

IT314 - Lab 5

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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/Python-World/python-mini-projects.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:**

(1) First install a MYPY Tool

Command : `python -m pip install mypy`

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

C:\Users\student>python -m pip install mypy
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: mypy in c:\users\student\appdata\roaming\python\python310\site-packages (1.1.1)
Requirement already satisfied: typing-extensions>=3.10 in c:\users\student\appdata\roaming\python\python310\site-packages (from mypy) (4.5.0)
Requirement already satisfied: tomli>=1.1.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from mypy) (2.0.1)
Requirement already satisfied: mypy-extensions>=1.0.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from mypy) (1.0.0)
WARNING: You are using pip version 22.0.4; however, version 23.0.1 is available.
You should consider upgrading via the 'C:\Program Files\Python310\python.exe -m pip install --upgrade pip' command.

C:\Users\student>
```

(2) Then simply run the python files and finding an error using following command

Command : python -m mypy filename.py

Following python files which i have used :

1. Alarm_clock

OUTPUT :

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19044.1826]
(c) Microsoft Corporation. All rights reserved.

C:\Users\student\Desktop\New folder\python-mini-projects\projects\Alarm clock>python -m mypy alarm_clock.py
alarm_clock.py:6: error: Incompatible import of "Event" (imported name has type "Type[threading.Event]", local name has type "Type[tkinter.Event[Any]]") [assignment]
Found 1 error in 1 file (checked 1 source file)

C:\Users\student\Desktop\New folder\python-mini-projects\projects\Alarm clock>_
```

2. Audio book

OUTPUT :

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19044.1826]
(c) Microsoft Corporation. All rights reserved.

C:\Users\student\Desktop\New folder\202001085>python -m mypy Audio-book.py
Audio-book.py:3: error: Cannot find implementation or library stub for module named "gtts" [import]
Audio-book.py:3: note: See https://mypy.readthedocs.io/en/stable/running_mypy.html#missing-imports
Audio-book.py:6: error: Cannot find implementation or library stub for module named "PyPDF2" [import]
Found 2 errors in 1 file (checked 1 source file)

C:\Users\student\Desktop\New folder\202001085>
```

3. Image to pdf converter

OUTPUT :

```
C:\Users\student\Desktop\New folder\202001085>python -m mypy convert_image_to_pdf.py
convert_image_to_pdf.py:2: error: Cannot find implementation or library stub for module named "img2pdf" [import]
convert_image_to_pdf.py:2: note: See https://mypy.readthedocs.io/en/stable/running_mypy.html#missing-imports
Found 1 error in 1 file (checked 1 source file)

C:\Users\student\Desktop\New folder\202001085>
```

4. Pdf to text converter

OUTPUT :

```
C:\Users\student\Desktop\New folder\202001085>python -m mypy converter1.py
converter1.py:4: error: Cannot find implementation or library stub for module named "PyPDF2" [import]
converter1.py:4: note: See https://mypy.readthedocs.io/en/stable/running\_mypy.html#missing-imports
Found 1 error in 1 file (checked 1 source file)

C:\Users\student\Desktop\New folder\202001085>_
```

5. Image watermark

OUTPUT :

```
C:\Users\student\Desktop\New folder\202001085>python -m mypy watermark.py
watermark.py:2: error: Library stubs not installed for "PIL" [import]
watermark.py:2: note: Hint: "python3 -m pip install types-Pillow"
watermark.py:2: note: (or run "mypy --install-types" to install all missing stub packages)
watermark.py:2: note: See https://mypy.readthedocs.io/en/stable/running\_mypy.html#missing-imports
Found 1 error in 1 file (checked 1 source file)
```

Also there is one file that run without single error

Age calculator :

OUTPUT

```
C:\Users\student\Desktop\New folder\202001085>python -m mypy calculate.py
Success: no issues found in 1 source file
```

- Mypy has a powerful and easy-to-use type system,
- supporting features such as type inference, generics, callable types, tuple types, union types, structural subtyping and more.
- Using mypy will make our programs easier to understand, debug, and maintain.

