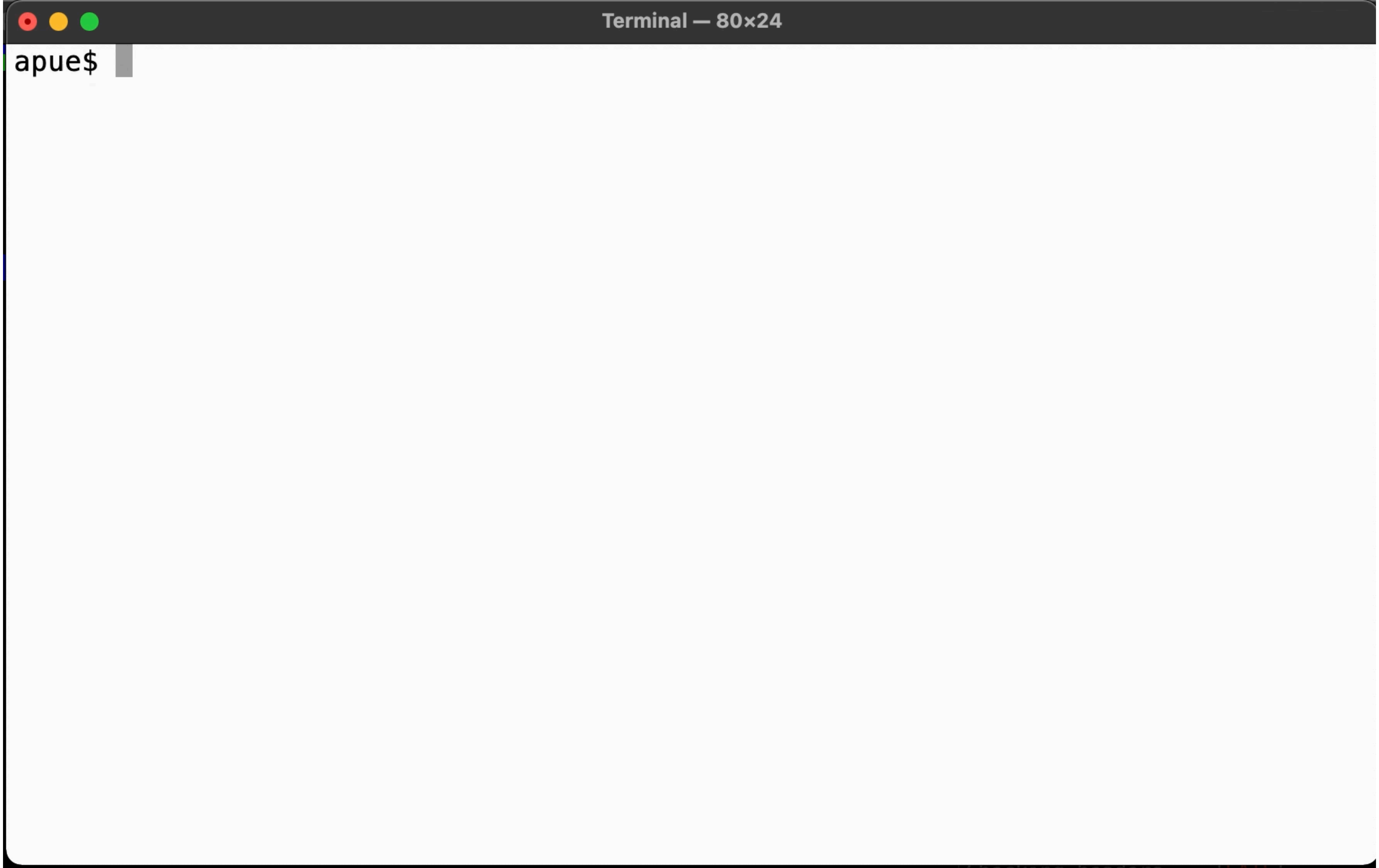
Software Development Tools

The Unix Userland is an IDE – essential tools that follow the paradigm of “Do one thing, and do it right” can be combined.

The most important tools are:

- `$EDITOR`
- the compiler toolchain
- `gdb(1)` – debugging your code
- `make(1)` – project build management, maintain program dependencies
- `diff(1)` and `patch(1)` – report and apply differences between files
- `cvs(1)`, `svn(1)`, `git(1)` etc. – revision control, distributed project management



```
apue$ 
```

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