

You're Doing Exceptions Wrong

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exceptions suck



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News YCombinator

<https://news.ycombinator.com> › item



Why Exceptions Suck

Or do they?



ONLY A SITH DEALS IN ABSOLUTES

~~Bias~~ Perspective

I still think I'm right



Line of Business Web Apps

(Boring)

Crash Requests, Not Processes

“Exceptions suck because they are slow”

- u/MrStinkyShoes, *Reddit*, 2019



1.4ns

Return Code

22.04ns

Exception

50,000,000ns

SQL Query

All programming is cool

“Exceptions suck because they are non-local goto”

- @l33t_coder_420, *The Social Network Formerly Known as Twitter*, 2021

That's pretty great, actually

We use them poorly

Principles & Discipline

Four Exceptions of the Apocalypse

“Vexing Exceptions” - Eric Lippert

- Fatal
- Boneheaded
- Vexing
- Exogenous



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Fatal Exceptions

RIP



OutOfMemoryException

StackOverflowException

Starting with the .NET Framework 2.0, you can't catch a `StackOverflowException` object with a `try/catch` block, and the corresponding process is terminated by default. Consequently, you should write your code to detect and prevent a stack overflow. For example, if your app depends on recursion, use a counter or a state condition to terminate the recursive loop. See the [Examples](#) section for an illustration of this technique.



DONT: Catch Fatal Exceptions

```
ProcessGraph(graph);
```



SWEET JESUS, POOH!
THAT'S NOT HONEY

YOU'RE EATING
RECURSION



SWEET JESUS, POOH!
THAT'S NOT HONEY

YOU'RE EATING
RECURSION



SWEET JESUS, POOH!
THAT'S NOT HONEY



YOU'RE EATING
RECURSION

SWEET JESUS, POOH!
THAT'S NOT HONEY

SAFELY ENDANGERED



```
try
{
    ProcessGraph(graph);
}
catch (StackOverflowException)
{
    StopTheRecursion();
}
```

Fatal Exceptions

Process is deeply diseased

- Difficult to safely clean up
- Don't catch




**Boneheaded
Exceptions**
You done goofed



A woman with short, light-colored hair, wearing a dark, high-collared coat, stands in a room with a large, multi-paned window behind her. The room appears to be a library or study, with a dark wooden desk or table in front of her. The lighting is dim, with light coming from the window.

Why is it when something happens it's always you three...

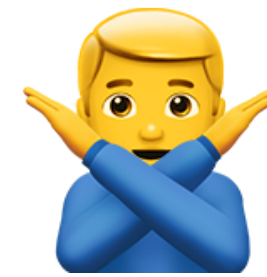
Three young people are standing in a room with large, arched windows. From left to right: a girl with long, wavy brown hair wearing a striped sweater; a boy with reddish hair wearing a patterned zip-up sweater; and a boy with dark hair and glasses wearing a grey zip-up sweater. They all have serious or concerned expressions.

ArgumentException

NullPointerException

IndexOutOfRangeException

InvalidOperationException
(maybe)



DONT: Catch Boneheaded Exceptions

```
var index = AskUserForWidgetIndex();  
Console.WriteLine(widgets[index]);
```



```
try
{
    var index = AskUserForWidgetIndex();
    Console.WriteLine(widgets[index]);
}
catch (IndexOutOfRangeException)
{
    Console.WriteLine("That's too big");
}
```

```
var index = AskUserForWidgetIndex();
```



```
var index = AskUserForWidgetIndex();
```



```
if (index < 0 || index ≥ widgets.Length)
```

```
var index = AskUserForWidgetIndex();  
if (index < 0 || index ≥ widgets.Length)  
{  
    Console.WriteLine("That's too big");  
}  
else  
{  
    Console.WriteLine(widgets[index]);  
}
```



**Production code should not raise
Boneheaded Exceptions**

**Boneheaded
Exceptions
Are A Gift**



Be grateful



DO: Throw Boneheaded Exceptions when
someone messes up

```
void ApplyPermissions(string[] permissions, User user)
{
```

```
}
```

```
void ApplyPermissions(string[] permissions, User user)
{

    var toRemove = user.Permissions.Except(permissions);

}
}
```

```
void ApplyPermissions(string[] permissions, User user)
{

    var toRemove = user.Permissions.Except(permissions);
    var toAdd = permissions.Except(user.Permissions);

}
```



```
void ApplyPermissions(string[] permissions, User user)
{

    var toRemove = user.Permissions.Except(permissions);
    var toAdd = permissions.Except(user.Permissions);

    DeletePermissions(user, toRemove);
    InsertPermissions(user, toAdd);
}
```

```
void ApplyPermissions(string[] permissions, User user)
{
    permissions = permissions ?? [];

    var toRemove = user.Permissions.Except(permissions);
    var toAdd = permissions.Except(user.Permissions);

    DeletePermissions(user, toRemove);
    InsertPermissions(user, toAdd);
}
```



```
void ApplyPermissions(string[] permissions, User user)
{
    permissions = permissions ?? [];

    var toRemove = user.Permissions.Except(permissions);
    var toAdd = permissions.Except(user.Permissions);

    DeletePermissions(user, toRemove);
    InsertPermissions(user, toAdd);
}
```



```
void ApplyPermissions(string[] permissions, User user)
{
    ArgumentNullException.ThrowIfNull(permissions);

    var toRemove = user.Permissions.Except(permissions);
    var toAdd = permissions.Except(user.Permissions);

    DeletePermissions(user, toRemove);
    InsertPermissions(user, toAdd);
}
```

Help them use your API correctly



DO: Throw exceptions with good messages

Give context



```
mattburke@Matts-MacBook:~/projects/uber-babysitters ㉿ #1
→ projects/uber-babysitters
$ node index.js
/Users/mattburke/projects/uber-babysitters/index.js:1
throw new Error('bad config');
^
Error: bad config
    at Object.<anonymous> (/Users/mattburke/projects/uber-babysitters/index.js:1:7)
    at Module._compile (node:internal/modules/cjs/loader:1256:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1310:10)
    at Module.load (node:internal/modules/cjs/loader:1119:32)
    at Module._load (node:internal/modules/cjs/loader:960:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:86:12)
    at node:internal/main/run_main_module:23:47

Node.js v18.18.2 [0.80s]
→ projects/uber-babysitters
$ █
```




```
mattburke@Matts-MacBook:~/projects/uber-babysitters ㉿ #1
→ projects/uber-babysitters
$ node index.js
/Users/mattburke/projects/uber-babysitters/index.js:1
throw new Error('Invalid config: DatabaseConnection required');
^
Error: Invalid config: DatabaseConnection required
    at Object.<anonymous> (/Users/mattburke/projects/uber-babysitters/index.js:1:7)
    at Module._compile (node:internal/modules/cjs/loader:1256:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1310:10)
    at Module.load (node:internal/modules/cjs/loader:1119:32)
    at Module._load (node:internal/modules/cjs/loader:960:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:86:12)
    at node:internal/main/run_main_module:23:47

Node.js v18.18.2
→ projects/uber-babysitters
$ █
```

“Couldn’t find a service to handle the CustomerCreated event. Did you forget to register it in the dependency container?”

“Unexpected case $\{value\}$ not handled in switch statement”

Don't leak secrets



```
function login(username, password) {  
  if (!validCreds(username, password)) {  
  
  return createAccessToken(username);  
}
```



```
function login(username, password) {  
  if (!validCreds(username, password)) {  
    throw new Error(  
      `User ${username} failed to login with password ${password}`);  
  }  
  
  return createAccessToken(username);  
}
```




```
function login(username, password) {  
  if (!validCreds(username, password)) {  
    throw new Error(  
      `User ${username} failed to login with password ${password}`);  
  }  
  
  return createAccessToken(username);  
}
```



```
function login(username, password) {  
  if (!validCreds(username, password)) {  
    throw new Error(  
      `User ${username} failed to login with password ${password}` );  
  }  
  
  return createAccessToken(username);  
}
```

This will be in a log file some day

Be careful of jargon



What does "fatal: You are on a branch yet to be born" mean

Asked 12 years, 5 months ago Modified 6 years, 2 months ago Viewed 36k times



23



I was migrating a svn repo to git. I created a clean temp dir, used git svn init to get stuff in there and then added the remote and pushed it. Now on the other actual source dir (which had cloned from the empty repo before committing stuff from svn) I did a fetch. And then I did a checkout and got above message. After a while I figured that I could get the source with a pull and did that. My question is what did that error message mean in that context ? How did

End users might see it

Process Failure



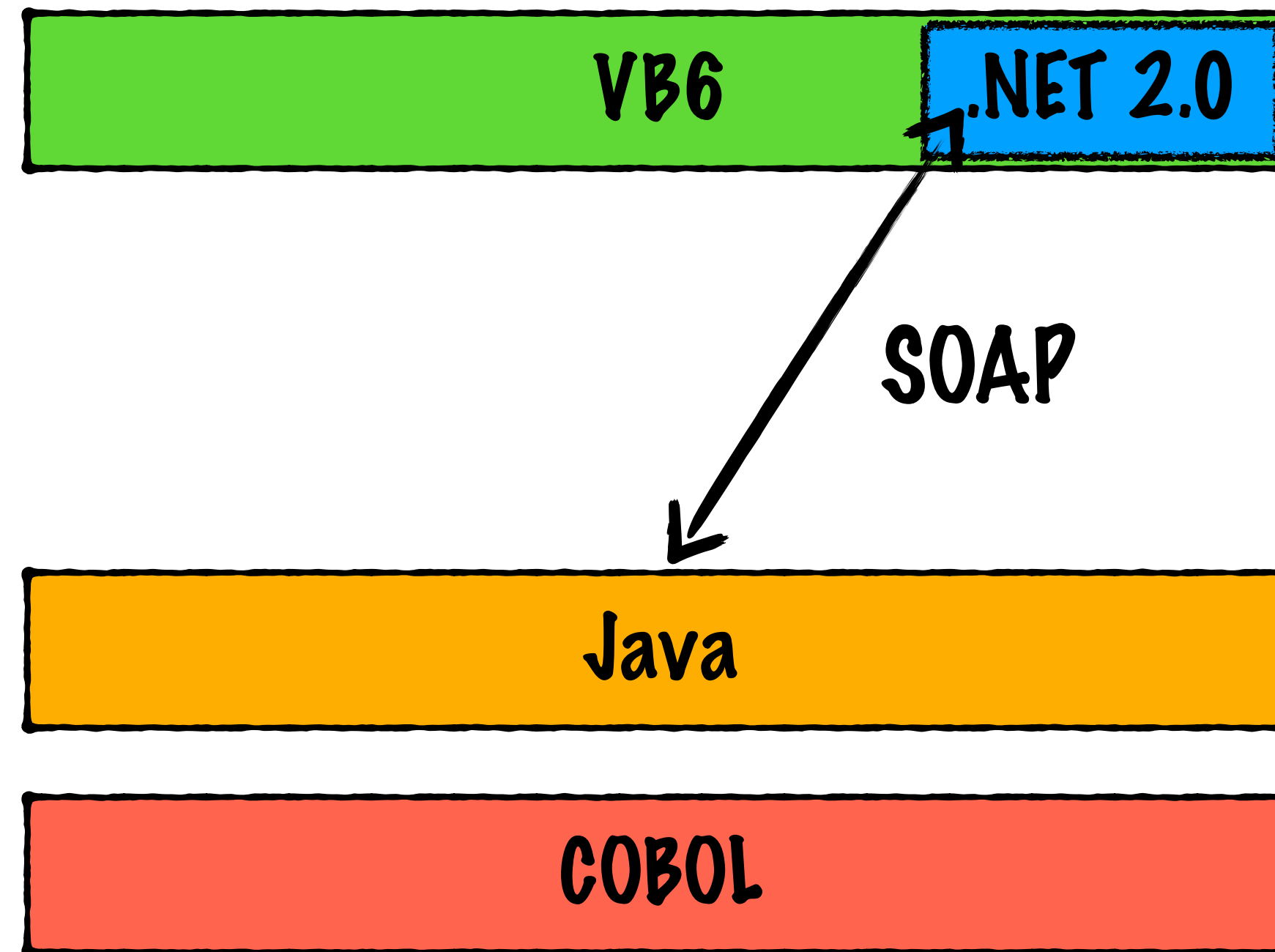
Failed to kill all children

Abort

Retry

Ignore

Bank App Architecture, c2017




```
<soapenv:Body>  
  <soapenv:Fault>  
    <Faultcode>soapenv:Client.ID10T</Faultcode>  
    <Faultstring>ID10T - City Missing</Faultstring>  
  </soapenv:Fault>  
</soapenv:Body>
```

```
<soapenv:Body>  
  <soapenv:Fault>  
    <Faultcode>soapenv:Client.ID10T</Faultcode>  
    <Faultstring>ID10T - City Missing</Faultstring>  
  </soapenv:Fault>  
</soapenv:Body>
```

```
<soapenv:Body>  
  <soapenv:Fault>  
    <Faultcode>soapen  
    <Faultstring>ID10  
  </soapenv:Fault>  
</soapenv:Body>
```



First name Last name Username


Mark ✓ Otto ✓ @ test ✓

City State Zip

... ✓ v 12345 ✓

ID10T - City Missing

Submit form



```
<soapenv:Body>  
<soapenv:Fault>  
  <Faultcode>soapenv:Client.ID10T</Faultcode>  
  <Faultstring>ID10T - City Missing</Faultstring>  
</soapenv:Fault>  
</soapenv:Body>
```



DONT: Reuse Built In Exception Types
(for other purposes)

```
public class AbstractCustomerServiceFactoryFactory {
```

```
}
```



```
public class AbstractCustomerServiceFactoryFactory {  
    public CustomerServiceFactory create(  
        IFactoryFactory factoryFactory) {  
        if (factoryFactory == null)  
            throw new NullPointerException();  
        // ...  
    }  
}
```



```
public class AbstractCustomerServiceFactoryFactory {  
    public CustomerServiceFactory create(  
        IFactoryFactory factoryFactory) {  
        if (factoryFactory == null)  
            throw new NullPointerException();  
        // ...  
    }  
}
```



```
public class AbstractCustomerServiceFactoryFactory {  
    public CustomerServiceFactory create(  
        IFactoryFactory factoryFactory) {  
        if (factoryFactory == null)  
            throw new ArgumentNullException();  
        // ...  
    }  
}
```



```
public class AbstractCustomerServiceFactoryFactory {  
    public CustomerServiceFactory create(  
        IFactoryFactory factoryFactory) {  
        if (factoryFactory == null)  
            throw new ArgumentNullException("factoryFactory");  
        // ...  
    }  
}
```

“Should I create a custom exception class for my boneheaded users?”

- You

No



DONT: Create custom *Boneheaded*
Exceptions

1. Contextual Properties

- 1. Contextual Properties**
- 2. Enable Specific Catch Blocks**

- 
1. Contextual Properties
 2. Enable Specific Catch Blocks



```
Debug.Assert(condition);
```

```
Debug.Assert(foo ≠ null);
```

```
assert condition;
```

```
assert foo ≠ null;
```

Assertions != Exceptions

***You* are the intended audience**

“This should never happen”

Document invariants

Compiled out in release

Boneheaded Exceptions

You're the problem, its you

- Its a gift!
- Don't catch
- Be generous



Vexing Exceptions

Exceptions that aren't
Exceptional



FormatException

```
void HandleSubmit() {  
    var age = int.Parse(ageTextBox.Text);  
  
    // ...  
}
```



```
void HandleSubmit() {  
    var age = int.Parse(ageTextBox.Text);  
  
    // ...  
}
```



Throws if text is not numberish

```
void HandleSubmit() {  
    if (int.TryParse(ageTextBox.Text, out int age)  
        //...  
    else  
        ReportValidationError("age");  
}
```



DONT: Design an API that throws a
Vexing Exception



DO: Catch specific *Vexing Exception* close to
cause
(if you must)

```
var existing = await cosmosClient.ReadItemAsync(id);
```

```
var existing = await cosmosClient.ReadItemAsync(id);  
if (existing ≠ null)
```

```
var existing = await cosmosClient.ReadItemAsync(id);  
  
if (existing ≠ null)  
    await Archive(existing);
```

```
var existing = await cosmosClient.ReadItemAsync(id);  
  
if (existing ≠ null)  
    await Archive(existing);  
  
cosmosClient.UpsertItemAsync(id, newItem);
```



```
var existing = await cosmosClient.ReadItemAsync(id);
```

```
if (existing ≠ null)  
    await Archive(existing);
```

**This throws if the
document doesn't exist!**



```
cosmosClient.UpsertItemAsync(id, newItem);
```

```
try
{
    var existing = await cosmosClient.ReadItemAsync(id);
    await Archive(existing);
}
catch (CosmosException ex) where (ex.StatusCode == 404)
{
    // this space intentionally left blank
}

cosmosClient.UpsertItemAsync(id, newItem);
```

```
try
{
    var existing = await cosmosClient.ReadItemAsync(id);
    await Archive(existing);
}
catch (CosmosException ex) where (ex.StatusCode == 404)
{
    // this space intentionally left blank
}

cosmosClient.UpsertItemAsync(id, newItem);
```

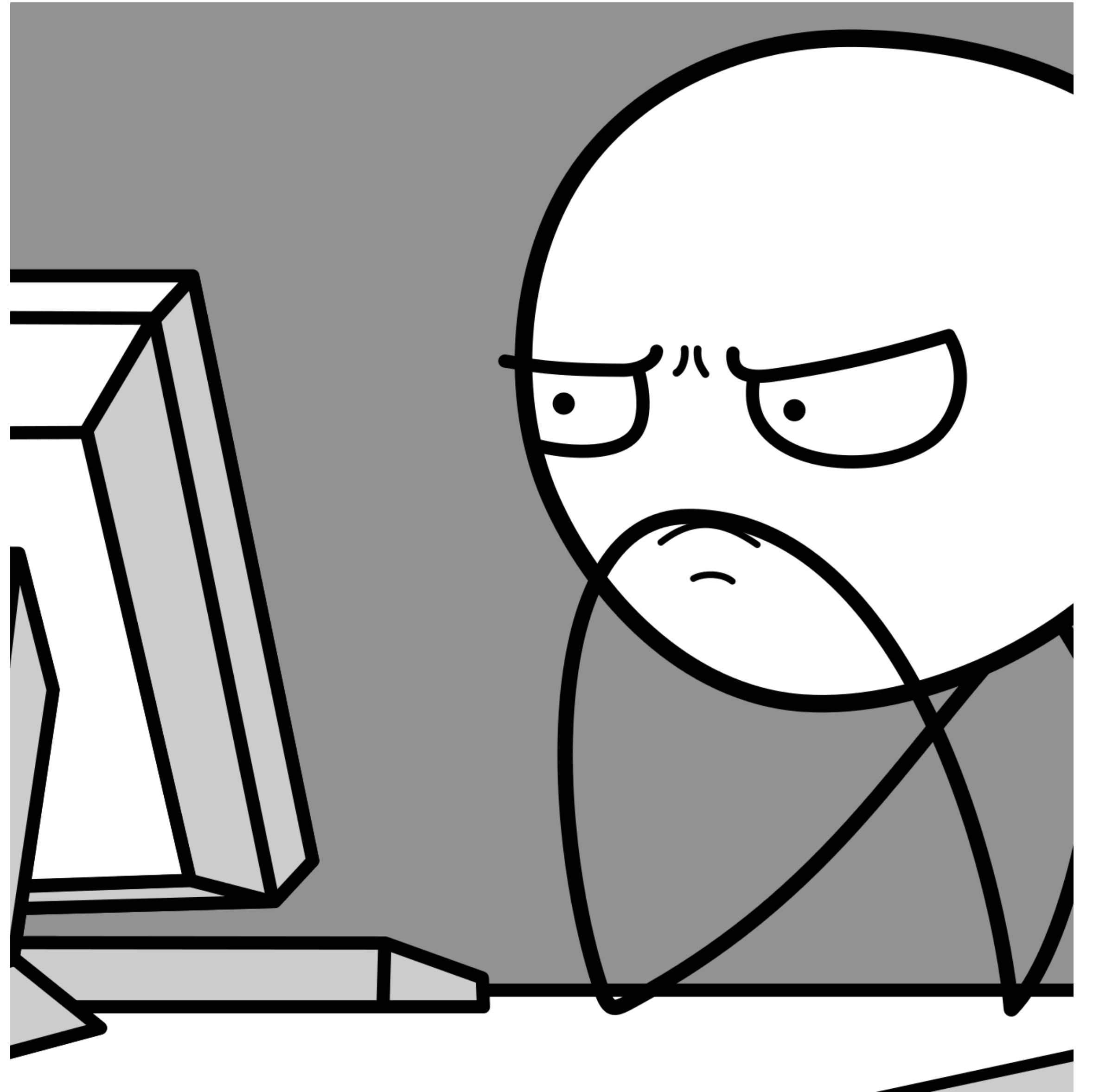
```
try
{
    var existing = await cosmosClient.ReadItemAsync(id);
    await Archive(existing);
}
catch (CosmosException ex) where (ex.StatusCode == 404)
{
    // this space intentionally left blank
}

cosmosClient.UpsertItemAsync(id, newItem);
```

Vexing Exceptions

You hate to see it

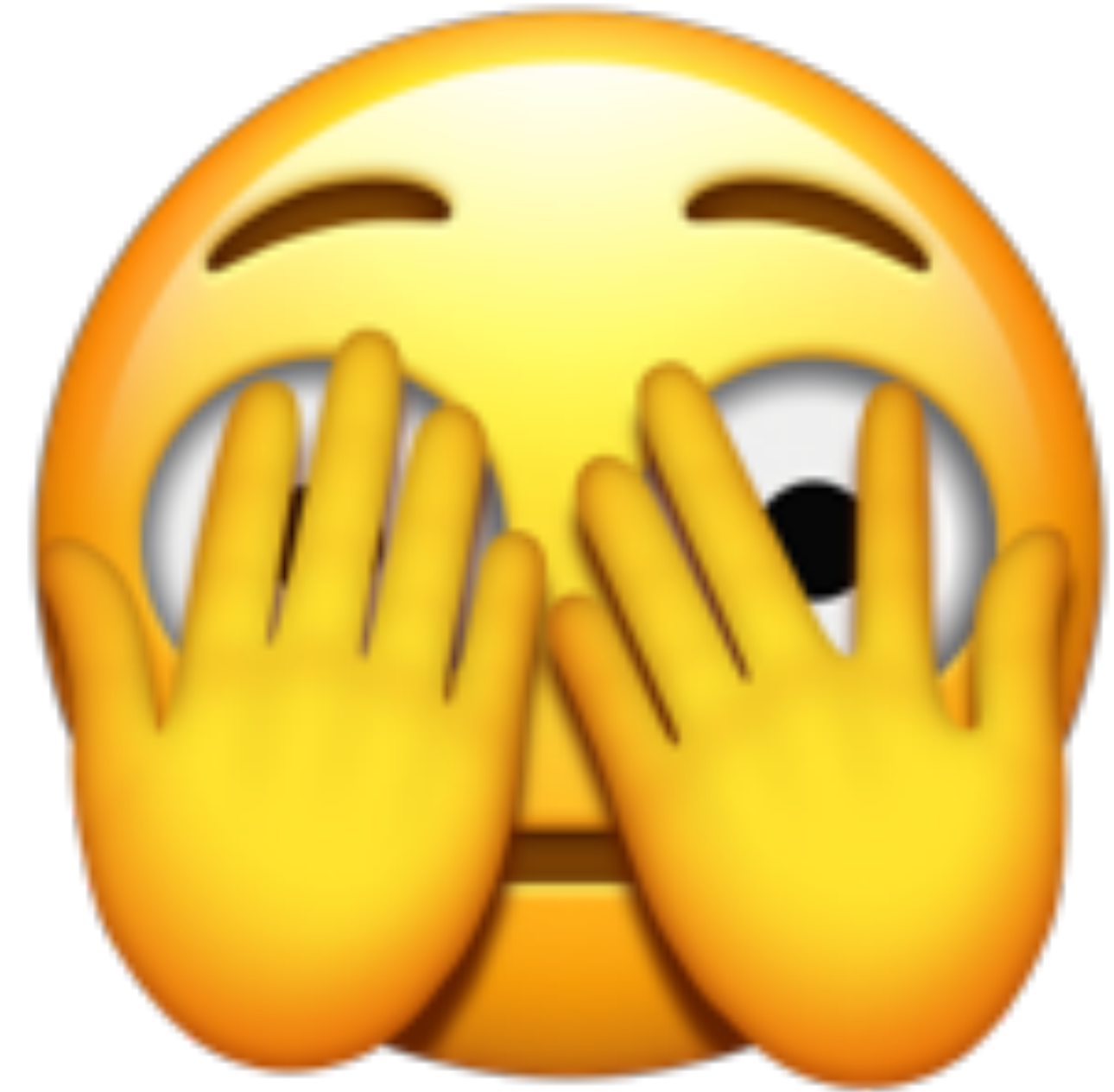
- Don't design bad APIs
- Catch close to cause



“derived or originating externally”

Exogenous Exceptions

The world is cruel and unfair





DONT: Assume you can if-check your way
around them



```
string TryGetFileContents(string path)
{
    if (!File.Exists(path))
        return null;

    var stream = File.OpenRead(path);
    ...
}
```


TOCTOU

Time of Check - Time of Use



```
string TryGetFileContents(string path)
{
    if (!File.Exists(path))
        return null;
    var stream = File.OpenRead(path);
    ...
}
```

File deleted here



```
string TryGetFileContents(string path)
{
    try {
        var stream = File.OpenRead(path);
        ...
    } catch (FileNotFoundException) {
        return null;
    }
}
```



DONT: Swallow the exception

try

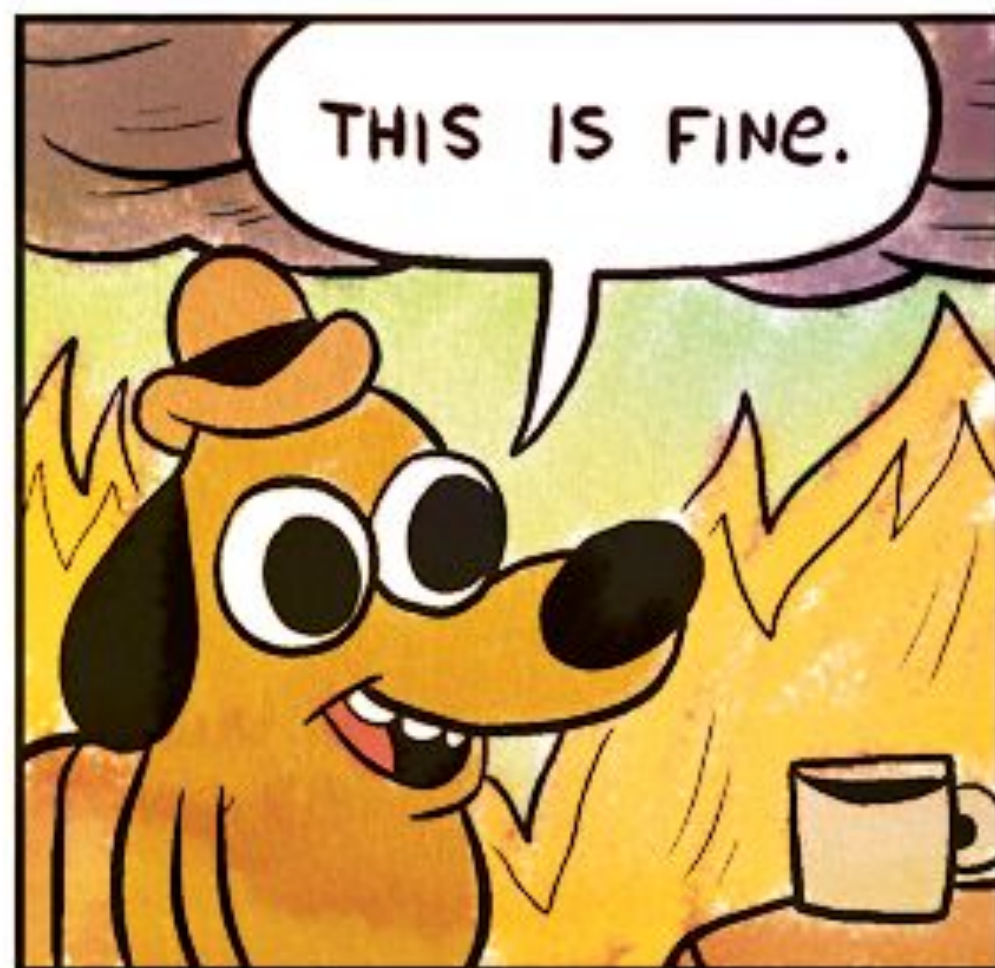
{



}

catch

{



}

Dude, I just troubleshot at a stupid 🤨 issue for the past 5 hours because I had to wade through 70 million layers of code to find out an error was getting swallowed and returning an empty list for the podcasts. Turns out certificate is invalid for the RSS feed for the podcast but that was getting swallowed

Can you feel the pure rage???

```
public decimal FindBalance(string customerId)
{
```

```
}
```

```
public decimal FindBalance(string customerId)
{
```

```
    var customer = Query<Customer>(
        "SELECT * FROM Customers WHERE Id = @customerId",
        new { customerId });
```

```
}
```



```
public decimal FindBalance(string customerId)
{

    var customer = Query<Customer>(
        "SELECT * FROM Customers WHERE Id = @customerId",
        new { customerId });

    if (customer == null) return 0M;

}
}
```

```
public decimal FindBalance(string customerId)
{

    var customer = Query<Customer>(
        "SELECT * FROM Customers WHERE Id = @customerId",
        new { customerId });

    if (customer == null) return 0M;

    return customer.Balance;

}
```

```
public decimal FindBalance(string customerId)
{
    try
    {
        var customer = Query<Customer>(
            "SELECT * FROM Customers WHERE Id = @customerId",
            new { customerId });

        if (customer == null) return 0M;

        return customer.Balance;
    }
    catch (Exception)
    {
        return 0M;
    }
}
```

```
public decimal FindBalance(string customerId)
{
    try
    {
        var customer = Query<Customer>(
            "SELECT * FROM Customers WHERE Id = @customerId",
            new { customerId });

        if (customer == null) return 0M;

        return customer.Balance;
    }
    catch (Exception)
    {
        return 0M;
    }
}
```



```
catch (Exception)
{
    return new List<Widget>();
}
```

```
catch (Exception)
{
    return null;
}
```

```
catch (Exception)
{
}
```

```
void Save(Widget widget)
{
    try
    {
        db.Insert(widget);
    }
    catch (Exception)
    {
    }
}
```




DO: Catch at the right layer

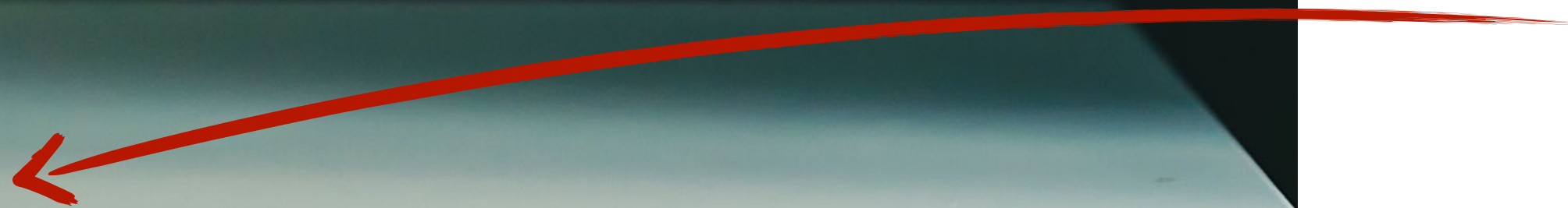
Your Software Stack



Here



Not way
down here



**Data Layer is the wrong place to
handle most exceptions**



DONT: Do Pokemon Exception Handling

Gotta catch 'em all!



**Dumb partner API: throws 503
a few times before succeeding**



```
DoSomethingThatCallsAnHttpApi();
```

```
var attempts = 10;

while(true)
{
    try
    {
        DoSomethingThatCallsAnHttpApi();
        break;
    }
    catch (Exception)
    {
        if (--attempts == 0) throw;

        Thread.Sleep(100);
    }
}
```

```
var attempts = 10;

while(true)
{
    try
    {
        DoSomethingThatCallsAnHttpApi();
        break;
    }
    catch (Exception)
    {
        if (--attempts == 0) throw;

        Thread.Sleep(100);
    }
}
```



```
var attempts = 10;

while(true)
{
    try
    {
        DoSomethingThatCallsAnHttpApi();
        break;
    }
    catch (Exception)
    {
        if (--attempts == 0) throw;

        Thread.Sleep(100);
    }
}
```

```
var attempts = 10;

while(true)
{
    try
    {
        DoSomethingThatCallsAnHttpApi();
        break;
    }
    catch (Exception)
    {
        if (--attempts == 0) throw;

        Thread.Sleep(100);
    }
}
```

```
var attempts = 10;

while(true)
{
    try
    {
        DoSomethingThatCallsAnHttpApi();
        break;
    }
    catch (Exception)
    {
        if (--attempts == 0) throw;

        Thread.Sleep(100);
    }
}
```

```
var attempts = 10;

while(true)
{
    try
    {
        DoSomethingThatCallsAnHttpApi();
        break;
    }
    catch (Exception)
    {
        if (--attempts == 0) throw;

        Thread.Sleep(100);
    }
}
```

```
var attempts = 10;
```

```
while(true)
```

```
{
```

```
  try
```

```
  {
```

```
    DoSomethingThatCallsAnHttpApi();
```

```
    break;
```

```
  }
```

```
  catch (HttpException e) where (e.StatusCode == 503)
```

```
  {
```

```
    if (--attempts == 0) throw;
```

```
    Thread.Sleep(100);
```

```
  }
```

```
}
```





DO: Catch and Rethrow
(if you have something to add)



```
RemovePermission(userId, permission);
```



```
try {  
    RemovePermission(userId, permission);  
} catch (Exception e) {  
  
}
```




```
try {  
    RemovePermission(userId, permission);  
} catch (Exception e) {  
    throw new Exception(  
        $"Couldn't remove {permission} from user {userId}",  
        e);  
}
```



```
try {  
    RemovePermission(userId, permission);  
} catch (Exception e) {  
    throw new Exception(  
        $"Couldn't remove {permission} from user {userId}",  
        e);  
}
```



```
try {  
    RemovePermission(userId, permission);  
} catch (Exception e) {  
    throw new Exception(  
        $"Couldn't remove {permission} from user {userId}",  
        e);  
}
```

“Can I make a custom exception for this?”

- You

Eh... Maybe

Maybe, if you have a lot of structured, type-safe data to attach

Batch Command	If this DbException was thrown when executing a DbBatch , references the specific DbBatchCommand which triggered the exception. (Inherited from DbException)
Class	Gets the severity level of the error returned from the .NET Framework Data Provider for SQL Server.
Client Connection Id	Represents the client connection ID. For more information, see Data Tracing in ADO.NET .
Data	Gets a collection of key/value pairs that provide additional user-defined information about the exception. (Inherited from Exception)
DbBatch Command	When overridden in a derived class, if this DbException was thrown when executing a DbBatch , references the specific DbBatchCommand which triggered the exception. (Inherited from DbException)
Errors	Gets a collection of one or more SqlError objects that give detailed information about exceptions generated by the .NET Framework Data Provider for SQL Server.
HelpLink	Gets or sets a link to the help file associated with this exception. (Inherited from Exception)
HResult	Gets or sets HRESULT, a coded numerical value that is assigned to a specific exception. (Inherited from Exception)
Inner Exception	Gets the Exception instance that caused the current exception. (Inherited from Exception)
IsTransient	Indicates whether the error represented by this DbException could be a transient error, i.e. if retrying the triggering operation may succeed without any other change. (Inherited from DbException)
Line Number	Gets the line number within the Transact-SQL command batch or stored procedure that generated the error.
Message	Gets a message that describes the current exception. (Inherited from Exception)
Number	Gets a number that identifies the type of error.
Procedure	Gets the name of the stored procedure or remote procedure call (RPC) that generated the error.
Server	Gets the name of the computer that is running an instance of SQL Server that generated the error.



DONT: Lose the stack trace
(C# specific)

```
try
{

}
catch (Exception ex)
{

}
}
```



```
try
{
    DoSomethingRisky();
}
catch (Exception ex)
{

}
}
```

```
try
{
    DoSomethingRisky();
}
catch (Exception ex)
{
    if (CanIgnore(ex))
        return;
}
}
```

```
try
{
    DoSomethingRisky();
}
catch (Exception ex)
{
    if (CanIgnore(ex))
        return;

    throw ex;
}
```



```
try
{
    DoSomethingRisky();
}
catch (Exception ex)
{
    if (CanIgnore(ex))
        return;

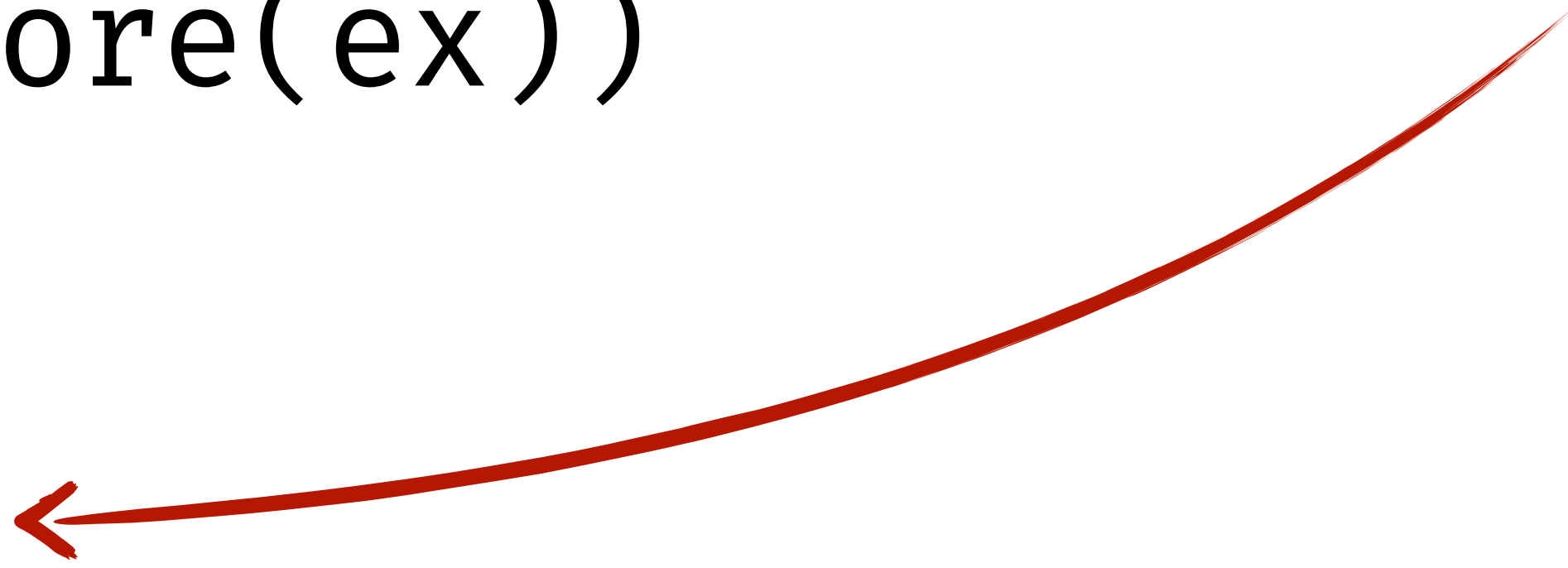
    throw ex;
}
```



```
try
{
    DoSomethingRisky();
}
catch (Exception ex)
{
    if (CanIgnore(ex))
        return;

    throw ex;
}
```

This resets the stack trace



```
try
{
    DoSomethingRisky();
}
catch (Exception ex)
{
    if (CanIgnore(ex))
        return;

    throw;
}
```



```
try
{
    DoSomethingRisky();
}
catch (Exception ex) where (CanIgnore(ex))
{
    return;
}
```





DO: Be aware of disposable resources


```
void LogVisit()  
{
```

```
}
```

```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);
```

```
}
```

```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
}
```

```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
    var cmd = connection.CreateCommand()  
    {  
        CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
    }  
  
}
```

```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
    var cmd = connection.CreateCommand()  
    {  
        CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
    }  
  
    cmd.ExecuteNonQuery();  
  
}
```

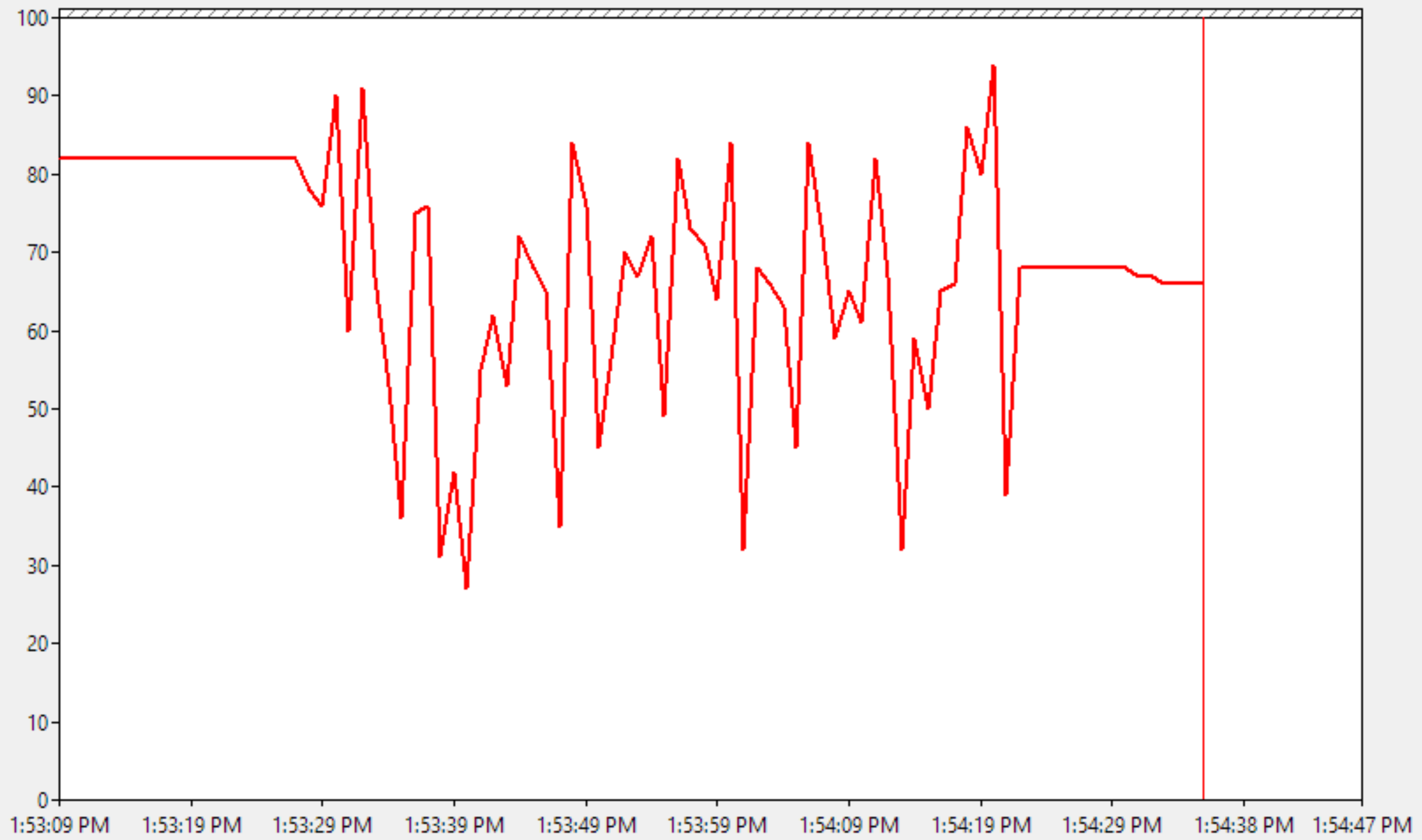
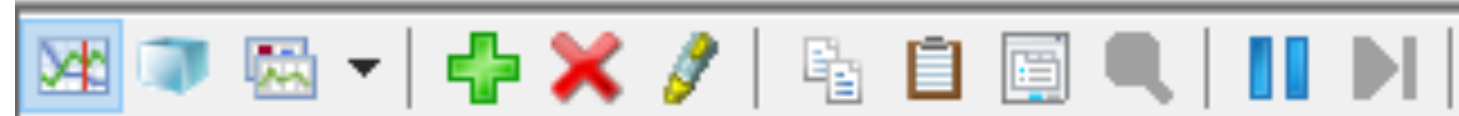
```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
    var cmd = connection.CreateCommand()  
    {  
        CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
    }  
  
    cmd.ExecuteNonQuery();  
    connection.Close();  
}
```



```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
    var cmd = connection.CreateCommand()  
    {  
        CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
    }  
  
    cmd.ExecuteNonQuery();  
    connection.Close();  
}
```



```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
    var cmd = connection.CreateCommand()  
    {  
        CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
    }  
  
    cmd.ExecuteNonQuery();  
    connection.Close();  
}
```

Last [-----] Average [-----] Minimum [-----] Maximum [-----] Duration [1:40]

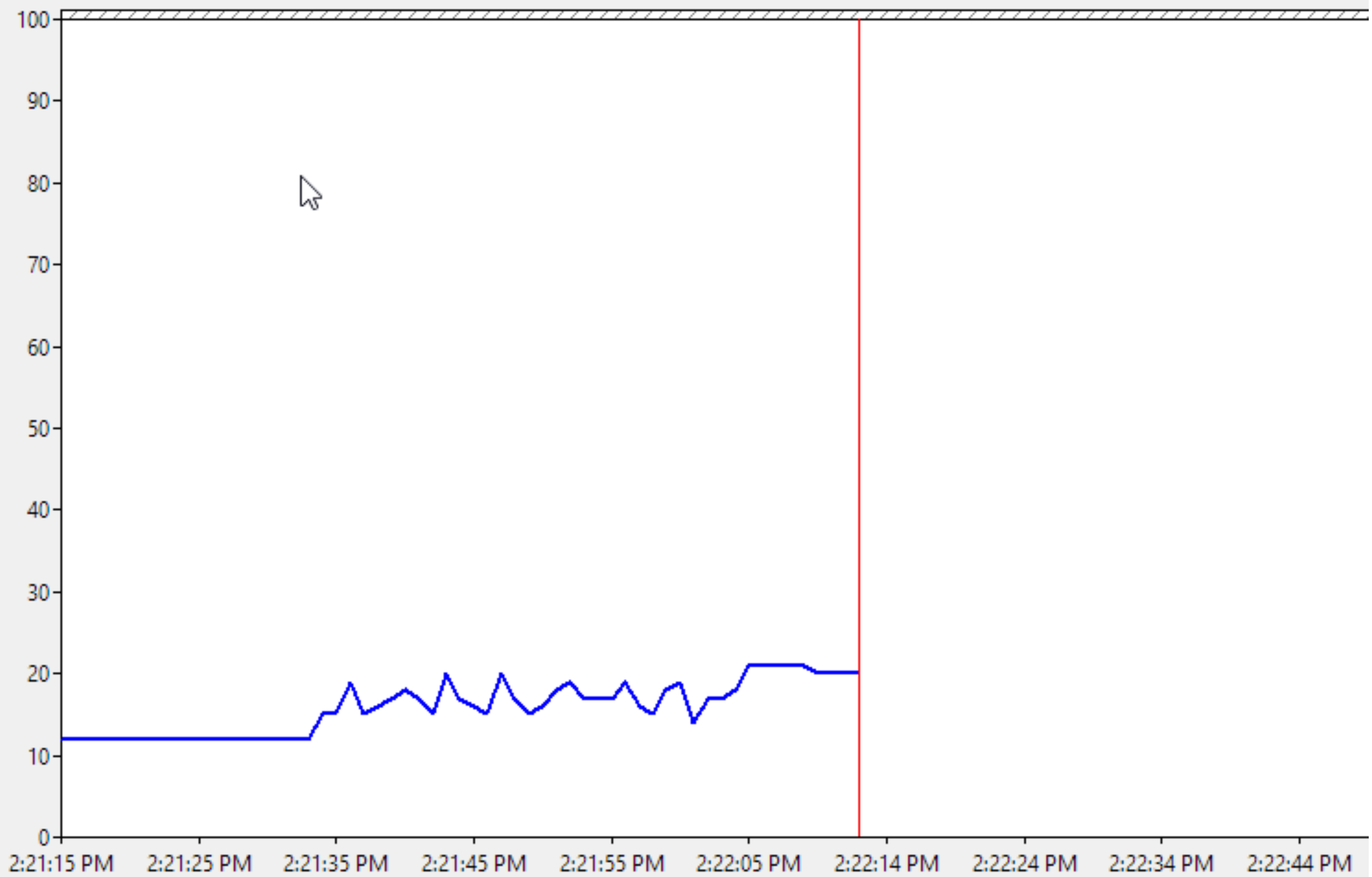
Show	Color	Scale	Counter	Instance	Parent	Object	Computer
<input checked="" type="checkbox"/>	—	1.0	NumberOfFreeConnectio...	_Im_w3svc...	---	.NET Data Provider for Sql...	\\MBURKE-WIN10



```
void LogVisit()  
{  
    var connection = new SqlConnection(_connectionString);  
  
    connection.Open();  
  
    var cmd = connection.CreateCommand()  
    {  
        CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
    }  
  
    cmd.ExecuteNonQuery();  
    connection.Close();  
}
```



```
void LogVisit()  
{  
    using(var connection = new SqlConnection(_connectionString))  
    {  
        connection.Open();  
  
        var cmd = connection.CreateCommand()  
        {  
            CommandText = "INSERT INTO [visits] (...) VALUES (...)"  
        }  
  
        cmd.ExecuteNonQuery();  
    }  
}
```



Last Average Minimum Maximum Duration

Show	Color	Scale	Counter	Instance	Parent	Object	Computer
<input checked="" type="checkbox"/>		1.0	NumberOfFreeConnectio...	_Im_w3svc...	---	.NET Data Provider for Sql...	\\MBURKE-WIN10

```
try
```

```
{
```

```
}
```

```
try  
{  
    DoYourRiskyThing()  
}
```

```
try
{
    DoYourRiskyThing()
}
finally
{
}
```

```
try
{
    DoYourRiskyThing()
}
finally
{
    DisposeYourResources()
}
```


Exogenous Exceptions

The darkness encroaches into the light

- Can't detect ahead of time
- Don't hide them
- Catch at the right level
- Add context



No internet

Try:

- Checking the network cables, modem, and router
- Reconnecting to Wi-Fi

ERR_INTERNET_DISCONNECTED

Four Exceptions of the Apocalypse

“Vexing Exceptions” - Eric Lippert

- Fatal **DON'T CATCH**
- Boneheaded **DON'T CATCH**
- Vexing **HANDLE**
- Exogenous **DON'T HIDE!**



Exceptions are observability

Don't let a problem worsen

Make debugging easy

Be kind to future developers

You're Doing Exceptions *Right*

Matt Burke

Matt Burke • <https://mattburkedev.com> • LI: akatakritos • matt@social.mattburkedev.com



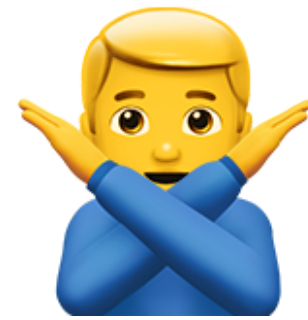
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Matt Burke

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DONT: Catch Fatal Exceptions



DO: Catch Fatal Exceptions



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"You are on a branch yet to be born" when adding git submodule

Ask Question

Asked 11 years, 4 months ago Modified 8 years, 4 months ago Viewed 39k times



132



I am attempting to add a few submodules to my `.vim/bundles` directory, and when I attempt to add this particular repo Git gives me a strange error I've never seen before:

```
$ git submodule add -f git://github.com/derekwyatt/vim-scala.git .vim/bundle/vim-scala
fatal: You are on a branch yet to be born
Unable to checkout submodule '.vim/bundle/vim-scala'
```

Any idea what can cause this?

If I clone the same repo to a test directory (not through the submodule command), it works fine, and creates the expected files.

[git](#) [git-submodules](#)

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asked Aug 9, 2012 at 15:51



[matt b](#)

139k ● 66 ● 282 ● 347

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4 Answers

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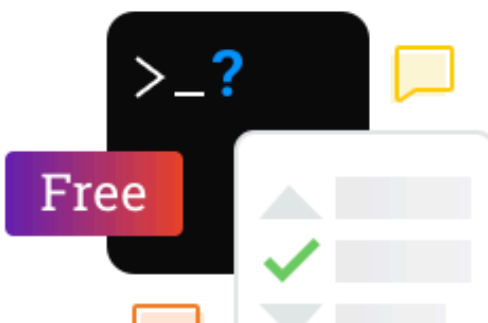
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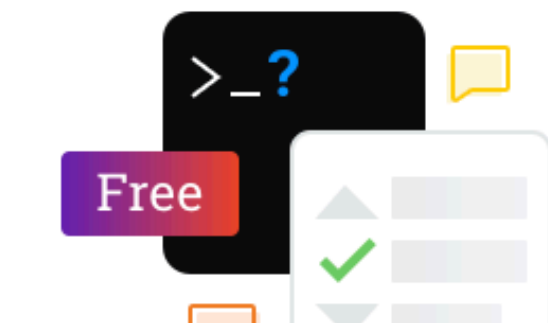
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fatal: You are on a branch yet to be born
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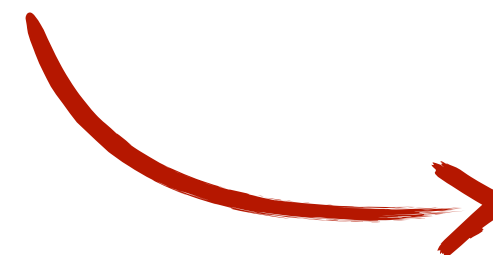
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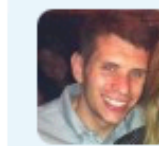
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4 Answers

(no relation)



asked Aug 9, 2012 at 15:51



matt b

139k 66 282 347

Sorted by: Highest score (default)

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