

LAB 5

IT 314 Software Engineering

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Static Analysis:

To perform the above analysis I have used python files from github repository and used pylint to do static analysis for the files.

Repository that i have used for static analysis:

<https://github.com/JayabharathP/The-Python-Mega-Course-Build-10-Real-World-Applications->

Pylint It's been around for 13 years, and over that time it has included features like coding standards, error detection and refactoring by detecting duplicated code. Out of the box Pylint is easy to set up, requiring a minimal amount of configuration, but it's fully customizable if you want it to be — by editing a file you can select which errors and conventions are most relevant to you. Most of the messages here will be self-explanatory.

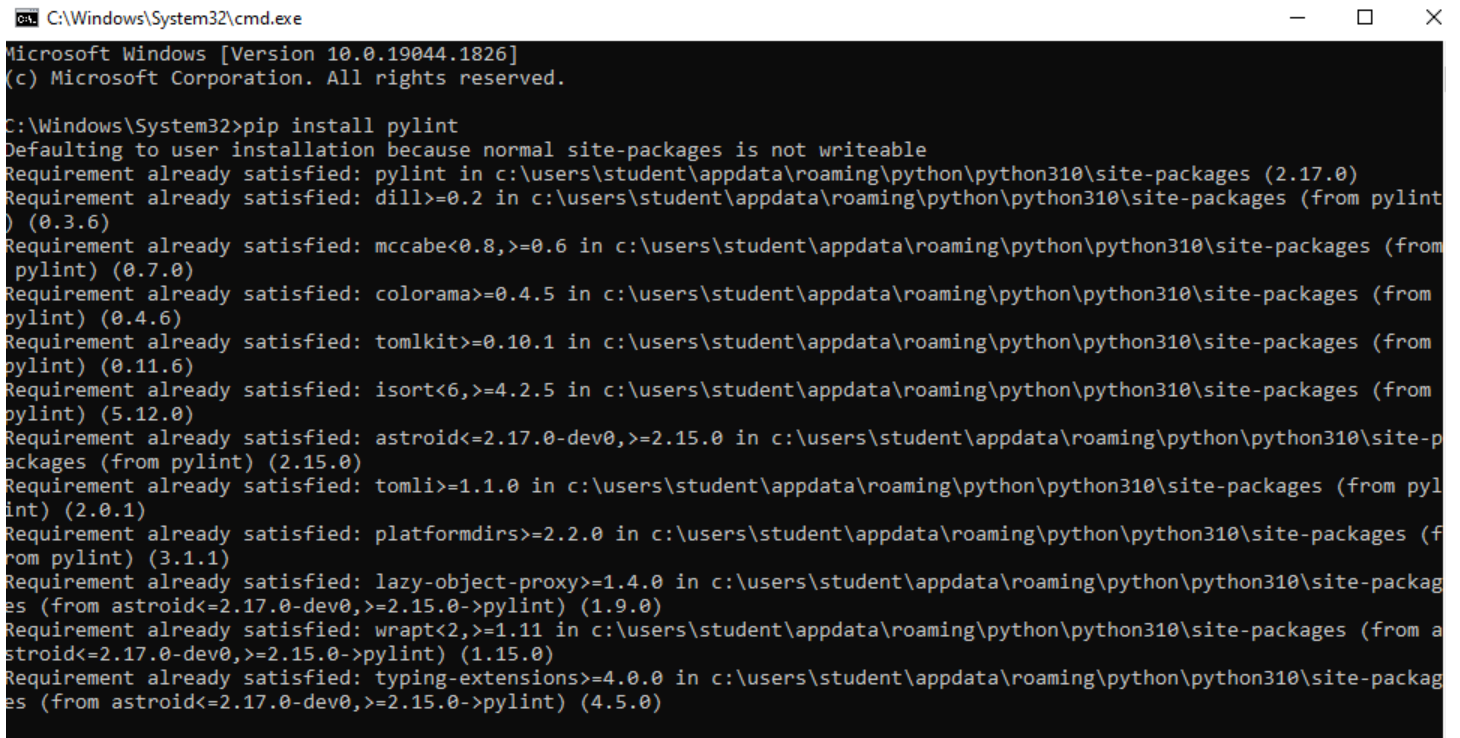
Pylint is a Python static code analysis tool that checks code for errors, potential bugs, and style issues. It examines code and generates reports based on a set of predefined rules that cover areas such as naming conventions, code formatting, and code complexity.

Pylint is designed to help developers write better and more maintainable code. It checks for issues like unused variables, undefined variables, and unreachable code. It also provides suggestions for improving code readability and reducing code complexity.

Pylint is an incredibly useful tool for static code analysis. It provides a simple score out of 10, a detailed output on what to fix, and the ability to ignore things you do not believe in.

\$ pip install pylint

This will give confirmation it is installed.



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

C:\Windows\System32>pip install pylint
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pylint in c:\users\student\appdata\roaming\python\python310\site-packages (2.17.0)
Requirement already satisfied: dill>=0.2 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (0.3.6)
Requirement already satisfied: mccabe<0.8,>=0.6 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (0.7.0)
Requirement already satisfied: colorama>=0.4.5 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (0.4.6)
Requirement already satisfied: tomlkit>=0.10.1 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (0.11.6)
Requirement already satisfied: isort<6,>=4.2.5 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (5.12.0)
Requirement already satisfied: astroid<=2.17.0-dev0,>=2.15.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (2.15.0)
Requirement already satisfied: tomli>=1.1.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (2.0.1)
Requirement already satisfied: platformdirs>=2.2.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from pylint) (3.1.1)
Requirement already satisfied: lazy-object-proxy>=1.4.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from astroid<=2.17.0-dev0,>=2.15.0->pylint) (1.9.0)
Requirement already satisfied: wrapt<2,>=1.11 in c:\users\student\appdata\roaming\python\python310\site-packages (from astroid<=2.17.0-dev0,>=2.15.0->pylint) (1.15.0)
Requirement already satisfied: typing-extensions>=4.0.0 in c:\users\student\appdata\roaming\python\python310\site-packages (from astroid<=2.17.0-dev0,>=2.15.0->pylint) (4.5.0)
```

\$ pylint src/ or py -m pylint file.py

Which will give us some output from the static code analysis followed by a score!

I have used a repository named

The-Python-Mega-Course-Build-10-Real-World-Applications- for stat analysis.

For 1st Code link:

<https://github.com/JayabharathP/The-Python-Mega-Course-Build-10-Real-World-Applications-/blob/master/01%20Interactive%20Dictionary/app1.py>

File1 -> app1

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

C:\Users\student\Desktop\01 Interactive Dictionary>py -m pylint app1.py
***** Module app1
app1.py:12:0: C0301: Line too long (114/100) (line-too-long)
app1.py:1:0: C0114: Missing module docstring (missing-module-docstring)
app1.py:4:17: R1732: Consider using 'with' for resource-allocating operations (consider-using-with)
app1.py:4:17: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)
app1.py:7:0: C0116: Missing function or method docstring (missing-function-docstring)
app1.py:7:14: C0103: Argument name "w" doesn't conform to snake_case naming style (invalid-name)
app1.py:9:4: R1705: Unnecessary "elif" after "return", remove the leading "el" from "elif" (no-else-return)
app1.py:12:8: C0103: Variable name "yn" doesn't conform to snake_case naming style (invalid-name)
app1.py:12:19: C0209: Formatting a regular string which could be a f-string (consider-using-f-string)
app1.py:13:8: R1705: Unnecessary "elif" after "return", remove the leading "el" from "elif" (no-else-return)
app1.py:25:3: C0123: Use isinstance() rather than type() for a typecheck. (unidiomatic-typecheck)

-----
Your code has been rated at 4.76/10
```

For 2nd Code link:

<https://github.com/JayabharathP/The-Python-Mega-Course-Build-10-Real-World-Applications-/blob/master/02%20Webmap%20using%20Python%20%26%20Folium/app2-web-map.py>

File2 -> app2-web-map.py

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

C:\Users\student\Desktop\02 Webmap using Python & Folium>py -m pylint app2-web-map.py
***** Module app2-web-map
app2-web-map.py:1:0: C0114: Missing module docstring (missing-module-docstring)
app2-web-map.py:1:0: C0103: Module name "app2-web-map" doesn't conform to snake_case naming style (invalid-name)
app2-web-map.py:16:0: W0622: Redefining built-in 'map' (redefined-builtin)
app2-web-map.py:1:0: E0401: Unable to import 'folium' (import-error)
app2-web-map.py:2:0: E0401: Unable to import 'pandas' (import-error)
app2-web-map.py:9:0: C0116: Missing function or method docstring (missing-function-docstring)
app2-web-map.py:10:4: R1705: Unnecessary "elif" after "return", remove the leading "el" from "elif" (no-else-return)
app2-web-map.py:26:34: R1732: Consider using 'with' for resource-allocating operations (consider-using-with)

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Your code has been rated at 2.73/10 (previous run: 2.73/10, +0.00)
```

For 3rd Code link:

<https://github.com/JayabharathP/The-Python-Mega-Course-Build-10-Real-World-Applications-/blob/master/03%20Website%20blocker/app3-website-blocker.py>

File3 -> app3-website-blocker

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

C:\Users\student\Desktop\03 Website blocker>py -m pylint app3-website-blocker.py
***** Module app3-website-blocker
app3-website-blocker.py:10:0: C0301: Line too long (117/100) (line-too-long)
app3-website-blocker.py:1:0: C0114: Missing module docstring (missing-module-docstring)
app3-website-blocker.py:1:0: C0103: Module name "app3-website-blocker" doesn't conform to snake_case naming style (invalid-name)
app3-website-blocker.py:4:0: C0103: Constant name "hosts_temp" doesn't conform to UPPER_CASE naming style (invalid-name)
app3-website-blocker.py:5:0: C0103: Constant name "hosts_path" doesn't conform to UPPER_CASE naming style (invalid-name)
app3-website-blocker.py:6:0: C0103: Constant name "redirect" doesn't conform to UPPER_CASE naming style (invalid-name)
app3-website-blocker.py:12:13: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)
app3-website-blocker.py:20:13: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)

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Your code has been rated at 6.67/10
```

For 4th Code link:

<https://github.com/JayabharathP/The-Python-Mega-Course-Build-10-Real-World-Applications-/blob/master/05%20Desktop%20Database%20application/backend.py>

File4 -> backend

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

C:\Users\student\Desktop\05 Desktop Database application>py -m pylint backend.py
***** Module backend
backend.py:6:0: C0301: Line too long (128/100) (line-too-long)
backend.py:29:0: C0301: Line too long (109/100) (line-too-long)
backend.py:44:0: C0301: Line too long (107/100) (line-too-long)
backend.py:1:0: C0114: Missing module docstring (missing-module-docstring)
backend.py:3:0: C0116: Missing function or method docstring (missing-function-docstring)
backend.py:10:0: C0116: Missing function or method docstring (missing-function-docstring)
backend.py:18:0: C0116: Missing function or method docstring (missing-function-docstring)
backend.py:26:0: C0116: Missing function or method docstring (missing-function-docstring)
backend.py:34:0: C0116: Missing function or method docstring (missing-function-docstring)
backend.py:34:11: C0103: Argument name "id" doesn't conform to snake_case naming style (invalid-name)
backend.py:34:11: W0622: Redefining built-in 'id' (redefined-builtin)
backend.py:41:0: C0116: Missing function or method docstring (missing-function-docstring)
backend.py:41:11: C0103: Argument name "id" doesn't conform to snake_case naming style (invalid-name)
backend.py:41:11: W0622: Redefining built-in 'id' (redefined-builtin)

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Your code has been rated at 6.59/10
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For 5th Code link:

<https://github.com/JayabharathP/The-Python-Mega-Course-Build-10-Real-World-Applications-/blob/master/05%20Desktop%20Database%20application/frontend.py>

File5 -> frontend

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

C:\Users\student\Desktop\05 Desktop Database application>py -m pylint frontend.py
***** Module frontend
frontend.py:36:0: C0301: Line too long (104/100) (line-too-long)
frontend.py:1:0: C0114: Missing module docstring (missing-module-docstring)
frontend.py:1:0: W0401: Wildcard import tkinter (wildcard-import)
frontend.py:4:0: C0116: Missing function or method docstring (missing-function-docstring)
frontend.py:5:4: W0601: Global variable 'selected_tuple' undefined at the module level (global-variable-undefined)
frontend.py:4:21: W0613: Unused argument 'event' (unused-argument)
frontend.py:17:0: C0116: Missing function or method docstring (missing-function-docstring)
frontend.py:22:0: C0116: Missing function or method docstring (missing-function-docstring)
frontend.py:27:0: C0116: Missing function or method docstring (missing-function-docstring)
frontend.py:32:0: C0116: Missing function or method docstring (missing-function-docstring)
frontend.py:35:0: C0116: Missing function or method docstring (missing-function-docstring)
frontend.py:1:0: W0614: Unused import(s) enum, sys, types, TclError, re, wantobjects, TkVersion, TclVersion, READABLE, W
RITABLE, EXCEPTION, EventType, Event, NoDefaultRoot, Variable, IntVar, DoubleVar, BooleanVar, mainloop, getint, getdoubl
e, getboolean, Misc, CallWrapper, XView, YView, Wm, Tcl, Pack, Place, Grid, BaseWidget, Widget, Toplevel, Canvas, Checkb
utton, Frame, Menu, Menubutton, Message, Radiobutton, Scale, Text, OptionMenu, Image, PhotoImage, BitmapImage, image_nam
es, image_types, Spinbox, LabelFrame, PanedWindow, NO, FALSE, OFF, YES, TRUE, ON, N, S, W, E, NW, SW, NE, SE, NS, EW, NS
EW, CENTER, NONE, X, Y, BOTH, LEFT, TOP, RIGHT, BOTTOM, RAISED, SUNKEN, FLAT, RIDGE, GROOVE, SOLID, HORIZONTAL, VERTICAL
, NUMERIC, CHAR, WORD, BASELINE, INSIDE, OUTSIDE, SEL, SEL_FIRST, SEL_LAST, INSERT, CURRENT, ANCHOR, ALL, NORMAL, DISABL
ED, ACTIVE, HIDDEN, CASCADE, CHECKBUTTON, COMMAND, RADIOBUTTON, SEPARATOR, SINGLE, BROWSE, MULTIPLE, EXTENDED, DOTBOX, U
NDERLINE, PIESLICE, CHORD, ARC, FIRST, LAST, BUTT, PROJECTING, ROUND, BEVEL, MITER, MOVETO, SCROLL, UNITS and PAGES from
wildcard import of tkinter (unused-wildcard-import)

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Your code has been rated at 8.33/10
```