IT314 - Software Engineering

Lab 5 - Static Analysis

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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/ShivamKansagara/qxresearch-event-1

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 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.

This is part one of three of a series I am doing on how I use pylint in my projects.
Part 1: Executing with Command Line vs Programmatically
Part 2: Pylint Runner Script with Changeable Threshold
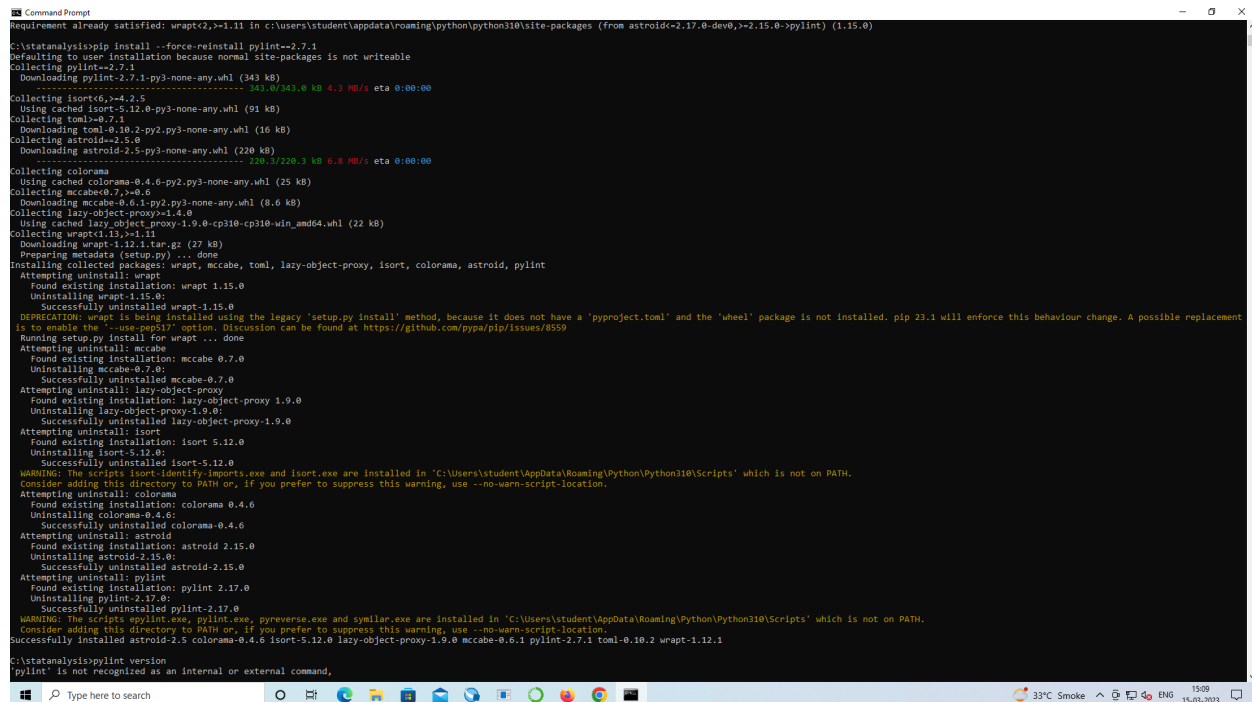Part 3: A Github Action for Failing Builds under a Pylint Threshold

```
$ pip install pylint
```

This should give you confirmation it is installed.

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

Which should give you some output from the static code analysis followed by a
score!

I have used a repository named qxresearch-event-1-master for stat analysis.

Here above attached is pylint been installed.

Now I will check for 6 different files for stat analysis

File 1 -> passpdf

here pylint have given us error
alarmtiming.py:3:0: C0411: standard import "import winsound" should be placed
before "from playsound import playsound" (wrong-import-order)

File 2 -> alarmtiming

```
operable program or batch file.

C:\statanalysis>py -m pylint passpdf.py
************* Module passpdf
passpdf.py:18:45: C0303: Trailing whitespace (trailing-whitespace)
passpdf.py:1:0: C0114: Missing module docstring (missing-module-docstring)
passpdf.py:1:0: E0401: Unable to import 'PyPDF2' (import-error)
passpdf.py:2:0: C0411: standard import "import getpass" should be placed before "from PyPDF2 import PdfFileWriter, PdfFileReader" (wrong-import-order)

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Your code has been rated at 3.33/10

C:\statanalysis>py -m pylint alarmtiming.py
************* Module alarmtiming
alarmtiming.py:32:0: C0301: Line too long (127/100) (line-too-long)
alarmtiming.py:40:0: C0304: Final newline missing (missing-final-newline)
alarmtiming.py:1:0: C0114: Missing module docstring (missing-module-docstring)
alarmtiming.py:2:0: E0401: Unable to import 'playsound' (import-error)
alarmtiming.py:11:0: C0103: Constant name "alarm_time" doesn't conform to UPPER_CASE naming style (invalid-name)
alarmtiming.py:16:0: C0103: Constant name "alarm_hour" doesn't conform to UPPER_CASE naming style (invalid-name)
alarmtiming.py:17:0: C0103: Constant name "alarm_minute" doesn't conform to UPPER_CASE naming style (invalid-name)
alarmtiming.py:18:0: C0103: Constant name "alarm_period" doesn't conform to UPPER_CASE naming style (invalid-name)
alarmtiming.py:3:0: C0411: standard import "import winsound" should be placed before "from playsound import playsound" (wrong-import-order)

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Your code has been rated at 5.19/10

C:\statanalysis>py -m pylint alarmtiming.py
```

calendar.py:1:0: W0614: Unused import enum from wildcard import (unused-wildcard-import)

calendar.py:1:0: W0614: Unused import sys from wildcard import (unused-wildcard-import)

calendar.py:1:0: W0614: Unused import types from wildcard import (unused-wildcard-import)

all of the erorr are related to unused-wildcard-import.

File 3 -> calendar

paint.py:1:0: W0614: Unused import sys from wildcard import
(unused-wildcard-import)
paint.py:1:0: W0614: Unused import types from wildcard import
(unused-wildcard-import)

paint.py:1:0: W0614: Unused import TclError from wildcard import (unused-wildcard-import)

all of the erorr are related to unused-wildcard-import.

File 4 -> paint


```
Command Prompt                                                                                              —  ☐  ✕
calendar.py:1:0: W0614: Unused import UNITS from wildcard import (unused-wildcard-import)
calendar.py:1:0: W0614: Unused import PAGES from wildcard import (unused-wildcard-import)

------------------------------------
Your code has been rated at -45.20/10


C:\statanalysis>py -m pylint paint.py
************* Module paint
paint.py:65:0: C0301: Line too long (158/100) (line-too-long)
paint.py:73:0: W0311: Bad indentation. Found 8 spaces, expected 4 (bad-indentation)
paint.py:1:0: C0114: Missing module docstring (missing-module-docstring)
paint.py:1:0: W0401: Wildcard import tkinter (wildcard-import)
paint.py:26:8: C0103: Attribute name "c" doesn't conform to snake_case naming style (invalid-name)
paint.py:4:0: C0115: Missing class docstring (missing-class-docstring)
paint.py:4:0: R0205: Class 'Paint' inherits from object, can be safely removed from bases in python3 (useless-object-inheritance)
paint.py:4:0: R0902: Too many instance attributes (13/7) (too-many-instance-attributes)
paint.py:32:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:42:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:45:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:48:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:52:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:55:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:56:8: E1101: Method 'activate_button' has no 'config' member (no-member)
paint.py:61:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:69:4: C0116: Missing function or method docstring (missing-function-docstring)
paint.py:69:20: W0613: Unused argument 'event' (unused-argument)
paint.py:66:12: W0201: Attribute 'old_x' defined outside __init__ (attribute-defined-outside-init)
paint.py:70:8: W0201: Attribute 'old_x' defined outside __init__ (attribute-defined-outside-init)
paint.py:67:12: W0201: Attribute 'old_y' defined outside __init__ (attribute-defined-outside-init)
paint.py:70:20: W0201: Attribute 'old_y' defined outside __init__ (attribute-defined-outside-init)
paint.py:62:8: W0201: Attribute 'line_width' defined outside __init__ (attribute-defined-outside-init)
paint.py:49:8: W0201: Attribute 'eraser_on' defined outside __init__ (attribute-defined-outside-init)
paint.py:59:8: W0201: Attribute 'eraser_on' defined outside __init__ (attribute-defined-outside-init)
paint.py:58:8: W0201: Attribute 'active_button' defined outside __init__ (attribute-defined-outside-init)
paint.py:1:0: W0614: Unused import enum from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import sys from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import types from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import TclError from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import re from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import wantobjects from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import TkVersion from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import TclVersion from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import READABLE from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import WRITABLE from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import EXCEPTION from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import EventType from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import Event from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import NoDefaultRoot from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import Variable from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import StringVar from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import IntVar from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import DoubleVar from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import BooleanVar from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import mainloop from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import getint from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import getdouble from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import getboolean from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import Misc from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import CallWrapper from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import XView from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import YView from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import Wm from wildcard import (unused-wildcard-import)
```

paint.py:1:0: W0614: Unused import sys from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import types from wildcard import (unused-wildcard-import)
paint.py:1:0: W0614: Unused import TclError from wildcard import (unused-wildcard-import)

all of the erorr are related to unused-wildcard-import.

File 5 -> random pass

this file had much less errors compared to other files I analysed.

File 6 -> source-code

source-code.py:44:0: W0311: Bad indentation. Found 12 spaces, expected 8 (bad-indentation)
source-code.py:1:0: C0103: Module name "source-code" doesn't conform to snake_case naming style (invalid-name)
error related to above 2 bad indentation and invalid name can be resolved easily.