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# Python Try Except

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The **try** block lets you test a block of code for errors.

The **except** block lets you handle the error.

The **finally** block lets you execute code, regardless of the result of the try- and except blocks.

## Exception Handling

When an error occurs, or exception as we call it, Python will normally stop and generate an error message.

These exceptions can be handled using the **try** statement:

### Example

The **try** block will generate an exception, because **x** is not defined:

```
try:
    print(x)
except:
    print("An exception occurred")
```

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Since the try block raises an error, the except block will be executed.

Without the try block, the program will crash and raise an error:

## Example

This statement will raise an error, because `x` is not defined:

```
print(x)
```

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## Many Exceptions

You can define as many exception blocks as you want, e.g. if you want to execute a special block of code for a special kind of error:

## Example

Print one message if the try block raises a `NameError` and another for other errors:

```
try:
    print(x)
except NameError:
    print("Variable x is not defined")
except:
    print("Something else went wrong")
```

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## Else

You can use the `else` keyword to define a block of code to be executed if no errors were raised:

## Example

In this example, the `try` block does not generate any error:

```
try:
    print("Hello")
except:
    print("Something went wrong")
else:
    print("Nothing went wrong")
```

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## Finally

The `finally` block, if specified, will be executed regardless if the try block raises an error or not.

## Example

```
try:
    print(x)
except:
    print("Something went wrong")
finally:
    print("The 'try except' is finished")
```

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This can be useful to close objects and clean up resources:

## Example

Try to open and write to a file that is not writable:

```
try:
    f = open("demofile.txt")
```

```
f.write("Lorum Ipsum")
except:
    print("Something went wrong when writing to the file")
finally:
    f.close()
```

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The program can continue, without leaving the file object open.

## Raise an exception

As a Python developer you can choose to throw an exception if a condition occurs.

To throw (or raise) an exception, use the `raise` keyword.

### Example

Raise an error and stop the program if x is lower than 0:

```
x = -1

if x < 0:
    raise Exception("Sorry, no numbers below zero")
```

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The `raise` keyword is used to raise an exception.

You can define what kind of error to raise, and the text to print to the user.

### Example

Raise a `TypeError` if x is not an integer:

```
x = "hello"

if not type(x) is int:
    raise TypeError("Only integers are allowed")
```

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