



IT314 - Software Engineering

Lab 5 - Static Analysis

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→ Doing the static analysis of a random git repository using the 'mypy' tool.

- The reference git repository link:
<https://github.com/qxf2/wtfiswronghere.git>
- The command to install mypy on the command line: **python -m pip install mypy**

- The command to find errors in the repository: **python -m mypy <file_path>**
- The following screenshot shows how the static analysis is performed using mypy tool:

❖ Steps:

1. First cloning a random git repository.

```
Microsoft Windows [Version 10.0.19044.1826]
(c) Microsoft Corporation. All rights reserved.

C:\Users\student\Desktop\New Repository>git clone https://github.com/qxf2/wtfiswronghere.git
Cloning into 'wtfiswronghere'...
remote: Enumerating objects: 146, done.
Receiving objects: 58% (85/146) | 3.82 MiB/s | 0 (delta 0), pack-reused 146
Receiving objects: 100% (146/146), 263.73 KiB | 3.82 MiB/s, done.
Resolving deltas: 100% (61/61), done.

C:\Users\student\Desktop\New Repository>python -m mypy 01_challenge\01_challenge
mypy: can't read file '01_challenge\01_challenge': No such file or directory

C:\Users\student\Desktop\New Repository>python -m mypy 01_challenge\01_challenge.py
mypy: can't read file '01_challenge\01_challenge.py': No such file or directory

C:\Users\student\Desktop\New Repository>cd wtfiswronghere
```

2. Then running the command for finding errors.

```
C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 01_challenge\01_challenge.py
01_challenge\01_challenge.py:27: error: cannot assign to expression here. Maybe you meant '==' instead of '='? [syntax]Found 1 error in 1 file (errors prevented further checking)

C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 02_challenge\02_challenge.py
02_challenge\02_challenge.py:26: error: Missing positional argument "max_num" in call to "fizzbuzz" [call-arg]
Found 1 error in 1 file (checked 1 source file)

C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 03_challenge\03_challenge.py
Success: no issues found in 1 source file
```

```
C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 04_challenge/04_challenge.py
04_challenge\04_challenge.py:26: error: expected an indented block after 'if' statement on line 25 [syntax]
Found 1 error in 1 file (errors prevented further checking)

C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 05_challenge/05_challenge.py
05_challenge\05_challenge.py:21: error: Missing parentheses in call to 'print'. Did you mean print(...)? [syntax]
Found 1 error in 1 file (errors prevented further checking)

C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 06_challenge/06_challenge.py
Success: no issues found in 1 source file

C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 07_challenge/07_challenge.py
Success: no issues found in 1 source file

C:\Users\student\Desktop\New Repository\wtfiswronghere>python -m mypy 08_challenge/08_challenge.py
08_challenge\08_challenge.py:39: error: Too many arguments for "fizzbuzz" [call-arg]
08_challenge\08_challenge.py:39: note: Looks like the first special argument in a method is not named "self", "cls", or "mcs", maybe it is missing?
Found 1 error in 1 file (checked 1 source file)
```

- The above screenshots show that a few of the files in the repository contain a few errors which are shown below the command .
- And also a few files do not contain errors which are also displayed.

❖ Analysis of the Tool (mypy) :

- This tool identifies a few different types of errors like the syntax errors in most of the files.
- It also identifies a few call-arguments errors in a few files.
- It displays a comment which almost defines the error and is also understandable which helps us in debugging the code.

