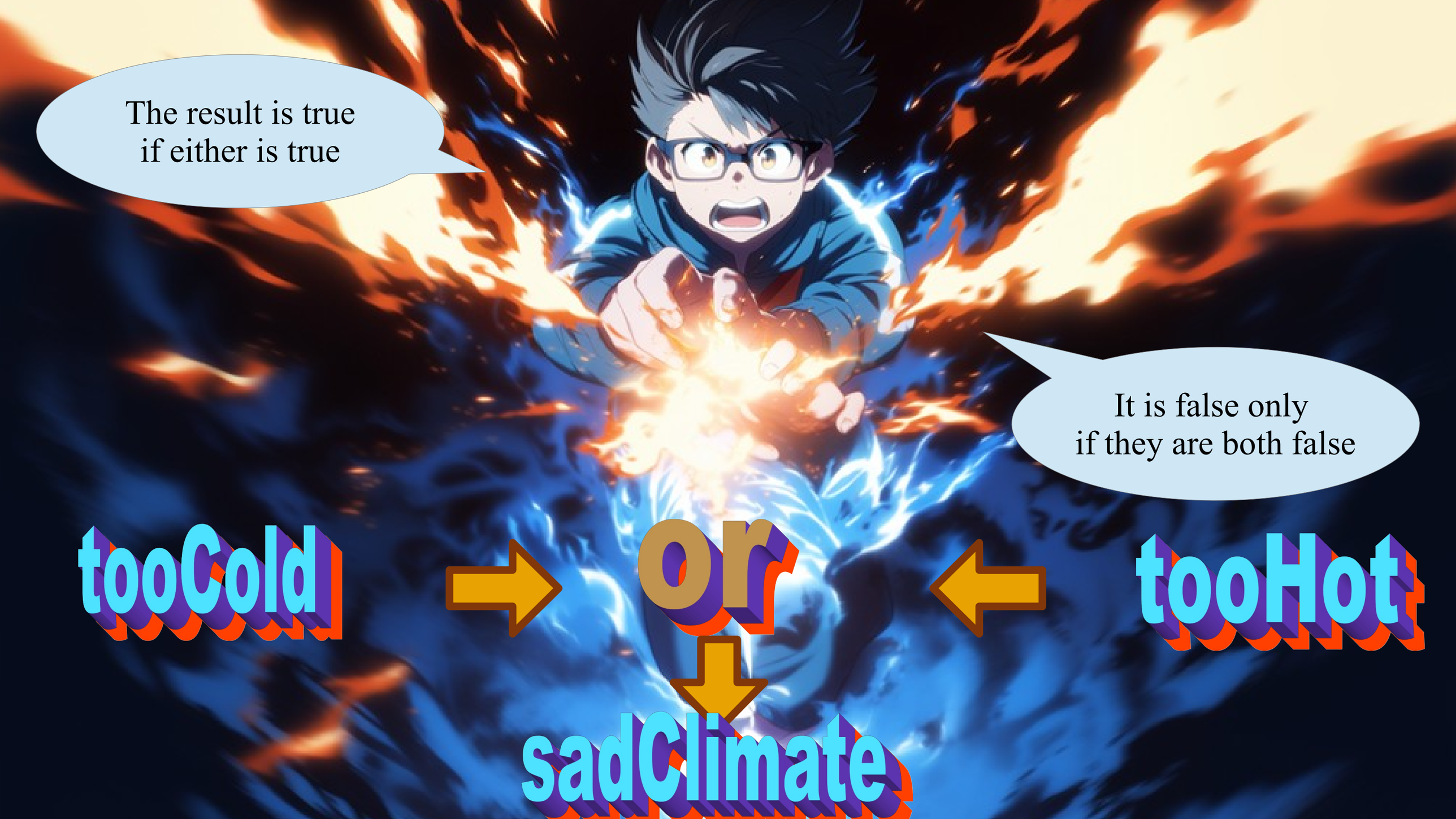
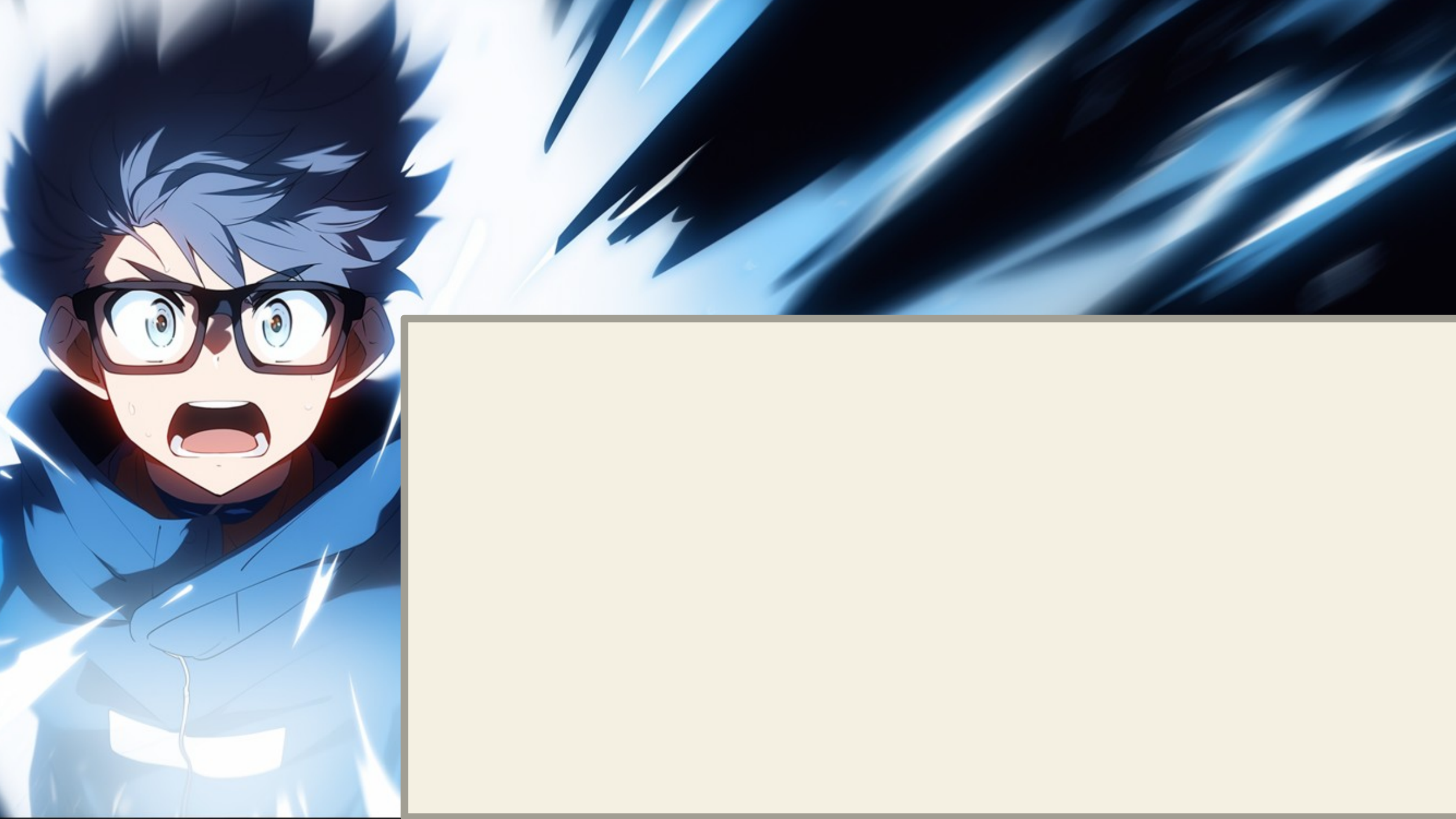
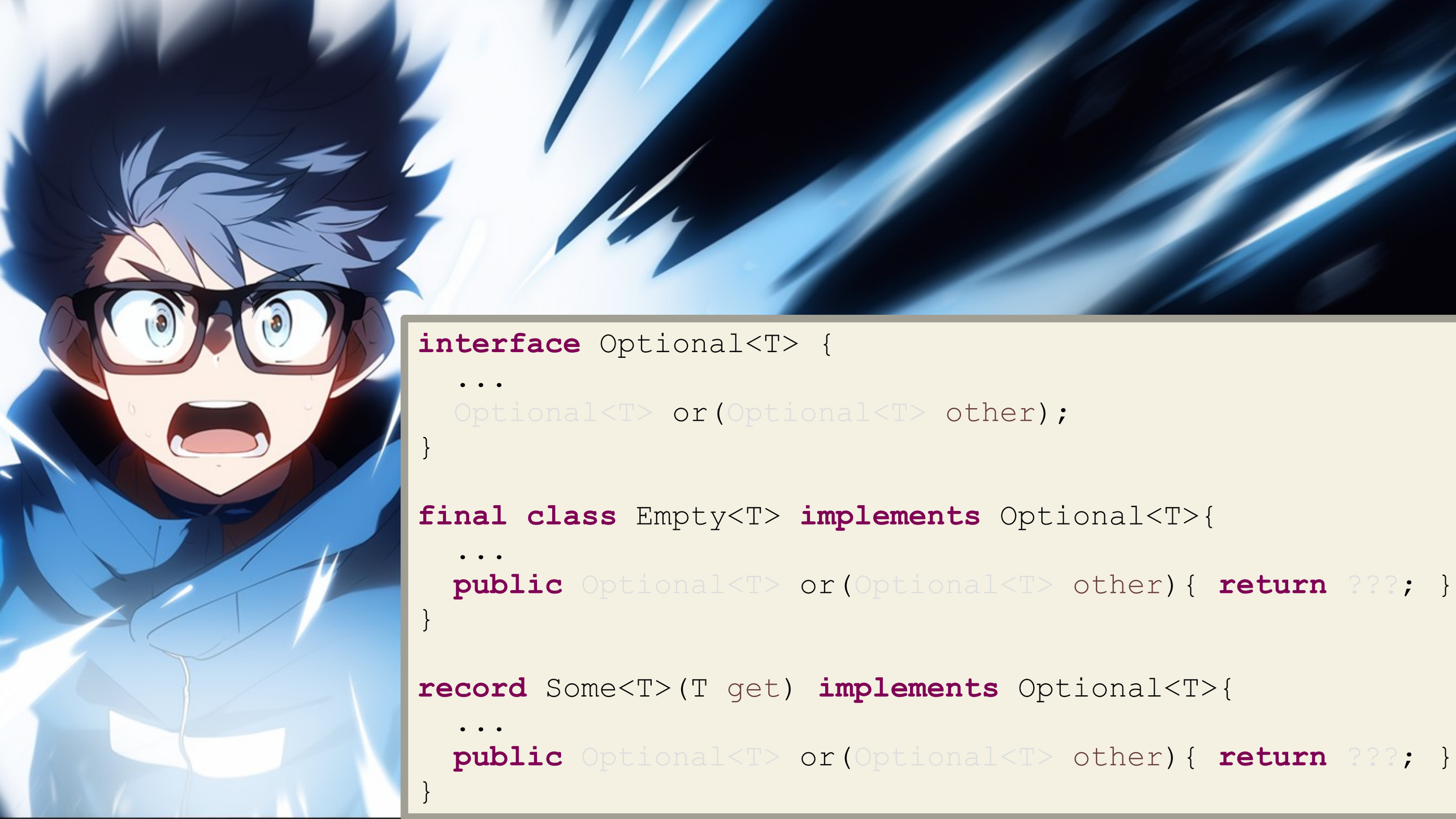

tooCold
or
tooHot
sadClimate


The result is true
if either is true
tooCold
or
tooHot
sadClimate

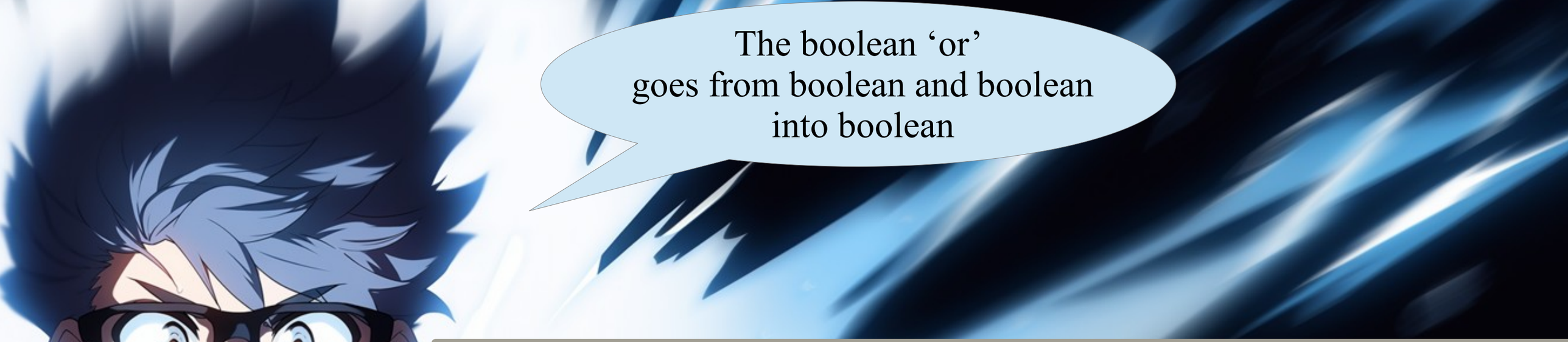

The result is true
if either is true
It is false only
if they are both false
tooCold
or
tooHot
sadClimate


Would this work also for Optionals?

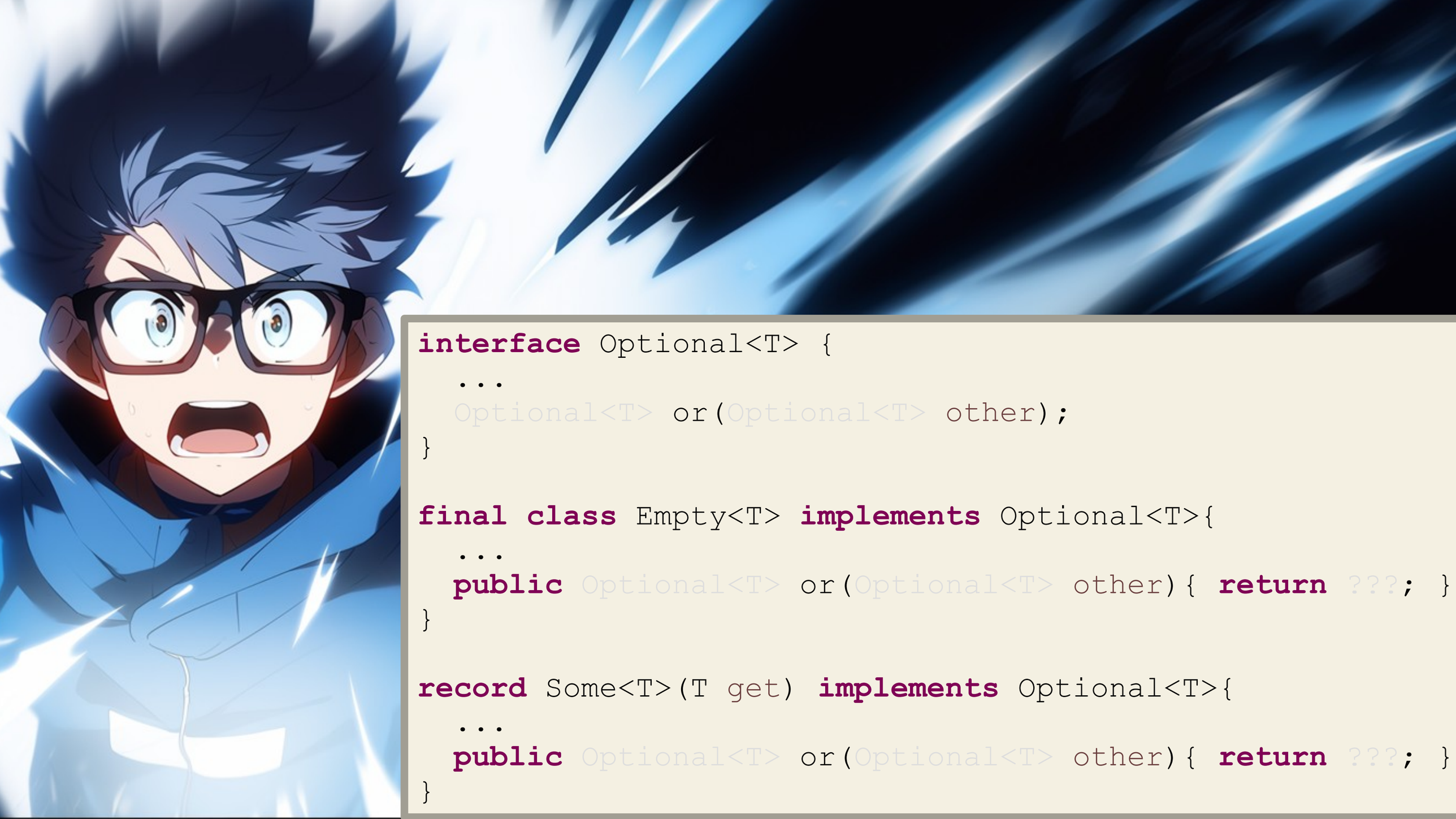




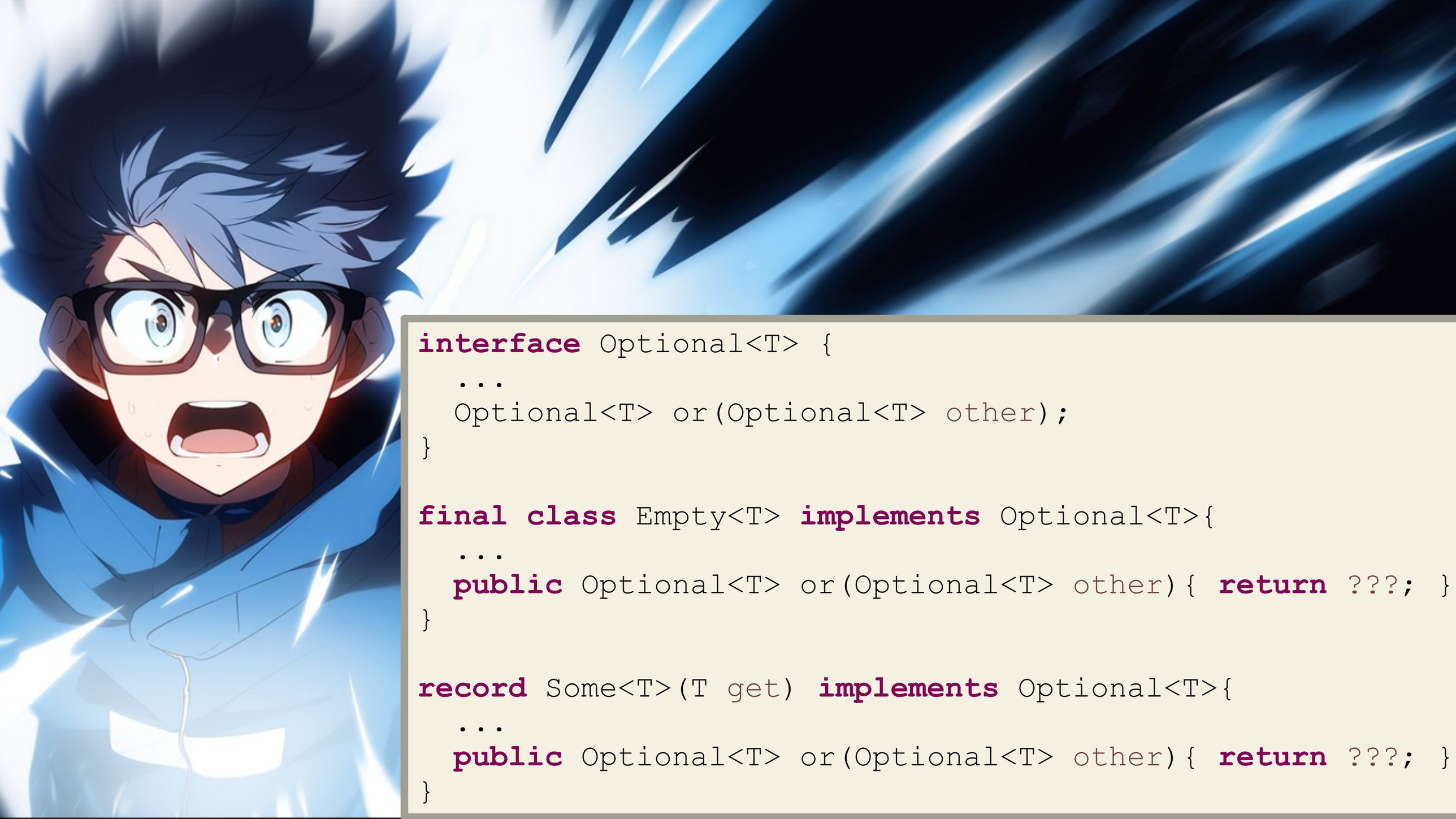
```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```



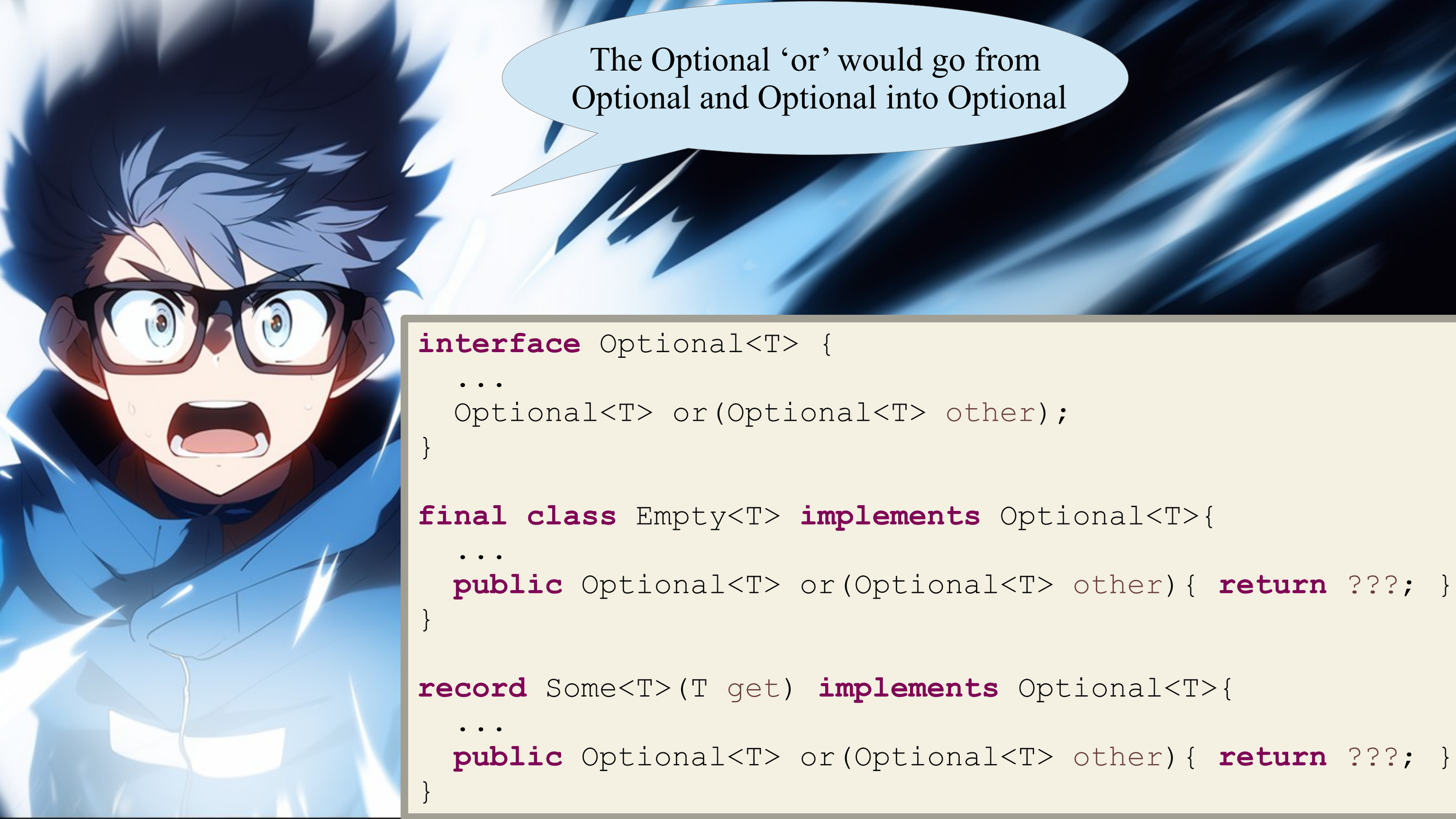

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```



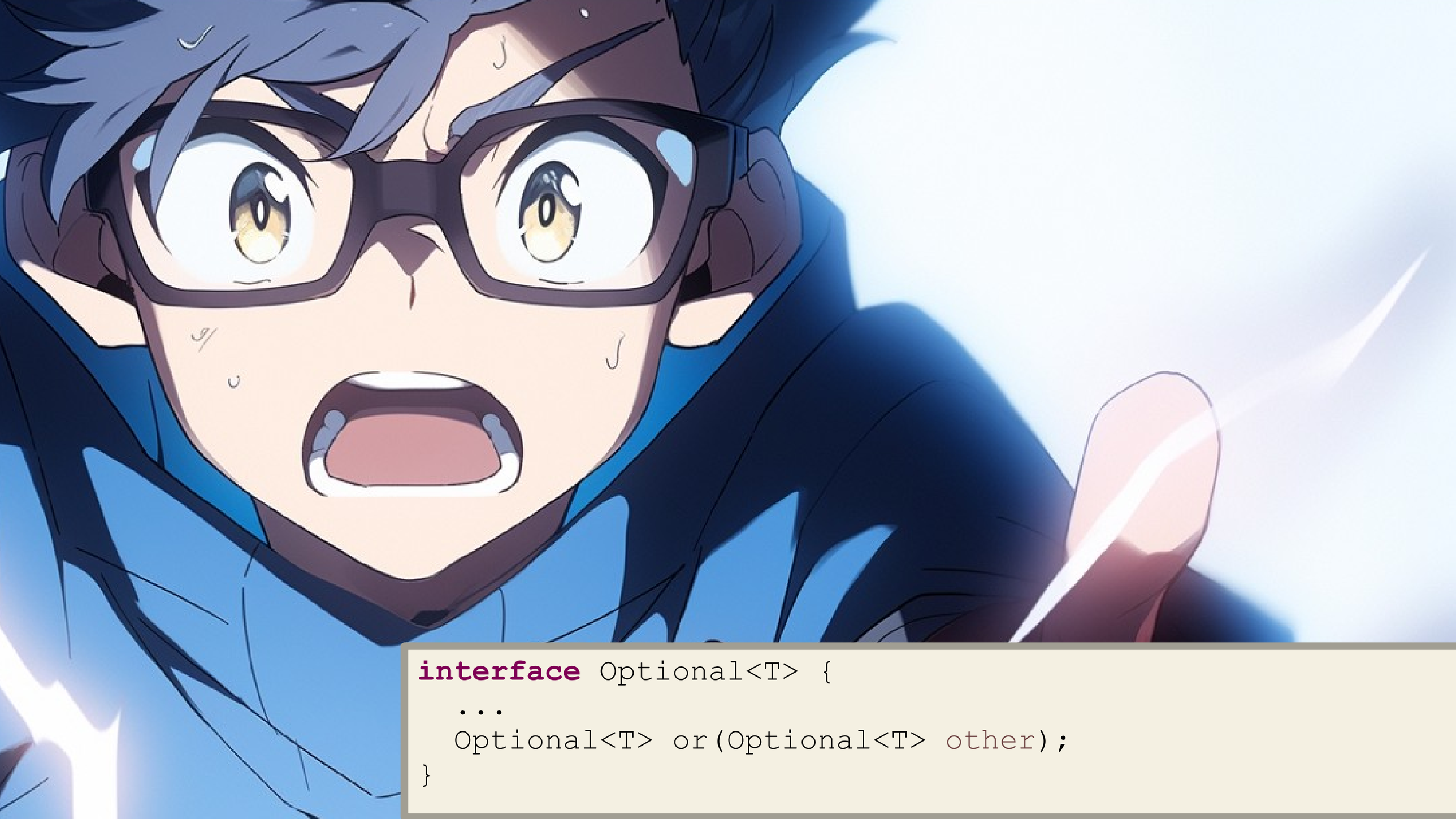
```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```



```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```

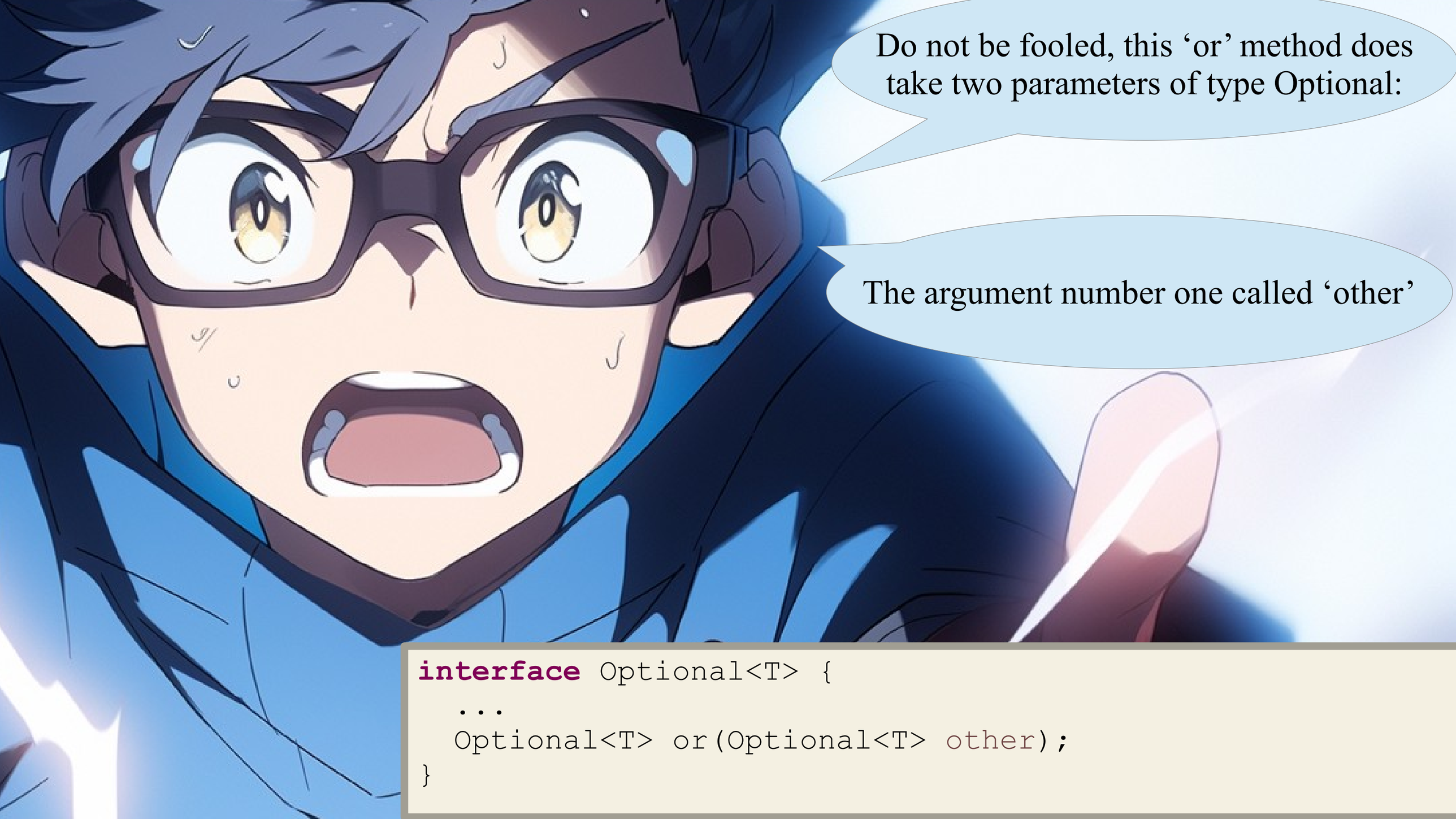



```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```

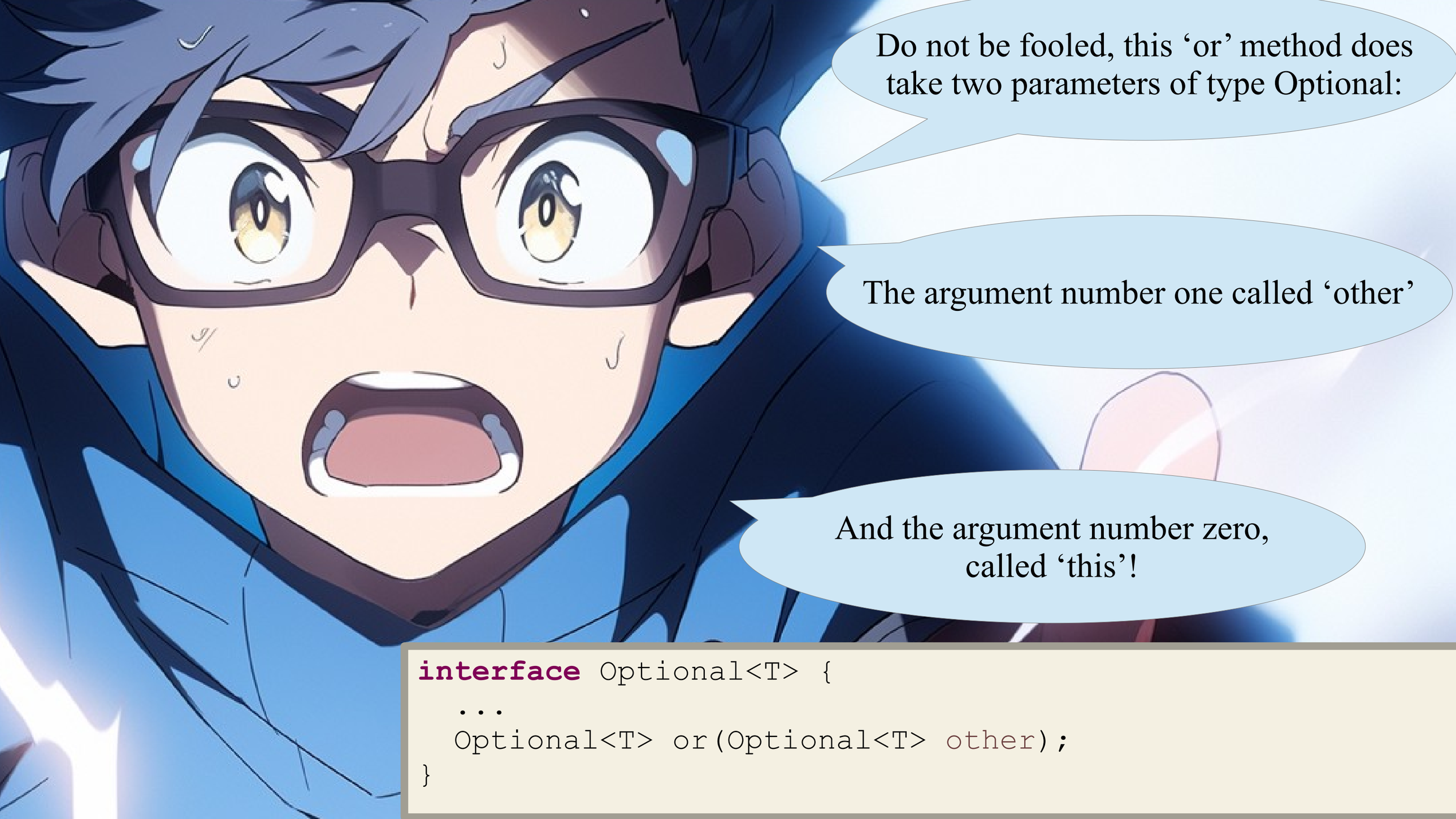


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```

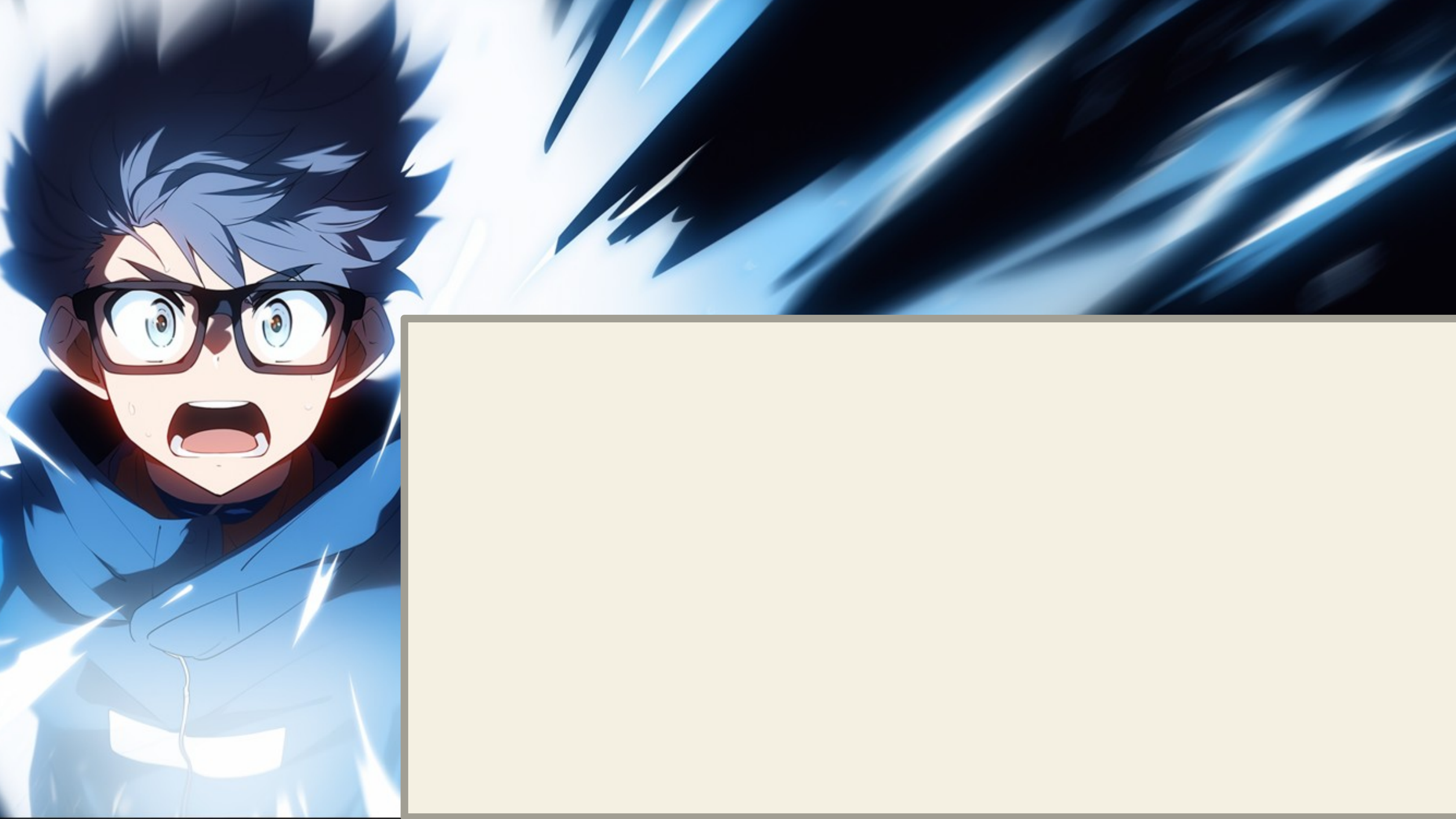

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```



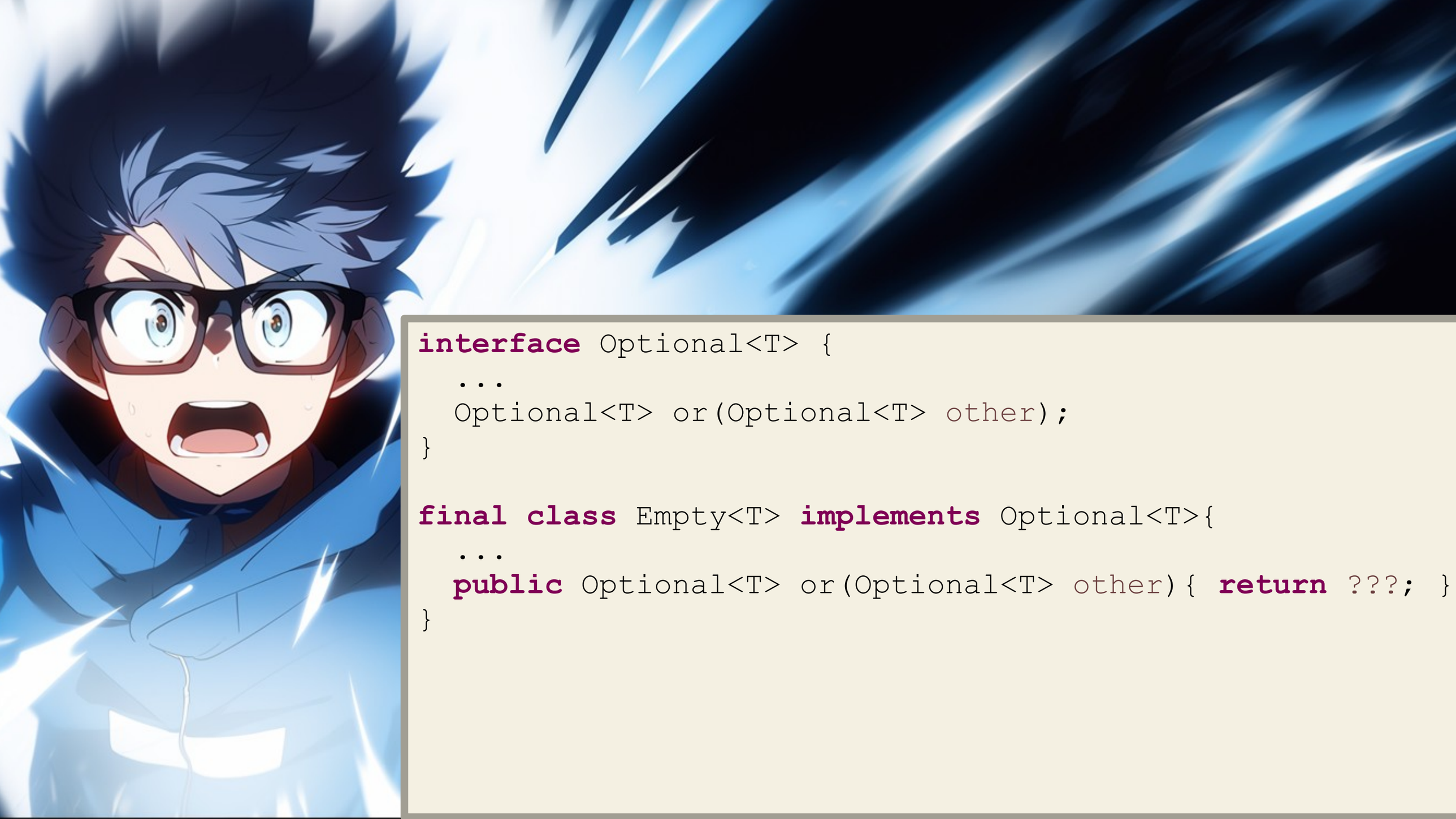

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```



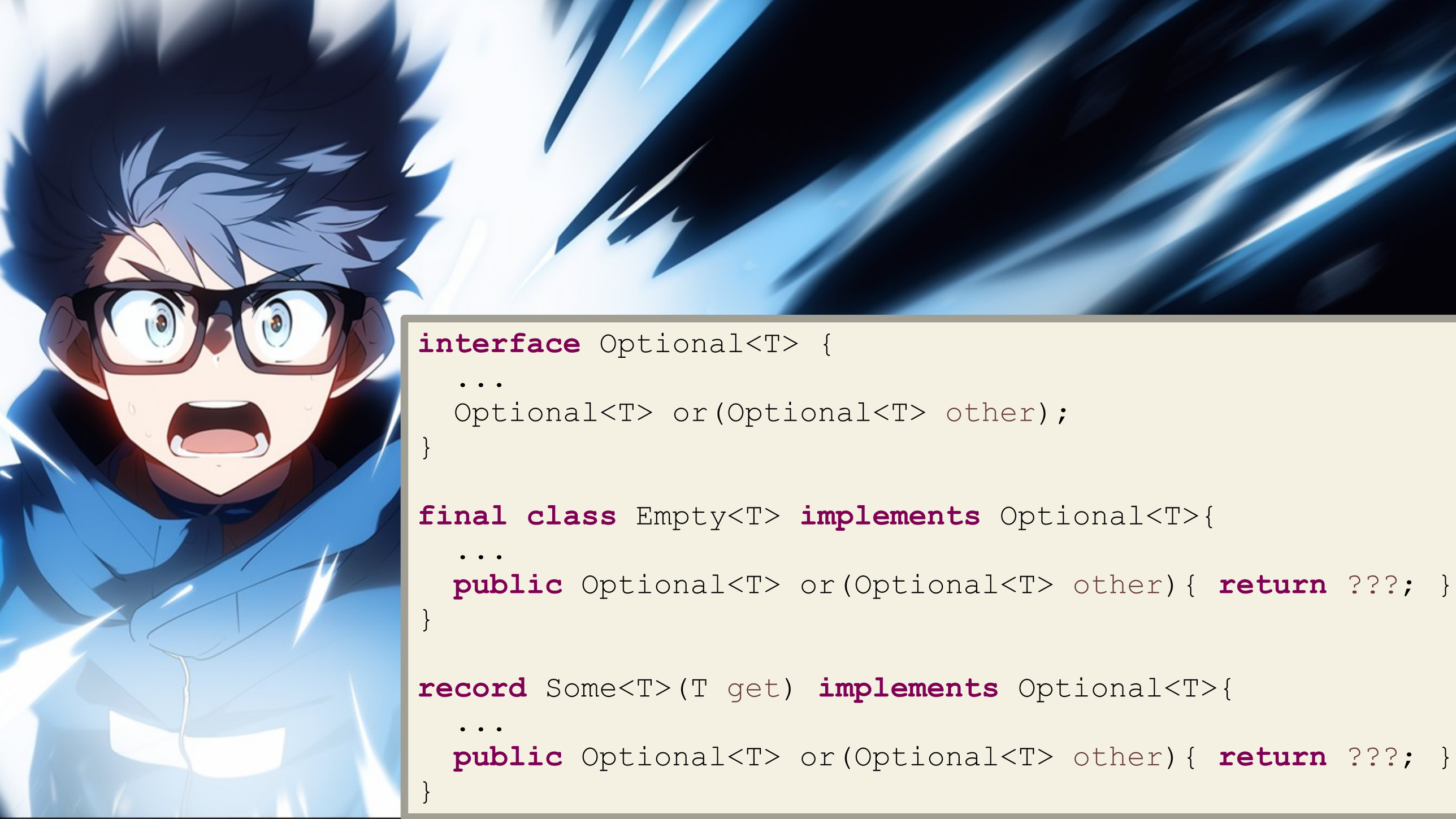

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```



```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```

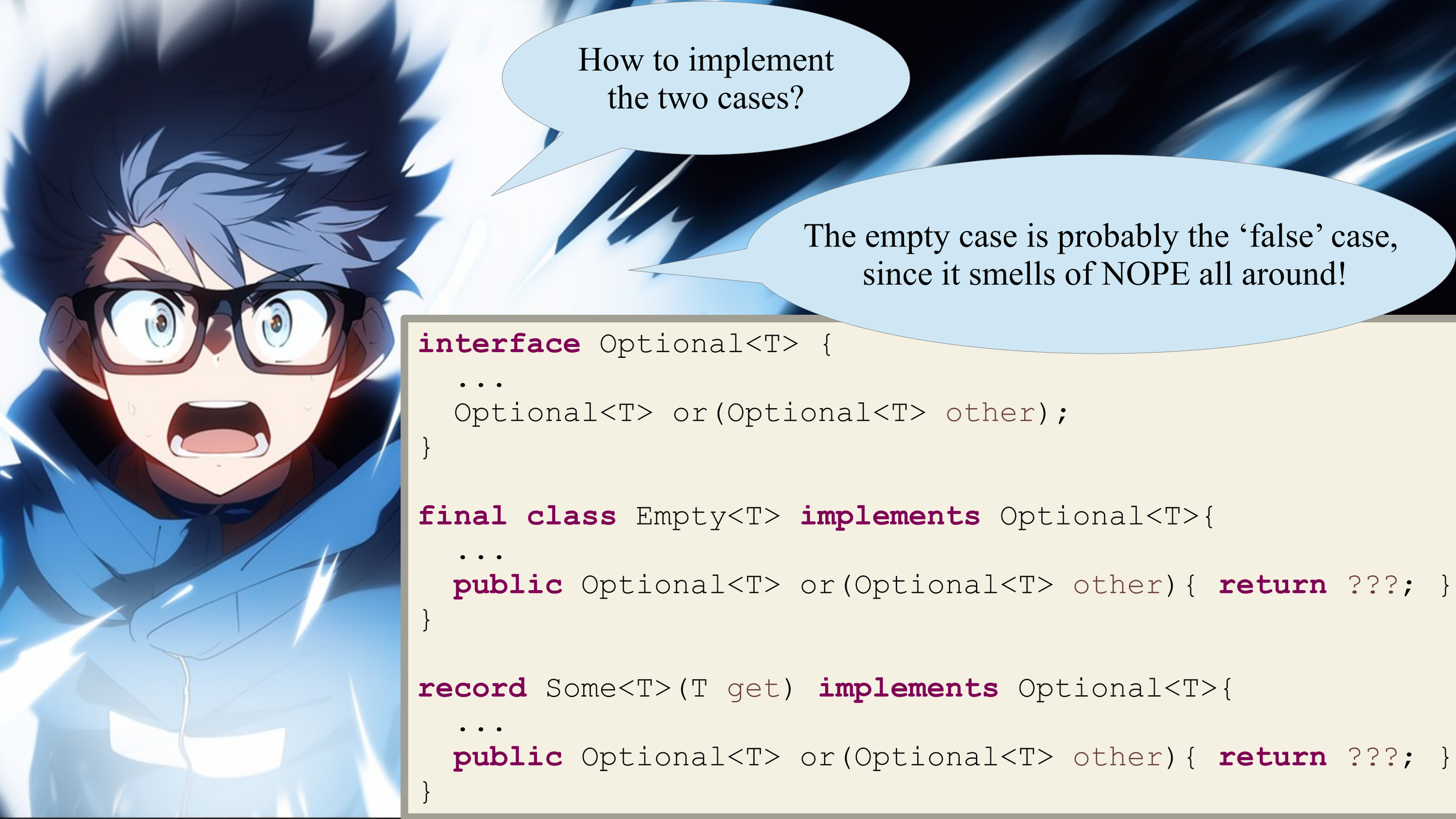


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```

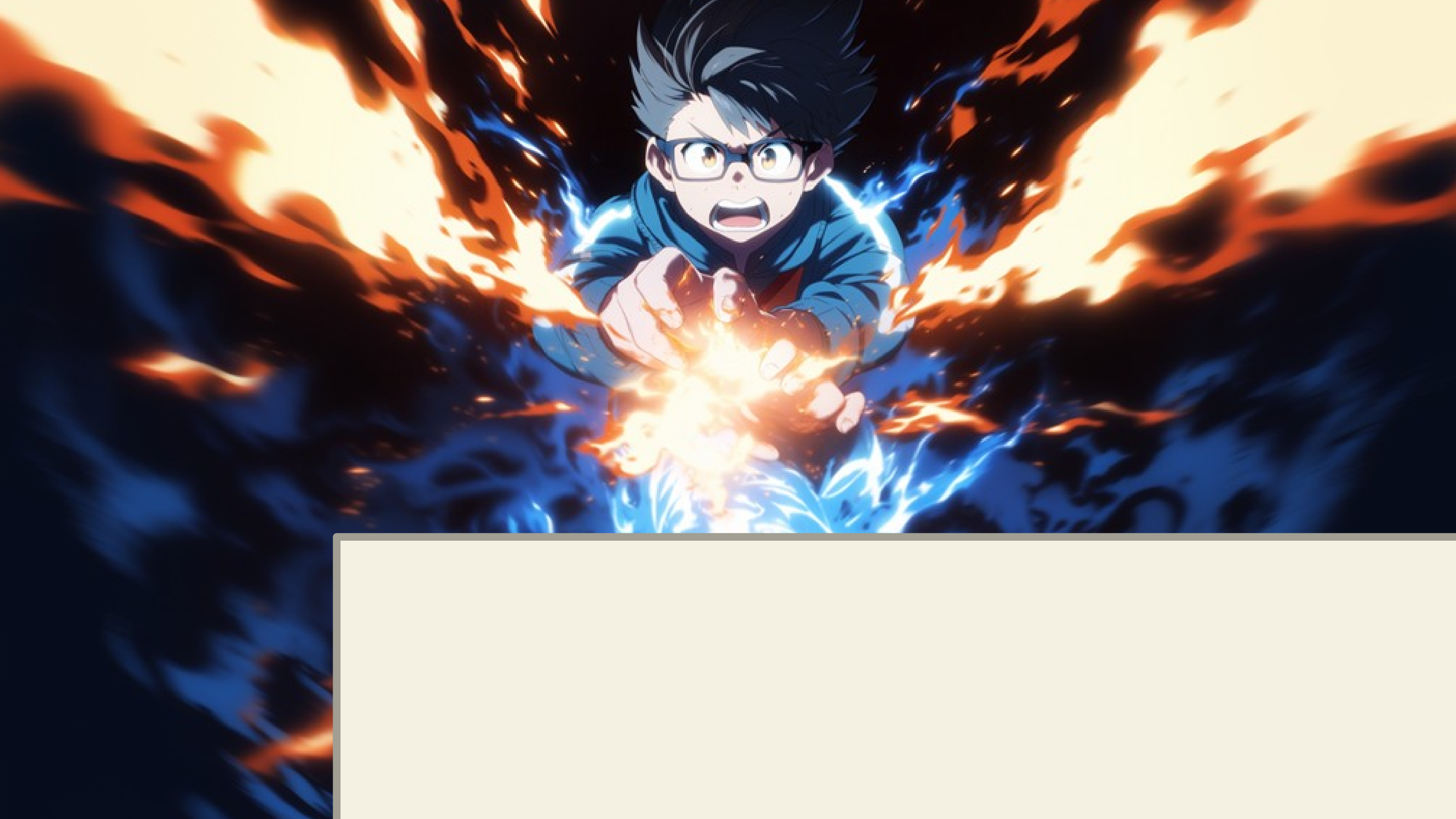


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```




```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```



```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
```

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class False implements Boolean{
  ...
  public Boolean or(Boolean other){ return other; }
}
```


```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class False implements Boolean{
  ...
  public Boolean or(Boolean other){ return other; }
}
```


```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class False implements Boolean{
  ...
  public Boolean or(Boolean other){ return other; }
}
```

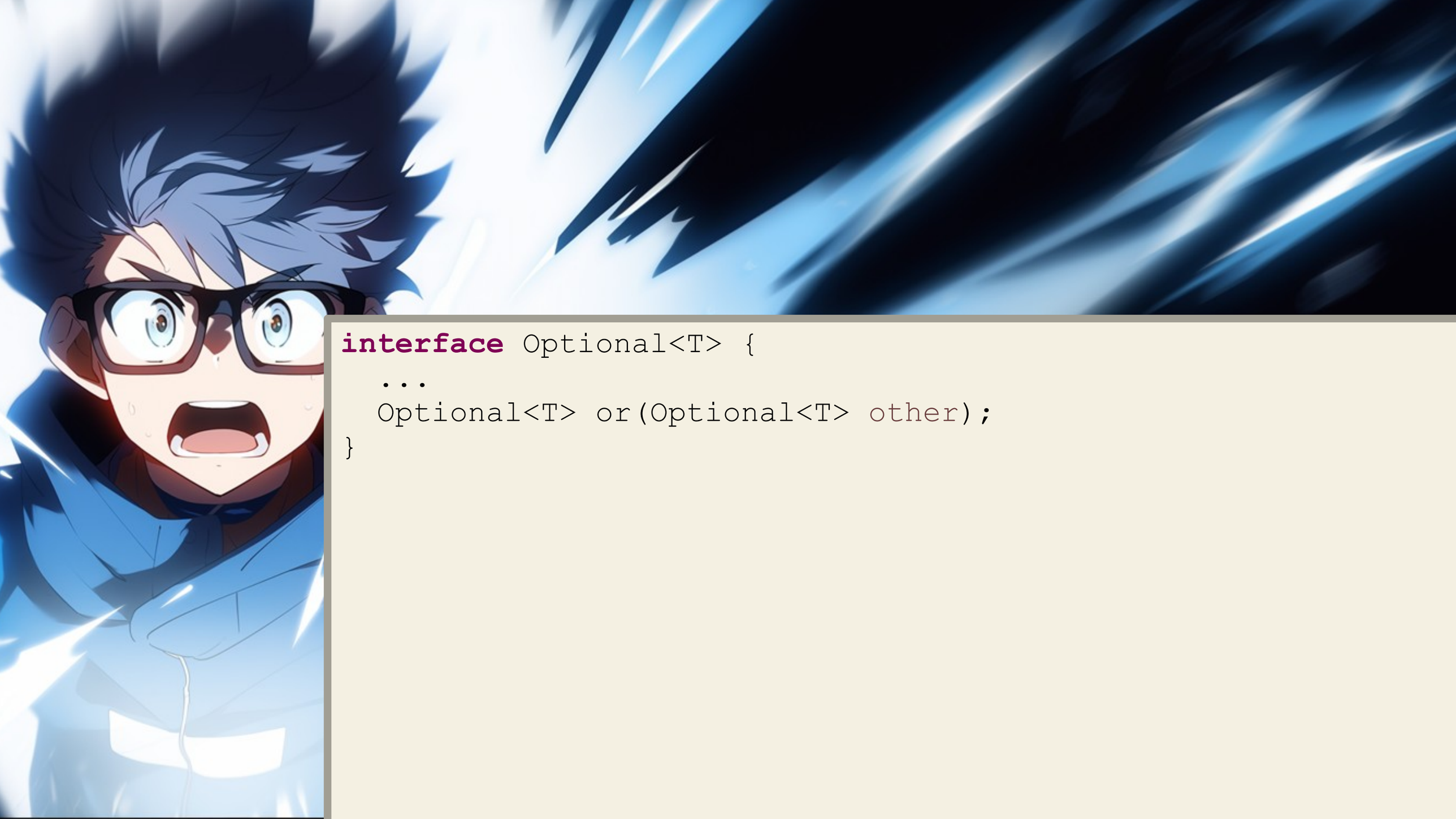
```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class False implements Boolean{
  ...
  public Boolean or(Boolean other){ return other; }
}
```


```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class False implements Boolean{
  ...
  public Boolean or(Boolean other){ return other; }
}
```

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class False implements Boolean{
  ...
  public Boolean or(Boolean other){ return other; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}
```

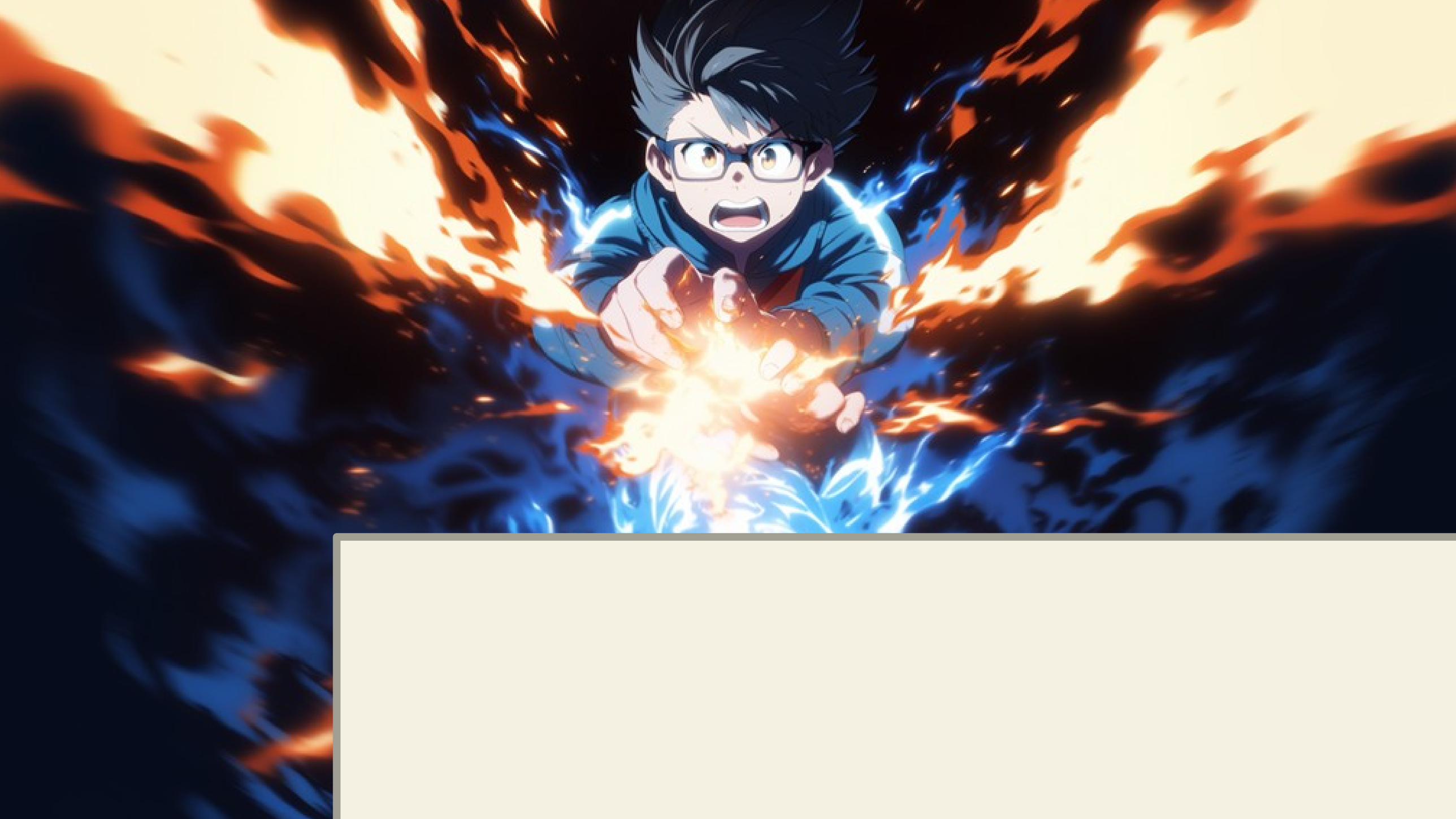


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return ???; }
}
```



```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
```

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class True implements Boolean{
  ...
  public Boolean or(Boolean other){ return this; }
}
```

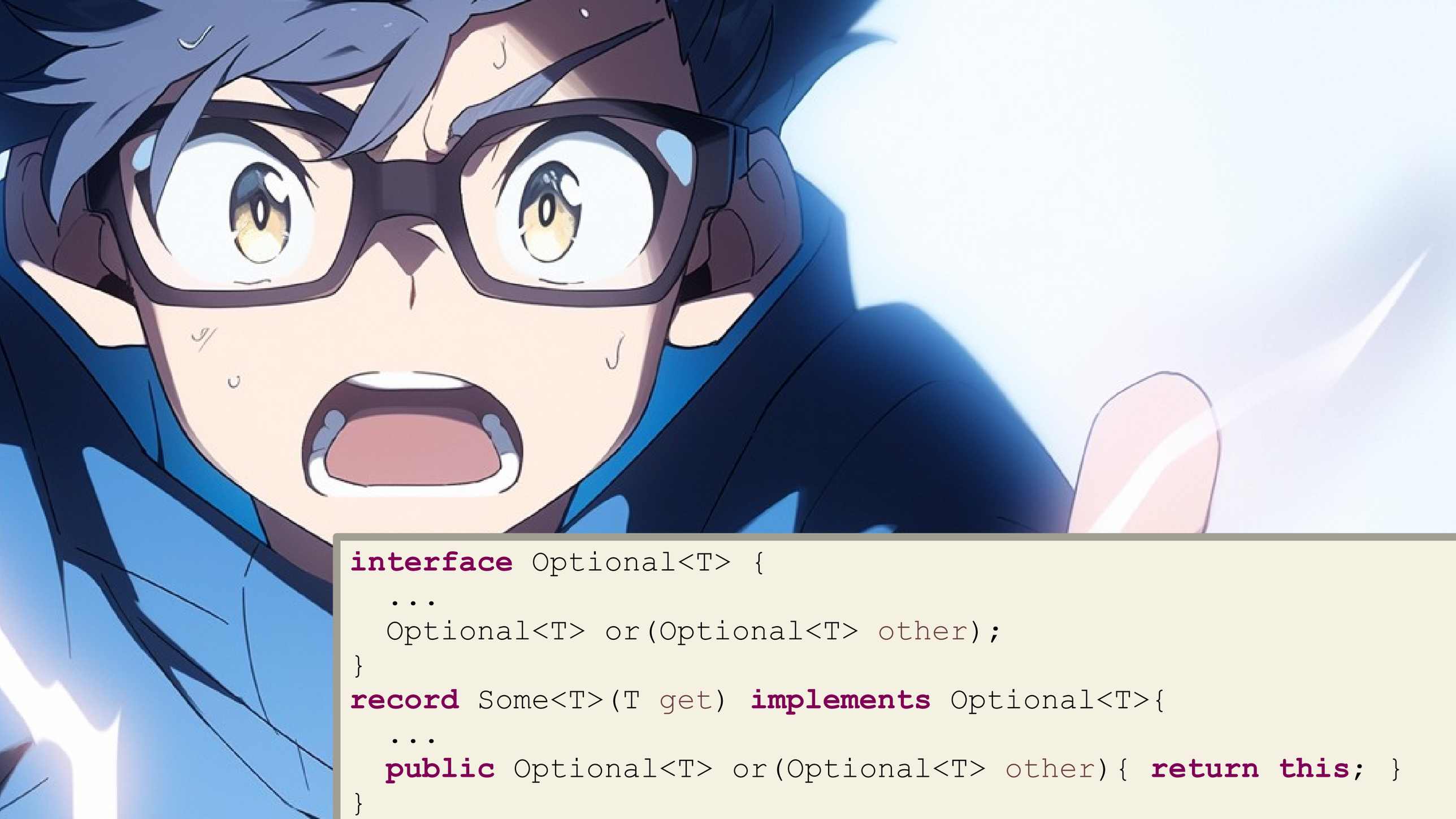

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class True implements Boolean{
  ...
  public Boolean or(Boolean other){ return this; }
}
```


```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class True implements Boolean{
  ...
  public Boolean or(Boolean other){ return this; }
}
```

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class True implements Boolean{
  ...
  public Boolean or(Boolean other){ return this; }
}
```

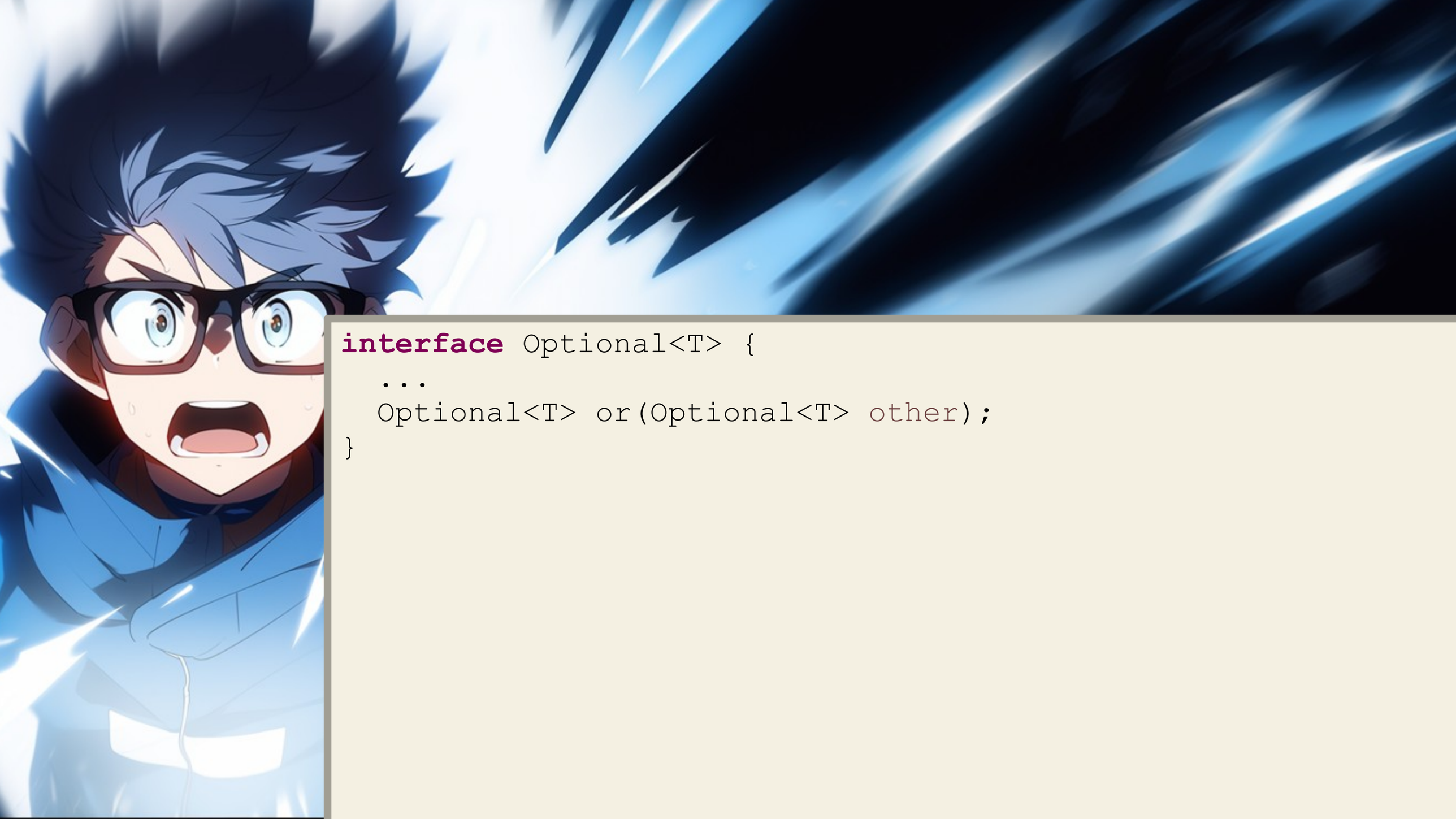

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class True implements Boolean{
  ...
  public Boolean or(Boolean other){ return this; }
}
```

```
interface Boolean {
  ...
  Boolean or(Boolean other);
}
final class True implements Boolean{
  ...
  public Boolean or(Boolean other){ return this; }
}
```



```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return this; }
}
```

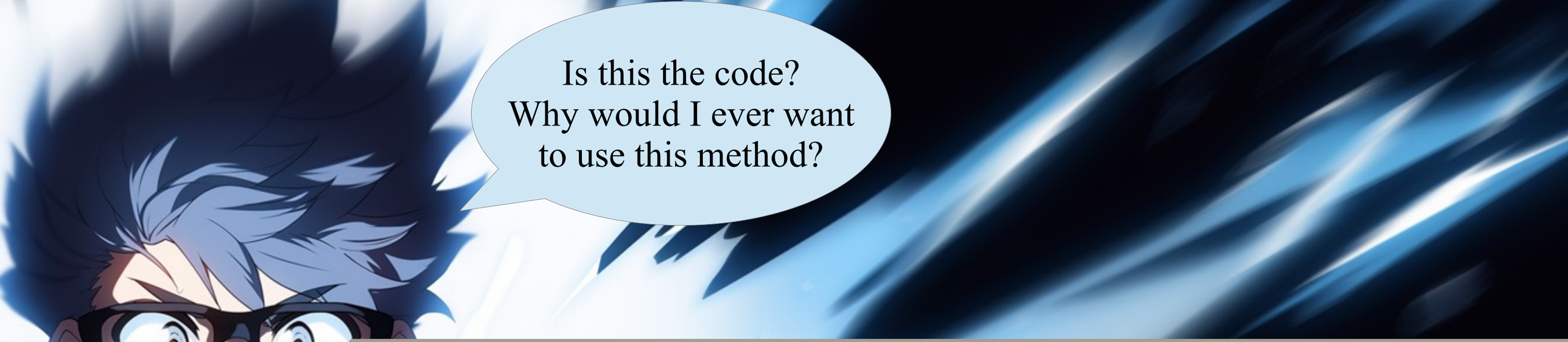

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return this; }
}
```



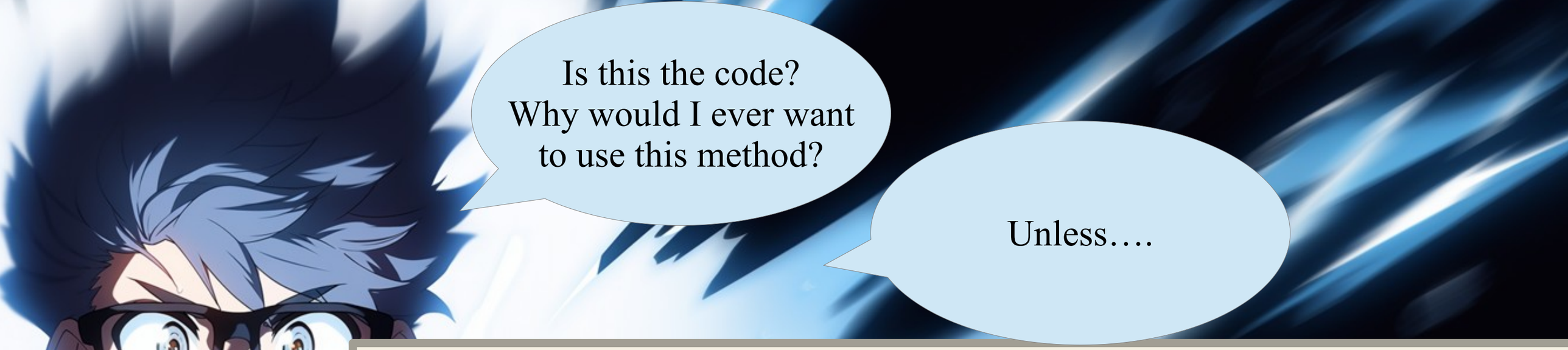
```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return this; }
}
```



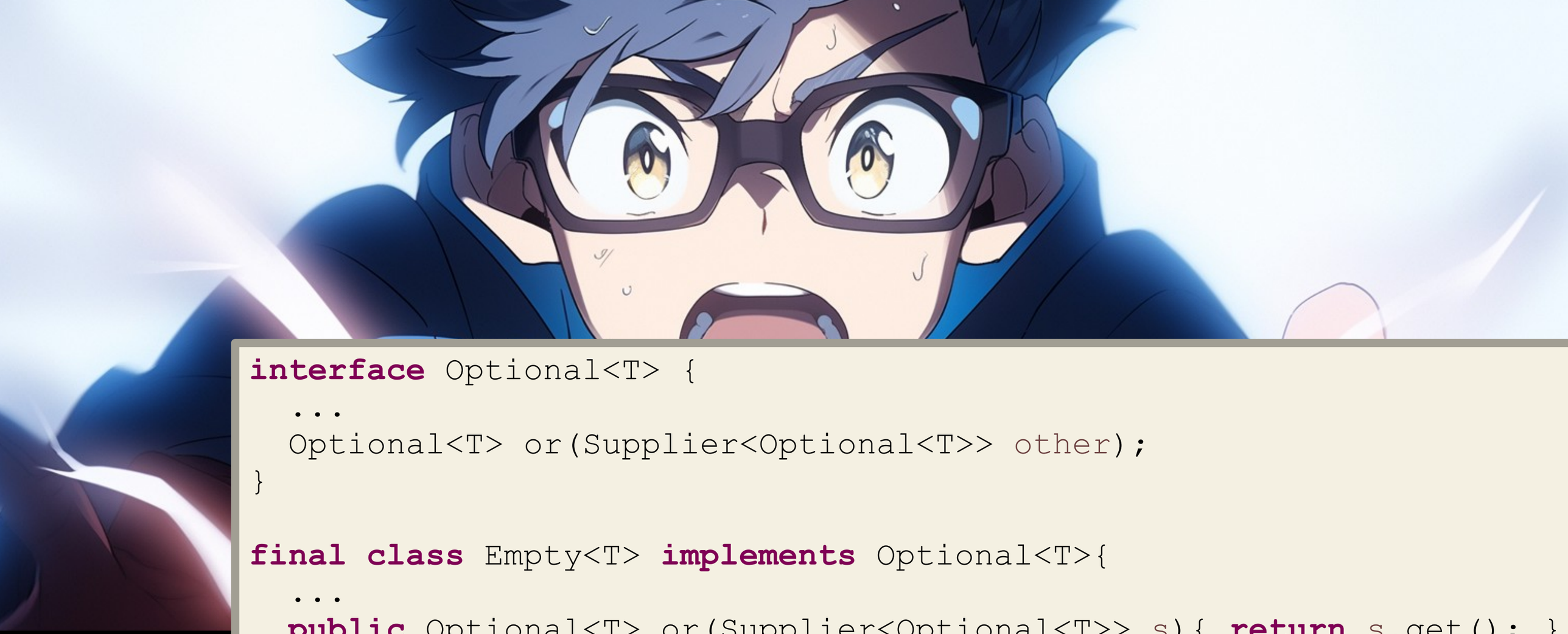

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return this; }
}
```



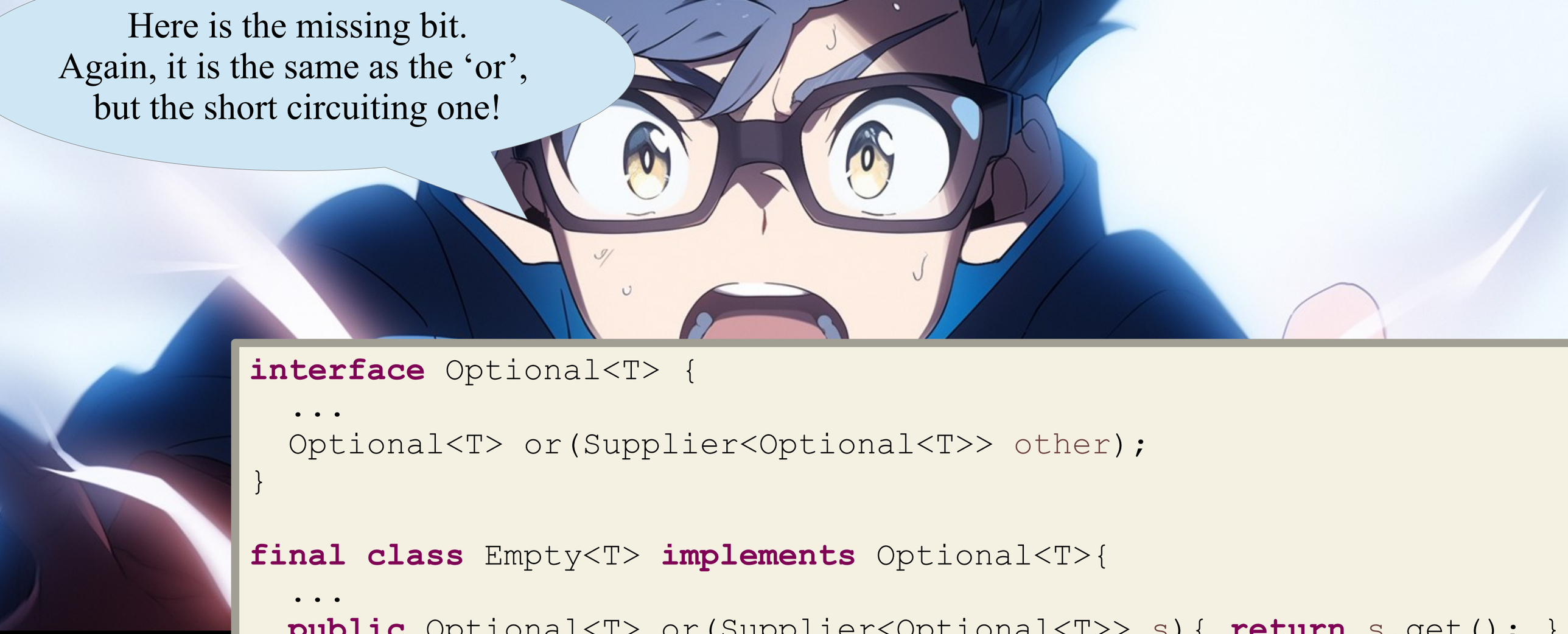

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return this; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Optional<T> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return other; }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Optional<T> other){ return this; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```



```java
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```




```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```

```
myList.isEmpty() || myList.get(0)!=null
```


```
myList.isEmpty() || myList.get(0)!=null
```


```
myList.isEmpty() || myList.get(0)!=null
```

```
myOptData.or(  ()-> allData.stream().filter(x-> x.skill() > 10).findFirst()  );
```


```
myList.isEmpty() || myList.get(0)!=null
```

```
myOptData.or(  ()-> allData.stream().filter(x-> x.skill() > 10).findFirst()  );
```


With this ‘or’ method, we can divide any large method into as many little ones as we want

With this ‘or’ method, we can divide any large method into as many little ones as we want

```
  int badGiantMethod(int input){
    int tmp= 0;
    int aux= 10+input;
    //do Bar
    while(xxx) {
      tmp = xxx;
      if(xxx){ return xxx; }
      aux = xxx;
    }
    //do Foo
    for(xxxxx) {
      tmp = xxx;
      for(xxxx) {
        aux = xxx;
        if(xxx) {return xxx;}
      }
    }
    //do Beer
    xxxx;
    return xxx;
  }
}
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

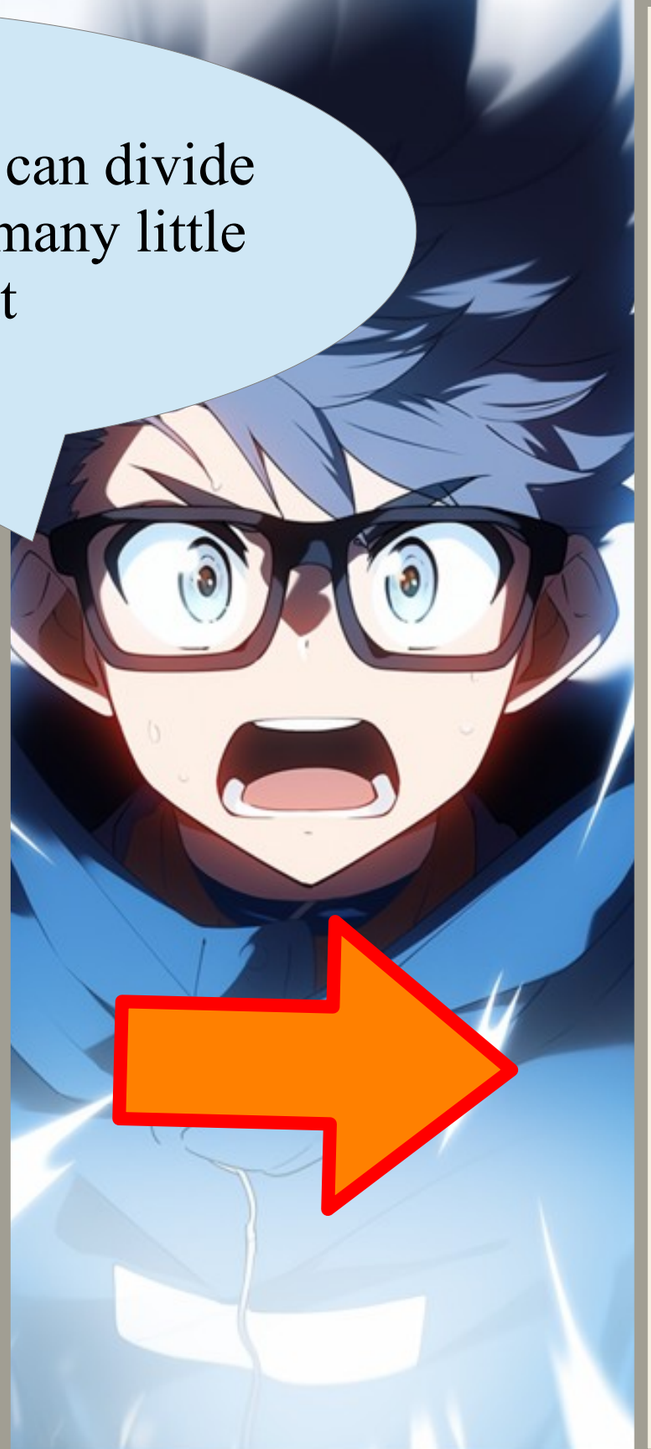
```
  int badGiantMethod(int input){
    int tmp= 0;
    int aux= 10+input;
    //do Bar
    while(xxx) {
      tmp = xxx;
      if(xxx){ return xxx; }
      aux = xxx;
    }
    //do Foo
    for(xxxxx) {
      tmp = xxx;
      for(xxxx) {
        aux = xxx;
        if(xxx) {return xxx;}
      }
    }
    //do Beer
    xxxx;
    return xxx;
  }
}
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

```
int badGiantMethod(int input){
  int tmp= 0;
  int aux= 10+input;
  //do Bar
  while(xxx) {
    tmp = xxx;
    if(xxx){ return xxx; }
    aux = xxx;
  }
  //do Foo
  for(xxxxx) {
    tmp = xxx;
    for(xxxx) {
      aux = xxx;
      if(xxx) {return xxx;}
    }
  }
  //do Beer
  xxxx;
  return xxx;
 }
}
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

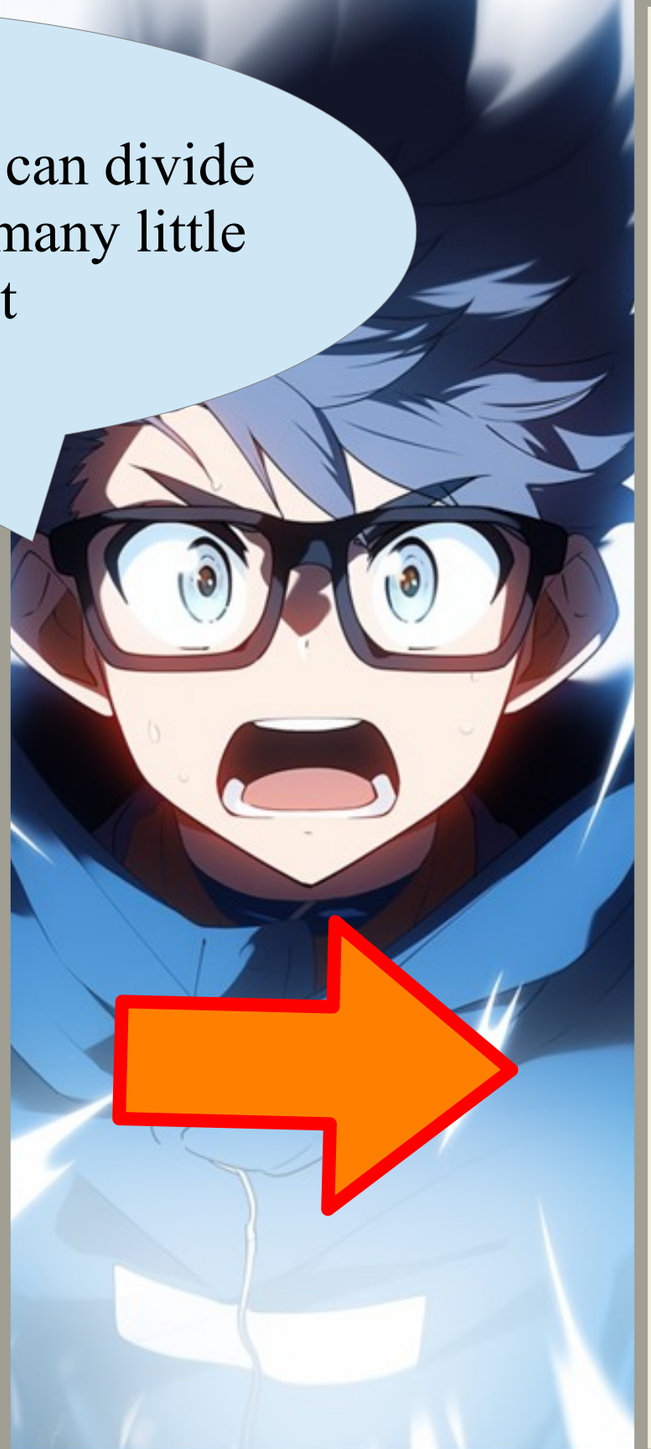
```
int badGiantMethod(int input){
  int tmp= 0;
  int aux= 10+input;
  //do Bar
  while(xxx) {
    tmp = xxx;
    if(xxx){ return xxx; }
    aux = xxx;
  }
  //do Foo
  for(xxxxx) {
    tmp = xxx;
    for(xxxx) {
      aux = xxx;
      if(xxx) {return xxx;}
    }
  }
  //do Beer
  xxxx;
  return xxx;
}
}
```



```
class Compute{  //return new Compute().of(input);
  int tmp= 0;
  int aux;
  int input;
  int of(int i){
    input = i;
    aux = 10+input;
    return doBar()
      .or(()->doFoo())
      .orElseGet(()->doBeer());
  }
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

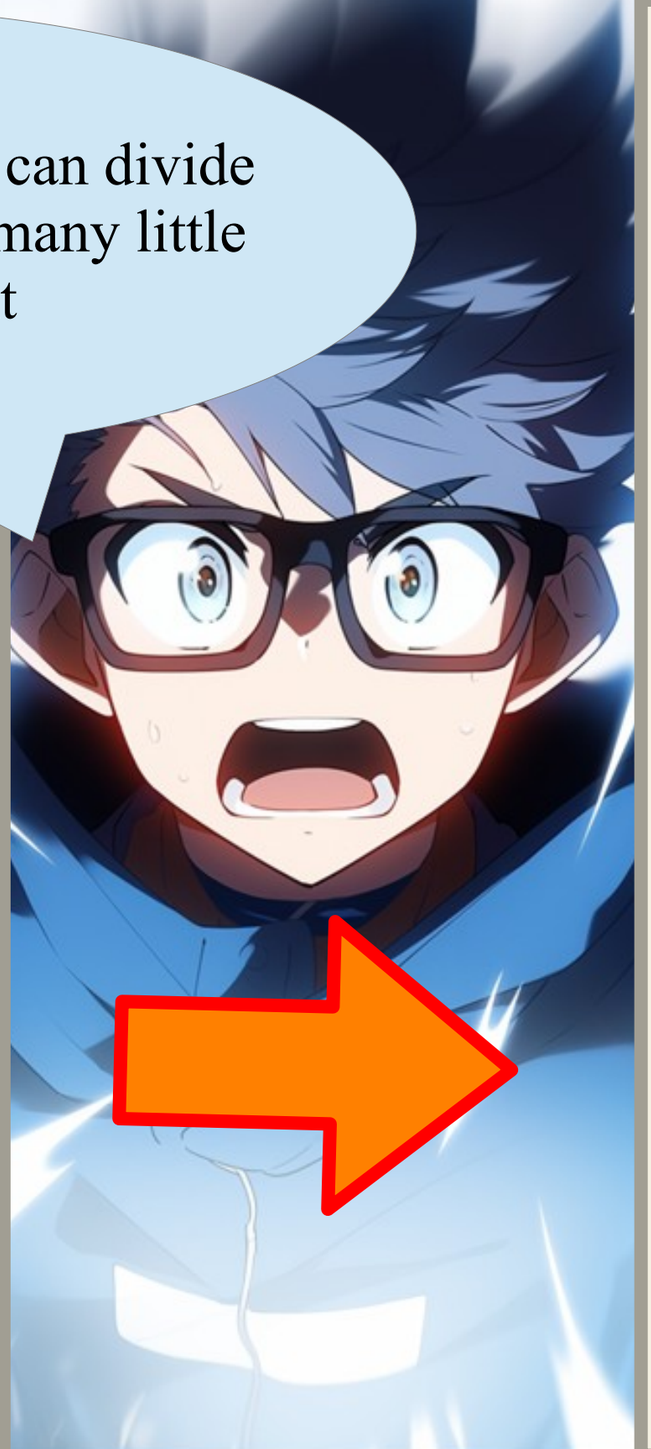
```
int badGiantMethod(int input){
  int tmp= 0;
  int aux= 10+input;
  //do Bar
  while(xxx) {
    tmp = xxx;
    if(xxx){ return xxx; }
    aux = xxx;
  }
  //do Foo
  for(xxxxx) {
    tmp = xxx;
    for(xxxx) {
      aux = xxx;
      if(xxx) {return xxx;}
    }
  }
  //do Beer
  xxxx;
  return xxx;
}
}
```



```
class Compute{  //return new Compute().of(input);
  int tmp= 0;
  int aux;
  int input;
  int of(int i){
    input = i;
    aux = 10+input;
    return doBar()
      .or(()->doFoo())
      .orElseGet(()->doBeer());
  }
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

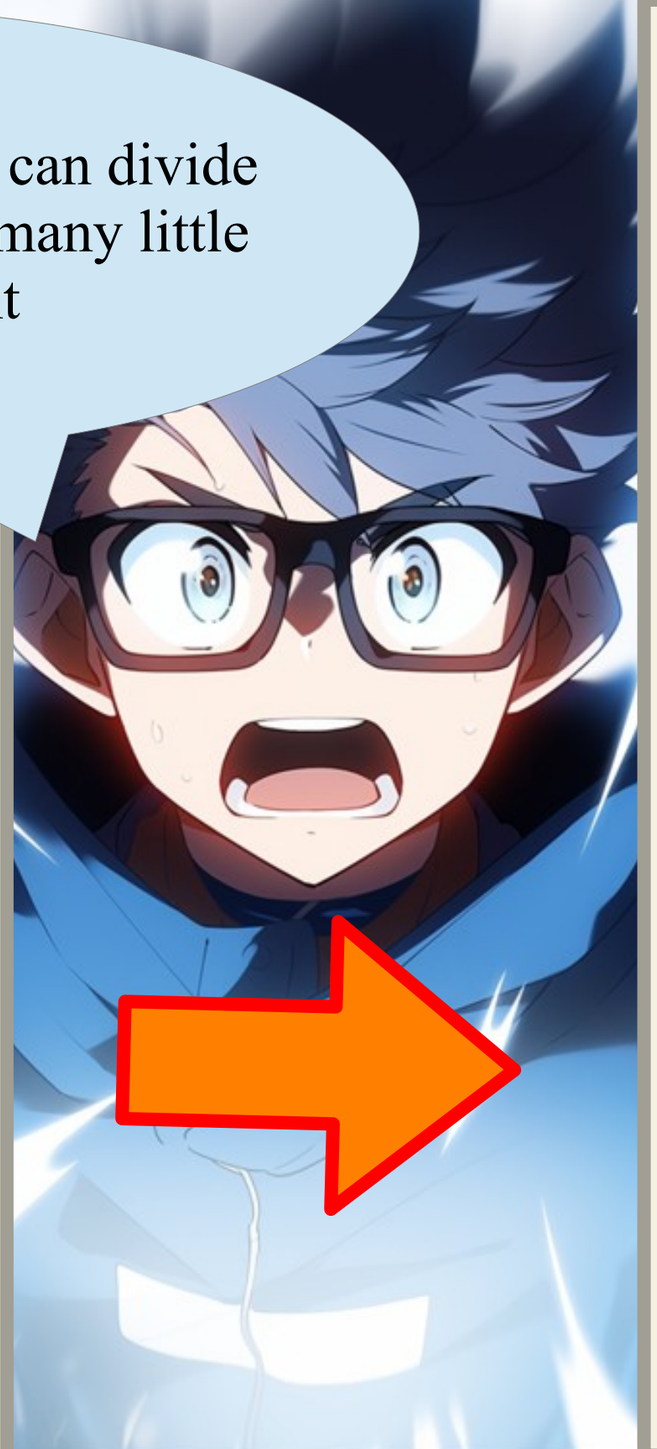
```
int badGiantMethod(int input){
  int tmp= 0;
  int aux= 10+input;
  //do Bar
  while(xxx) {
    tmp = xxx;
    if(xxx){ return xxx; }
    aux = xxx;
  }
  //do Foo
  for(xxxxx) {
    tmp = xxx;
    for(xxxx) {
      aux = xxx;
      if(xxx) {return xxx;}
    }
  }
  //do Beer
  xxxx;
  return xxx;
}
}
```



```
class Compute{  //return new Compute().of(input);
  int tmp= 0;
  int aux;
  int input;
  int of(int i){
    input = i;
    aux = 10+input;
    return doBar()
      .or(()->doFoo())
      .orElseGet(()->doBeer());
  }
  Optional<Integer> doBar(){
    while(xxx) {
      tmp = xxx;
      if(xxx){ return Optional.of(xxx); }
      aux = xxx;
    }
    return Optional.empty();
  }
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

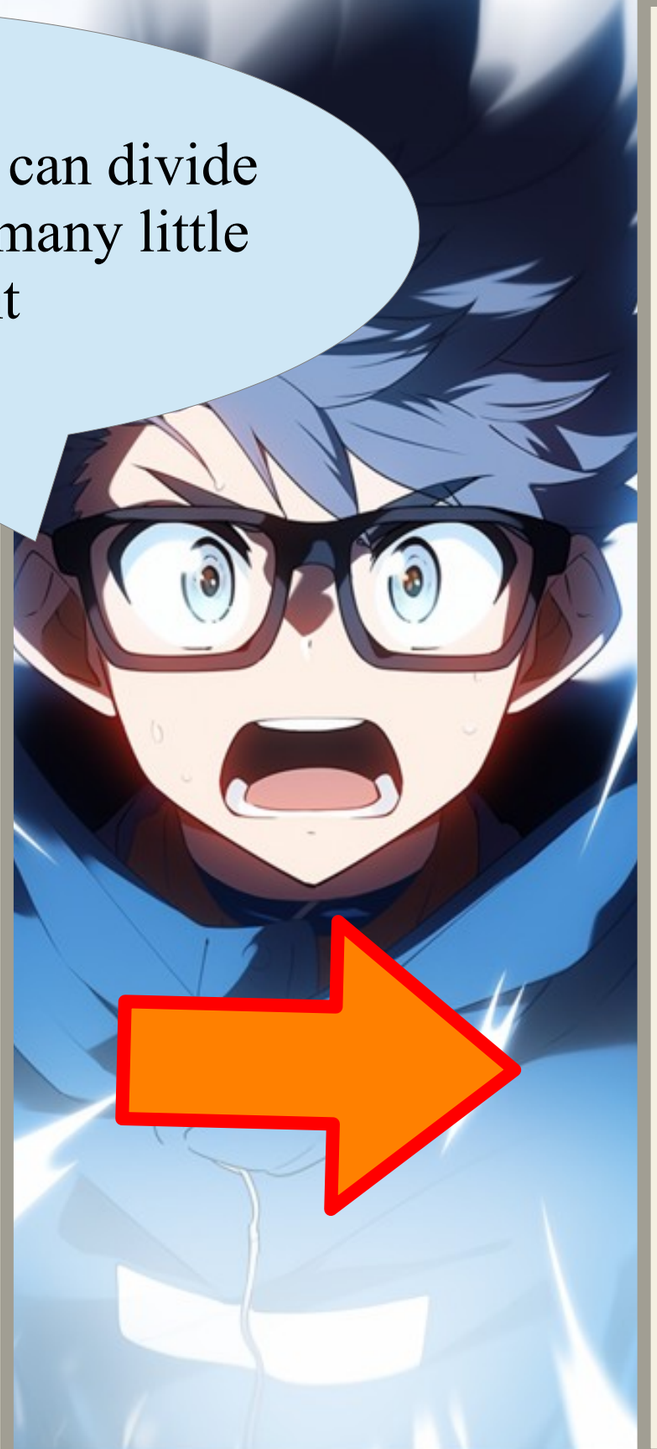
```
int badGiantMethod(int input){
  int tmp= 0;
  int aux= 10+input;
  //do Bar
  while(xxx) {
    tmp = xxx;
    if(xxx){ return xxx; }
    aux = xxx;
  }
  //do Foo
  for(xxxxx) {
    tmp = xxx;
    for(xxxx) {
      aux = xxx;
      if(xxx) {return xxx;}
    }
  }
  //do Beer
  xxxx;
  return xxx;
}
}
```



```
class Compute{  //return new Compute().of(input);
  int tmp= 0;
  int aux;
  int input;
  int of(int i){
    input = i;
    aux = 10+input;
    return doBar()
      .or(()->doFoo())
      .orElseGet(()->doBeer());
  }
  Optional<Integer> doBar(){
    while(xxx) {
      tmp = xxx;
      if(xxx){ return Optional.of(xxx); }
      aux = xxx;
    }
    return Optional.empty();
  }
  Optional<Integer> doFoo(){
    for(xxxxx) {
      tmp = xxx;
      for(xxxx) {
        aux = xxx;
        if(xxx) {return Optional.of(xxx);}
      }
    }
    return Optional.empty();
  }
```

With this ‘or’ method, we can divide any large method into as many little ones as we want

```
int badGiantMethod(int input){
  int tmp= 0;
  int aux= 10+input;
  //do Bar
  while(xxx) {
    tmp = xxx;
    if(xxx){ return xxx; }
    aux = xxx;
  }
  //do Foo
  for(xxxxx) {
    tmp = xxx;
    for(xxxx) {
      aux = xxx;
      if(xxx) {return xxx;}
    }
  }
  //do Beer
  xxxx;
  return xxx;
}
}
```



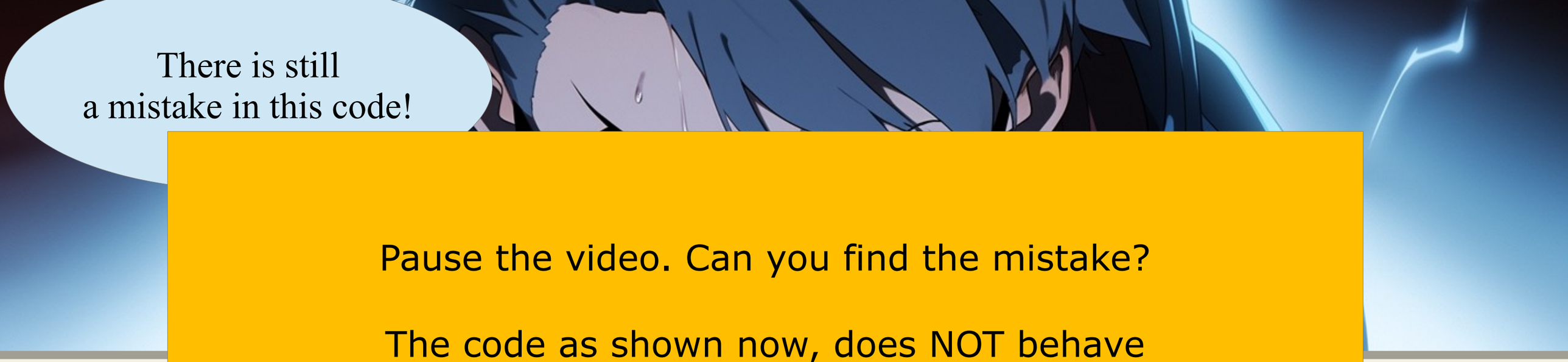
```
class Compute{  //return new Compute().of(input);
  int tmp= 0;
  int aux;
  int input;
  int of(int i){
    input = i;
    aux = 10+input;
    return doBar()
      .or(()->doFoo())
      .orElseGet(()->doBeer());
  }
  Optional<Integer> doBar(){
    while(xxx) {
      tmp = xxx;
      if(xxx){ return Optional.of(xxx); }
      aux = xxx;
    }
    return Optional.empty();
  }
  Optional<Integer> doFoo(){
    for(xxxxx) {
      tmp = xxx;
      for(xxxx) {
        aux = xxx;
        if(xxx) {return Optional.of(xxx);}
      }
    }
    return Optional.empty();
  }
  int doBeer(){
    xxxx;
    return xxx;
  }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```



Pause the video. Can you find the mistake?

The code as shown now, does NOT behave
like the Java Optional.or method
in an important corner case

This message will disappear shortly.
You can pause the video after that.

```
interfac
  ...
  Option
}

final cl
  ...
  public
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}

final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return s.get(); }
}

record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}
final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){
    return Objects.requireNonNull(s.get());
  } //Java tries to prevent null optionals
}
record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```

```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}
final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){
    return Objects.requireNonNull(s.get());
  } //Java tries to prevent null optionals
}
record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


```
interface Optional<T> {
  ...
  Optional<T> or(Supplier<Optional<T>> other);
}
final class Empty<T> implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){
    return Objects.requireNonNull(s.get());
  } //Java tries to prevent null optionals
}
record Some<T>(T get) implements Optional<T>{
  ...
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


I've missed this
check another time

I've missed this
check another time

Pause the video.
Where the other Object.requireNonNull check should go?

This message will disappear shortly
and the current code will be shown
You can pause the video after that.

```java
public sealed interface Optional<T> extends Serializable permits Empty<T>, Some<T>{
  @SuppressWarnings("unchecked")
  static <E> Optional<E> empty(){ return (Optional<E>)Empty.Instance; }
  static <T> Optional<T> of(T value){ return new Some<T>(Objects.requireNonNull(value)); }
  static <T> Optional<T> ofNullable(T value){ return value == null ? empty() : new Some<T>(value); }
  T orElseGet(Supplier<T> s);
  Optional<T> filter(Predicate<T> p);
  <U> Optional<U> map(Function<T, U> m);
  <U> Optional<U> flatMap(Function<T, Optional<U>> m);
  Optional<T> or(Supplier<Optional<T>> s);
}

final class Empty<T> implements Optional<T>{
  static final Empty<Object> instance= new Empty<>();
  private Empty(){}
  public T orElseGet(Supplier<T> s){ return s.get(); }
  public Optional<T> filter(Predicate<T> p){ return Optional.empty(); }
  public <U> Optional<U> map(Function<T, U> m){ return Optional.empty(); }
  public <U> Optional<U> flatMap(Function<T, Optional<U>> m){ return Optional.empty(); }
  public Optional<T> or(Supplier<Optional<T>> s){ return Objects.requireNonNull(s.get()); }
}

record Some<T>(T get) implements Optional<T>{
  public T orElseGet(Supplier<T> unused){ return get; }
  public Optional<T> filter(Predicate<T> p){ return p.test(get)?this:Optional.empty(); }
  public <U> Optional<U> map(Function<T, U> m){ return m.apply(get); }
  public <U> Optional<U> flatMap(Function<T, Optional<U>> m){ return m.apply(get); }
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


I've missed this
check another time

```
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return m.apply(get);
  }
}
```

```java
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return m.apply(get);
  }
}
```

```java
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return Objects.requireNonNull(m.apply(get));
  }
}
```


```
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return m.apply(get);
  }
}
```

```
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return Objects.requireNonNull(m.apply(get));
  }
}
```


```
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return m.apply(get);
  }
}
```

Or bad user code may
return a null Optional here!

```
record Some<T>(T get) implements Optional<T>{
  public <R> Optional<R> flatMap(Function<T, Optional<R>> m){
    return Objects.requireNonNull(m.apply(get));
  }
}
```


Technically, flatMap can emulate both map and filter

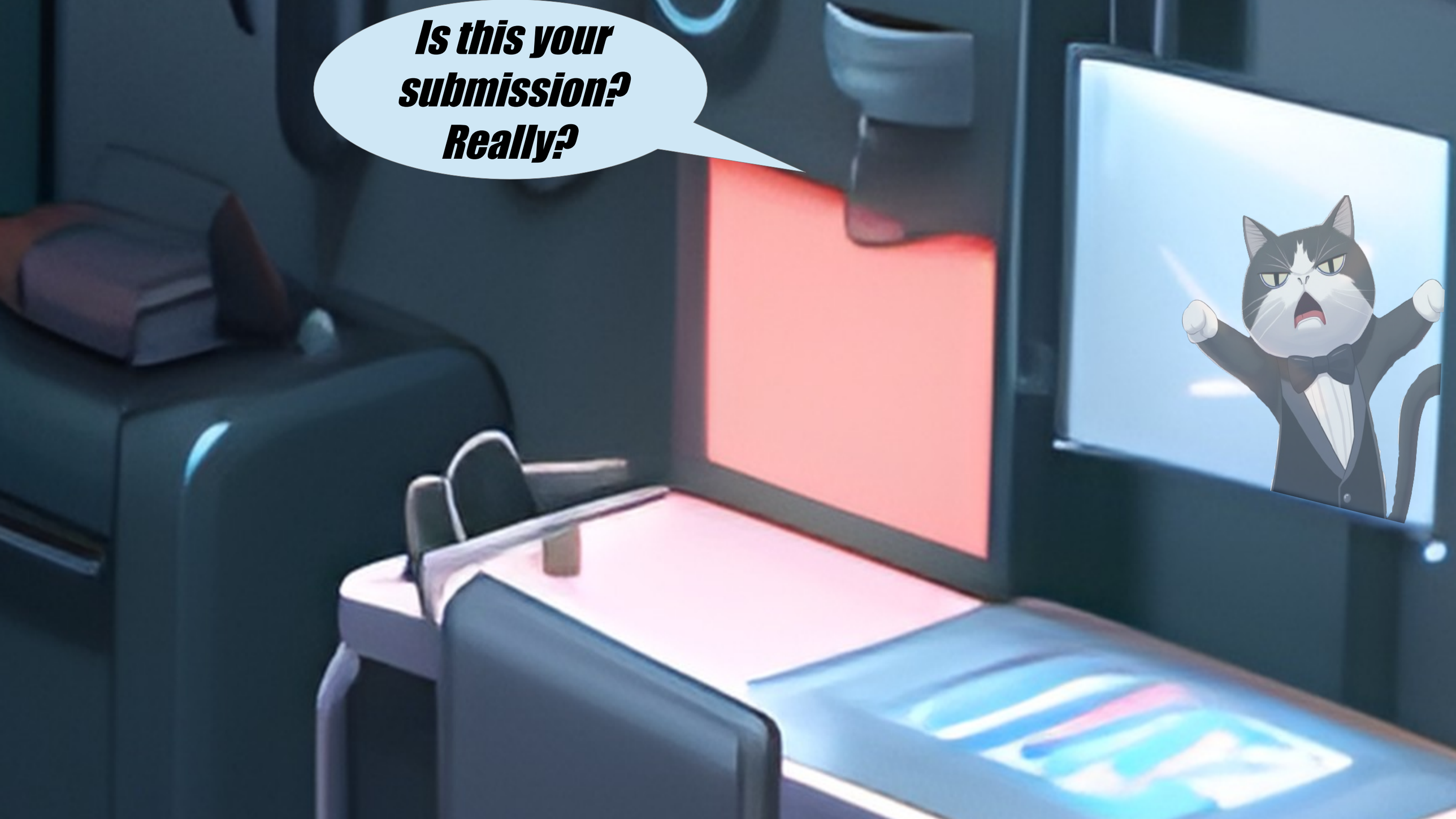

```
myOpt.map(e -> ...e...);
myOpt.flatMap(e -> Optional.ofNullable(...e...));
```

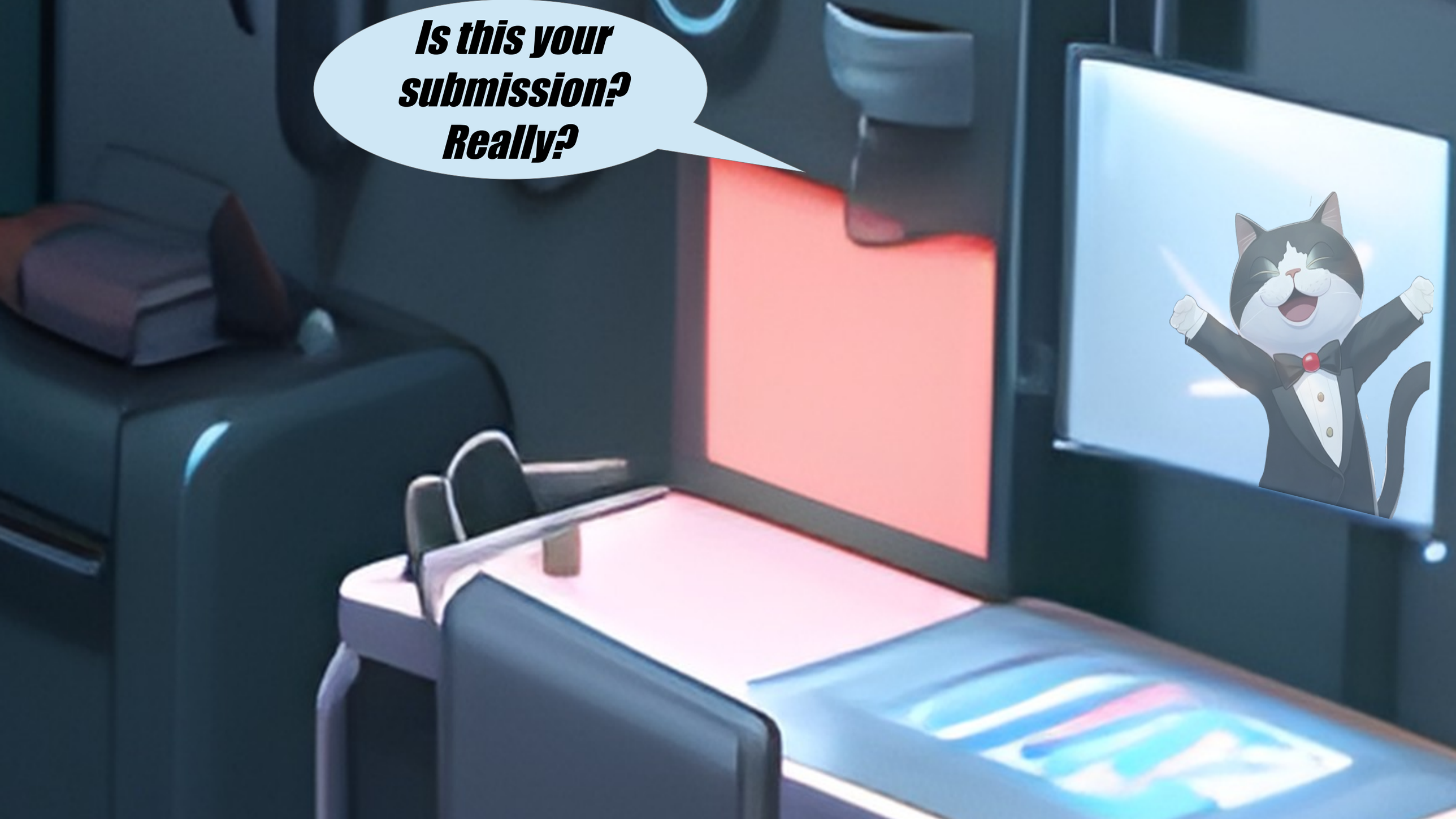

```
myOpt.map(e -> ...e...);
myOpt.flatMap(e -> Optional.ofNullable(...e...));


myOpt.filter(e -> ...e...);
myOpt.flatMap(e -> (...e...)?myOpt:Optional.empty());
```

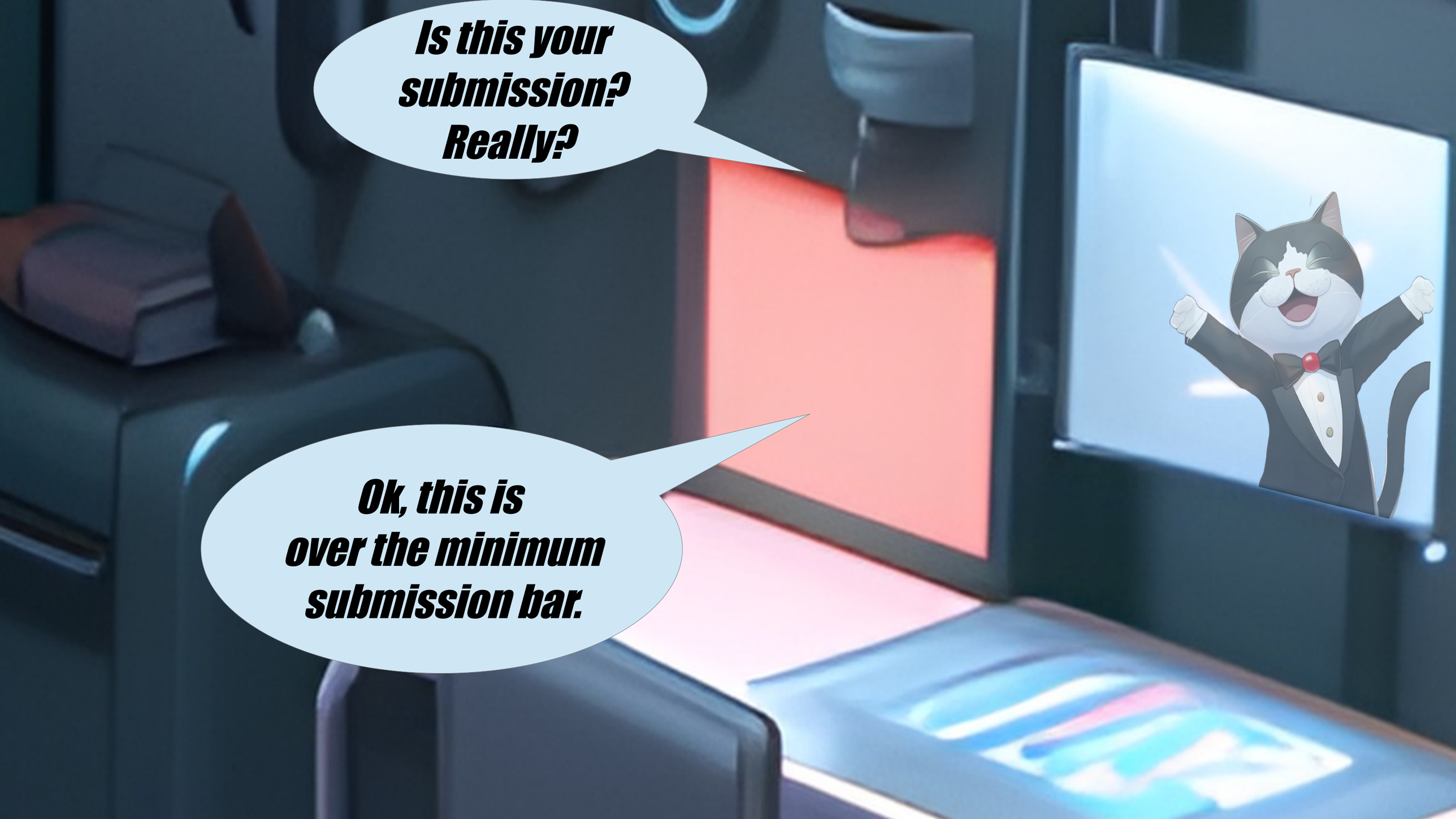

```
myOpt.map(e -> ...e...);
myOpt.flatMap(e -> Optional.ofNullable(...e...));


myOpt.filter(e -> ...e...);
myOpt.flatMap(e -> (...e...)?myOpt:Optional.empty());
```

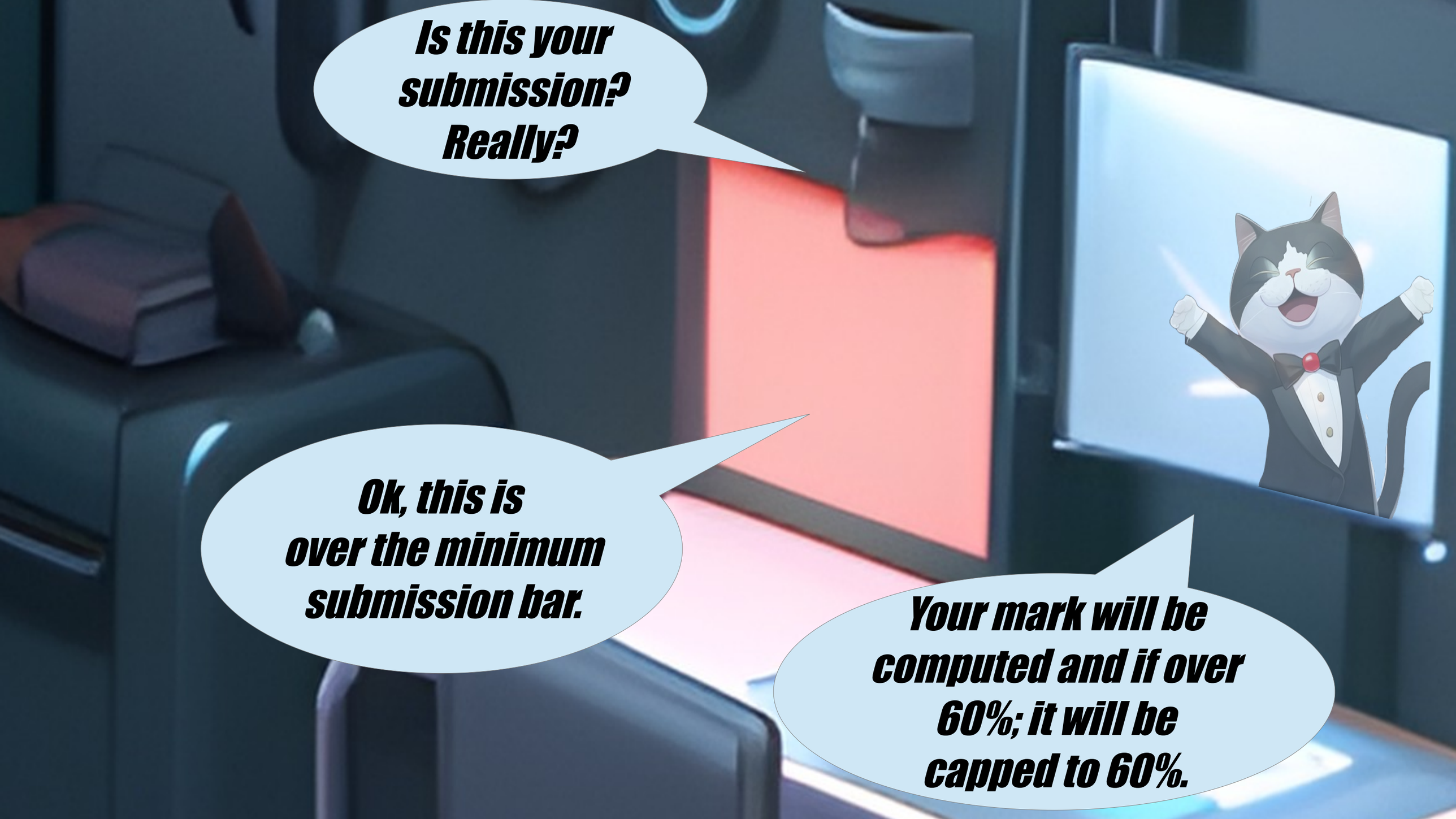

Time to submit again!

```java
public sealed interface Optional<T> extends Serializable permits Empty<T>, Some<T>{
  @SuppressWarnings("unchecked")
  static <E> Optional<E> empty(){ return (Optional<E>)Empty.Instance; }
  static <T> Optional<T> of(T value){ return new Some<T>(Objects.requireNonNull(value)); }
  static <T> Optional<T> ofNullable(T value){ return value == null ? empty() : new Some<T>(value); }
  T orElseGet(Supplier<T> s);
  Optional<T> filter(Predicate<T> p);
  <U> Optional<U> map(Function<T, U> m);
  <U> Optional<U> flatMap(Function<T, Optional<U>> m);
  Optional<T> or(Supplier<Optional<T>> s);
}

final class Empty<T> implements Optional<T>{
  static final Empty<Object> instance= new Empty<>();
  private Empty(){}
  public T orElseGet(Supplier<T> s){ return s.get(); }
  public Optional<T> filter(Predicate<T> p){ return Optional.empty(); }
  public <U> Optional<U> map(Function<T, U> m){ return Optional.empty(); }
  public <U> Optional<U> flatMap(Function<T, Optional<U>> m){ return Optional.empty(); }
  public Optional<T> or(Supplier<Optional<T>> s){ return Objects.requireNonNull(s.get()); }
}

record Some<T>(T get) implements Optional<T>{
  public T orElseGet(Supplier<T> unused){ return get; }
  public Optional<T> filter(Predicate<T> p){ return p.test(get)?this:Optional.empty(); }
  public <U> Optional<U> map(Function<T, U> m){ return Optional.ofNullable(m.apply(get)); }
  public <U> Optional<U> flatMap(Function<T, Optional<U>> m){
    return Objects.requireNonNull(m.apply(get));
  }
  public Optional<T> or(Supplier<Optional<T>> s){ return this; }
}
```


Is this your submission? Really?


Is this your submission? Really?


Is this your submission? Really?
Ok, this is over the minimum submission bar.

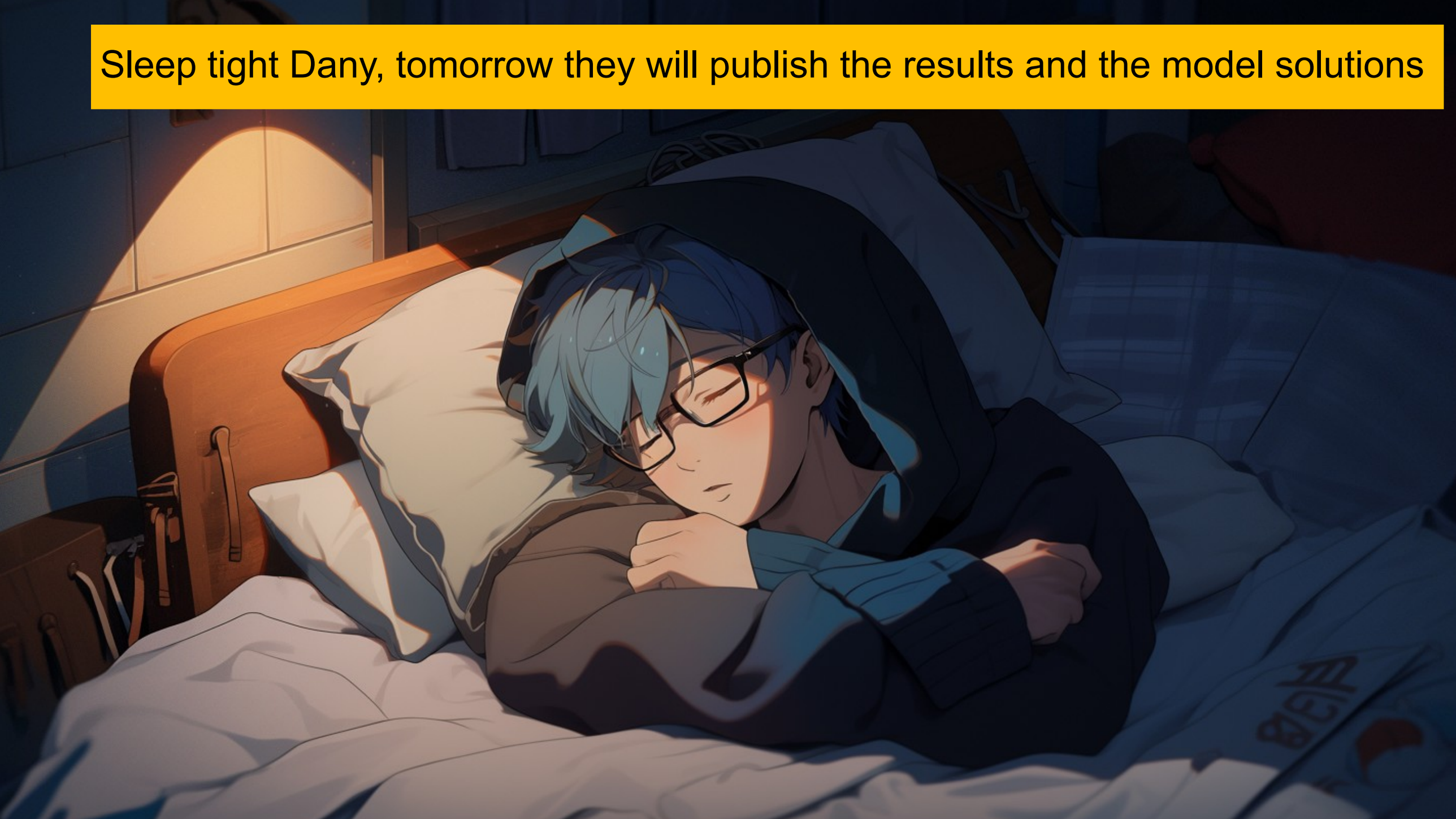

Is this your submission? Really?
Ok, this is over the minimum submission bar.
Your mark will be computed and if over 60%; it will be capped to 60%.

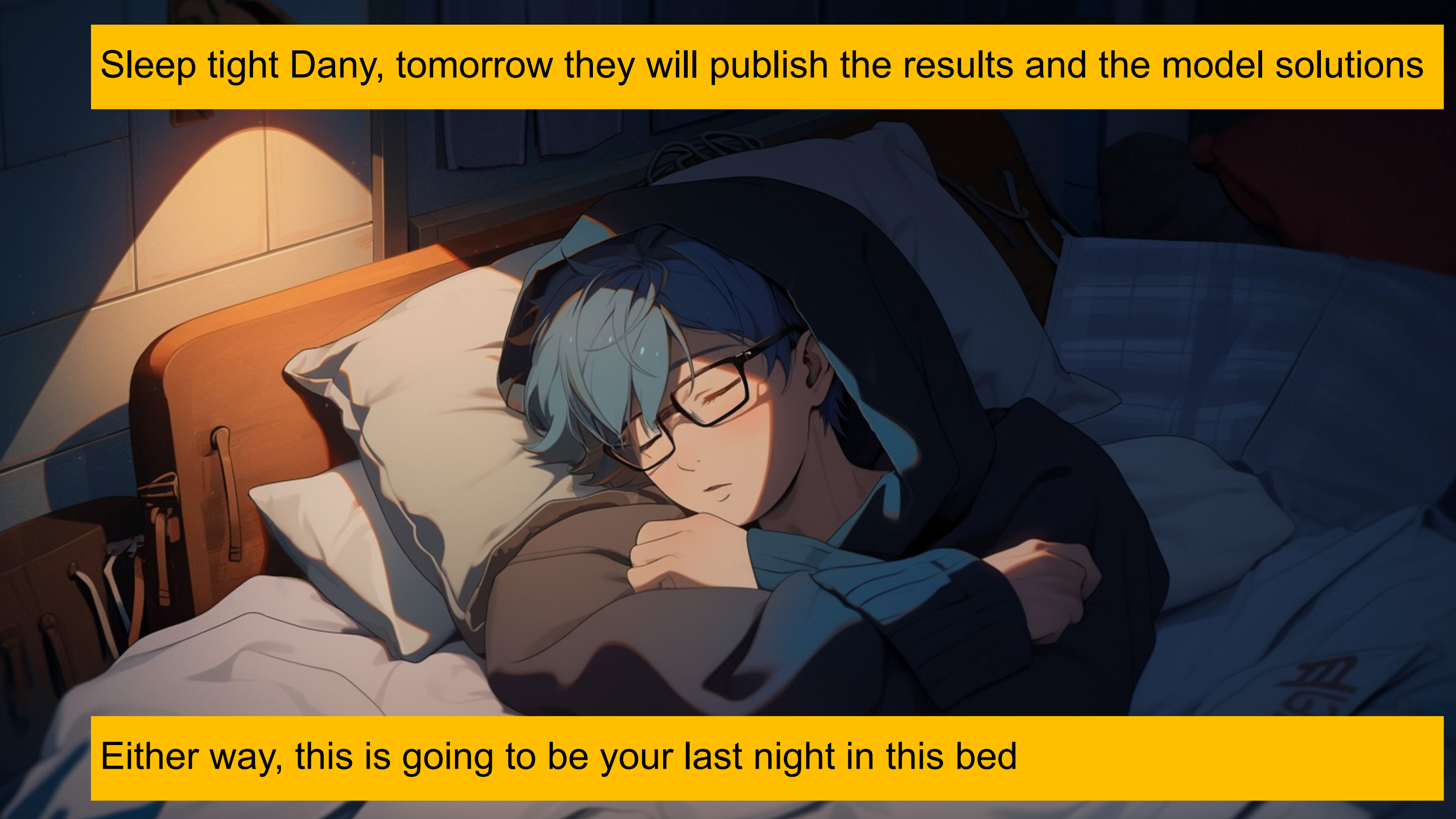

Dany have now completed the final first year UPU exam


Dany have now completed the final first year UPU exam
And, it is done!


Dany have now completed the final first year UPU exam
And, it is done!
All good; what could have gone wrong?

Sleep tight Dany, tomorrow they will publish the results and the model solutions




Sleep tight Dany, tomorrow they will publish the results and the model solutions
Either way, this is going to be your last night in this bed

If you passed, you will move to the Ivory tower
If you failed, you will be sent back home

Credits

Credits

- Story: Marco
- Art: MidJourney, NijiJourney, Dall-E
- Wording: Marco, chatGPT, jfw01
- Composition: Marco
- Thanks to all my friends for providing great feedback!

Credits

- Story: Marco
- Art: MidJourney, NijiJourney, Dall-E
- Wording: Marco, chatGPT, jfw01
- Composition: Marco
- Thanks to all my friends for providing great feedback!