Python Raise, Try and Catch Exceptions

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2020-11-04

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1 Exception Handling

Go to the **RMD**, **PDF**, or **HTML** version of this file. Go back to Python Code Examples Repository (bookdown site) or the pyfan Package (API).

1.1 A function That Raises an Error with Try Statement Catching it

Below, we have a function that will raise a *TypeError* unless we provide an integer input. The function is called with integer input and then called with a string input. The string input is wrapped in a try and except call, where the exception catches the TypeError and prints it.

```python
# define the function
def error_test(gn_speckey=None):
    if isinstance(gn_speckey, int):
        print(f'{gn_speckey=} is an integer')
    else:
        raise TypeError(f'{gn_speckey=} is not an integer')
# Call function with integer
error_test(1)
# Call function with string
```

```
## gn_speckey=1 is an integer
```

```python
try:
    error_test('abc')
except TypeError as error:
    print('Caught this error: ' + repr(error))
```

```
## Caught this error: TypeError("gn_speckey='abc' is not an integer")
```

1.2 Handle Parameters When Conditions Not Satisfied

There is a function, that can estimate or simulate, under both functionalities, there is a common string parameter, that requires specifying estimation or simulation conditions. The common string parameter should be a simple string without special separators in the case of simulation, and should be four strings concatenated together with equal sign for estimation. Generate an exception if the function is called for estimation but the string parameter does not have the required structure.

- [Python 3 TypeError](#)
- [Manually raising (throwing) an exception in Python](#)

```python
# ls_st_spec_key_dict = ['NG_S_D', 'NG_S_D=KAP_MO_NLD_M_SIMU=2=3']
# st_connector = '='
# ls_st_esti_simu = ['esti', 'simu']
# for st_spec_key_dict in ls_st_spec_key_dict:
#   for st_esti_simu in ls_st_esti_simu:
#     if st_esti_simu == 'simu':
#       if len(st_spec_key_dict.split(st_connector)) and
#         print('simulate with ' + st_spec_key_dict)

if estimate and not isinstance(spec_key_dict, str):
    pass
elif (estimate is False and isinstance(spec_key_dict, str)) or (estimate is False and isinstance(spec_k
    pass
else:
    st_error = 'speckey=' + speckey + ' and estimate=' + str(estimate)
    raise ValueError(st_error)
```

1.3 Proceed Despite Error

Sometimes, code should proceed despite error, to finish a loop for example:

```python
# estimate at each initial random points
for it_esti_ctr in range(esti_param_vec_count):
    # Update the 3rd element of combo_type, which determines which draw index to use
    combo_type[3] = it_esti_ctr
    try:
        invoke_run_main.invoke_main(combo_type, **dc_invoke_main_args)
    except Exception:
        logging.critical(f'Finished this {it_esti_ctr=} of {range(esti_param_vec_count)=}')
```