Package 'result'

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Title Result Type for Safely Handling Operations that can Succeed or Fail

Version 0.1.0

Description Allows wrapping values in success() and failure() types to capture the result of operations, along with any status codes. Risky expressions can be wrapped in as_result() and functions wrapped in result() to catch errors and assign the relevant result types. Monadic functions can be bound together as pipelines or transaction scripts using then_try(), to gracefully handle errors at any step.

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Suggests testthat (>= 3.0.0)

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URL https://github.com/soumyaray/result

BugReports https://github.com/soumyaray/result/issues

NeedsCompilation no

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Contents

`as_result` *Wraps an expression in* `result` *type, choosing between* `success` *and* `failure` *based on the outcome of the expression.*

Description

Use `as_result` on expressions whose outcomes are not known in advance or not safe to be examined. The expression will be evualted immediately and wrapped in `success` if it produces a value or `failure` if it produces an error. If the expression produces a warning, it will be wrapped in `success` or `failure` depending on the `fail_on_warning` argument.

Usage

```
as_result(.expr, detect_warning = TRUE, fail_on_warning = TRUE)
```

Arguments

`.expr`	expression to evaluate
`detect_warning`	logical, whether to detect warnings; note `as_result()` cannot capture the outcome of an expression if it catches warnings, so use `detect_warning = TRUE` only if you want to capture the warning message (e.g., after a side-effect).
`fail_on_warning`	logical, whether to treat warnings as `failure` or `success`.

Value

`result` object of subclass `success` or `failure`

Examples

```
as_result(42)
as_result(1 + 1)

stopper <- as_result(stop("This is my error message"))
is_failure(stopper)
value(stopper)

as_result(warning("You've been warned")) |> is_success()
as_result(warning("You've been warned"), fail_on_warning = FALSE) |> value()
```

bind *Binds a result with another result or function to return a result*

Description

If the second object is a function, its return value will be wrapped in a `result` object of subclass `success` or `failure` depending on whether the function produces an error or warning. Bind is aliased with `then_try`.

If the second object is a function, its return value will be wrapped in a `result` object of subclass `success` or `failure` depending on whether the function produces an error or warning. `then_try` is aliased with `bind`.

Usage

```
bind(last_result, next_obj, ...)

then_try(last_result, next_obj, ...)
```

Arguments

`last_result`	`result` object of subclass `success` or `failure`
`next_obj`	`result` monad or plain function to bind with
`...`	additional arguments to pass to `next_obj`

Value

`result` object of subclass `success` or `failure`

`result` object of subclass `success` or `failure`

See Also

`then_try`

`bind`

Examples

```
times3 <- function(x, succeeds = TRUE) {
  if (succeeds) success(x * 3)
  else failure("func1 failed")
}

success(5) |> bind(times3) |> value()
success(5) |> bind(times3, succeeds = FALSE) |> is_failure()
failure("failed from the start") |> bind(times3) |> is_failure()
failure("failed from the start") |> bind(times3) |> value()
times3 <- function(x, succeeds = TRUE) {
  if (succeeds) success(x * 3)
```

```
  else failure("func1 failed")
}

success(5) |> then_try(times3) |> value()
success(5) |> then_try(times3, succeeds = FALSE) |> is_failure()
failure("failed from the start") |> then_try(times3) |> is_failure()
failure("failed from the start") |> then_try(times3) |> value()
```

`failure` *Wraps a value in* `failure` *type of* `result`

Description

Wraps a value in `failure` type of `result`

Usage

```
failure(value = "failed", status = "error")
```

Arguments

`value`	any object to wrap
`status`	character string of the result (typically short)

Value

`result` object of subclass `failure`

Examples

```
failure()
failure(42)
```

`is_failure` *Checks if an object is of* `failure` *class*

Description

Checks if an object is of `failure` class

Usage

```
is_failure(obj)
```

Arguments

`obj`	object to check

Value

TRUE if object is of failure class, FALSE otherwise

Examples

```
is_failure(success())
is_failure(failure())
```

---

is_result *Checks if an object is of* result *class*

Description

Checks if an object is of result class

Usage

```
is_result(obj)
```

Arguments

obj	object to check

Value

TRUE if object is of result class, FALSE otherwise

Examples

```
is_result(success())
is_result(failure())
is_result(42)
```

---

is_success *Checks if an object is of* success *class*

Description

Checks if an object is of success class

Usage

```
is_success(obj)
```

Arguments

obj	object to check

Value

TRUE if object is of success class, FALSE otherwise

Examples

```
is_success(success())
is_success(failure())
```

---

result *Wraps a function in an* result *monad for later evaluation.*

Description

Use result on functions whose outcomes are not known in advance or not safe to be examined. The function will not be evaluated until the monad is explicitly called.

Usage

```
result(.fn, detect_warning = TRUE, fail_on_warning = TRUE)
```

Arguments

.fn	function to wrap
detect_warning	logical, whether to detect warnings; note result cannot capture the outcome value if it catches warnings, so use detect_warning = TRUE only if you want to capture the warning message (e.g., after a side-effect).
fail_on_warning	logical, whether to treat warnings as failure or success.

Value

function that returns a result object of subclass success or failure

Examples

```
crashy <- function() stop("Go no further")
safely_call_crashy <- result(crashy)
safely_call_crashy() |> is_failure()

calculate <- function(x, y) x + y
safely_calculate <- result(calculate)
safely_calculate(1, 2) |> value()
```

status *Extracts the status of a* result

Description

Extracts the status of a result

Usage

```
status(obj)
```

Arguments

obj	result object

Value

status of the result

Examples

```
status(success("datafile.md", status = "created"))
```

success *Wraps a value in* success *type of* result

Description

success is a constructor function for result class.

Usage

```
success(value = "done", status = "ok")
```

Arguments

value	any object to wrap
status	character string of the result (typically short)

Value

result object of subclass success

Examples

```
success()
success(42)
```

`value` *Extracts the value of a* `result`

Description

Extracts the value of a `result`

Usage

```
value(obj)
```

Arguments

`obj`	`result` object

Value

value object wrapped by `result`

Examples

```
value(success(42))
```

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