Instituto Tecnológico y de Estudios Superiores de Monterrey
Campus Guadalajara

Maestría en Ciencias de la Computación

TC4002.1 Análisis, diseño y construcción de software
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Lab 7.1 – Static Analysis

Goal: This exercise provides the experience to perform static analysis over Python source code.

Context: You are requested to use the python tool prospector and using radon modules

Request: Your team has been requested to perform static analysis over all your repository using prospector.

1. Run the tool in your repository and identify critical issues to solve
2. Create a script that clone your repo, run the static analysis and provide a report on the findings
3. Upload the script into your repo
4. Provide the link as evidence of your work and also a screenshot for the findings after the fixes

Evidence

1. Execution of tool and identification of critical issues to solve

```
D:\Documents\Continental Docs\Master's Degree\MCC_GDL-ITESM\2nd_February-June_2021\TC4002.1 Análisis, diseño y construcc
ión de software\GitHub_repositories\TC4002_dev_exercises>prospector
Messages
========

Lab1\Exercise-1\findNumber.py
  Line: 22
    pep8: N816 / variable 'randomNum' in global scope should not be mixedCase (col 2)
  Line: 24
    pep8: N816 / variable 'inputValue' in global scope should not be mixedCase (col 2)
  Line: 25
    pep8: N816 / variable 'inputValueInt' in global scope should not be mixedCase (col 2)
  Line: 29
    pep8: N816 / variable 'inputValue' in global scope should not be mixedCase (col 6)
  Line: 31
    pep8: N816 / variable 'inputValueInt' in global scope should not be mixedCase (col 10)
  Line: 52
    pep8: N816 / variable 'guessesString' in global scope should not be mixedCase (col 2)

Lab1\Exercise-2\convert2X.py
  Line: 53
    pep8: N816 / variable 'inputValue' in global scope should not be mixedCase (col 10)

Lab1\Exercise-3\findWords.py
  Line: 38
    pep8: N816 / variable 'inputString' in global scope should not be mixedCase (col 2)
  Line: 43
    pep8: N816 / variable 'fileRead' in global scope should not be mixedCase (col 6)
  Line: 46
    pep8: N816 / variable 'inputWords' in global scope should not be mixedCase (col 6)
  Line: 47
    pep8: N816 / variable 'inputWordsList' in global scope should not be mixedCase (col 6)
  Line: 49
    pep8: N816 / variable 'countResult' in global scope should not be mixedCase (col 6)
```

```
Lab2.1\Exercise-4\4_python_failing.py
  Line: 10
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 11
    pylint: bad-indentation / Bad indentation. Found 4 spaces, expected 8
  Line: 13
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 14
    pylint: bad-indentation / Bad indentation. Found 4 spaces, expected 8
  Line: 16
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 17
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 18
    pylint: bad-indentation / Bad indentation. Found 4 spaces, expected 8
  Line: 19
    pylint: bad-indentation / Bad indentation. Found 4 spaces, expected 8
  Line: 20
    pylint: bad-indentation / Bad indentation. Found 4 spaces, expected 8
  Line: 22
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 25
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 26
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 27
    pylint: bad-indentation / Bad indentation. Found 6 spaces, expected 8
  Line: 28
    pylint: bad-indentation / Bad indentation. Found 6 spaces, expected 8
  Line: 29
    pylint: bad-indentation / Bad indentation. Found 6 spaces, expected 8
  Line: 31
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 41
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 42
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 43
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 54
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 55
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
  Line: 56
    pylint: bad-indentation / Bad indentation. Found 2 spaces, expected 4
```

```
Lab3.2\test\test_records_handler.py
  Line: 2
    pylint: unused-import / Unused import os




Check Information
=================
         Started: 2021-04-12 17:01:53.522440
        Finished: 2021-04-12 17:01:55.104512
      Time Taken: 1.58 seconds
       Formatter: grouped
        Profiles: default, no_doc_warnings, no_test_warnings, strictness_medium, strictness_high, strictness_veryhigh, n
o_member_warnings
      Strictness: None
   Libraries Used:
       Tools Run: dodgy, mccabe, pep8, profile-validator, pyflakes, pylint
  Messages Found: 35
```

None of the issues can be considered as critical. However, indentation and mixedCase in global scope issues will be solved. Unused-import issue is a false positive, as importing OS library is required for further function calls in another file.

2. ***Creation of script to clone the repo, run the static analysis and provide a report***

```
1   # sca_script.sh
2   # Shell script to clone the repo, run SCA (Static Code Analysis) with prospector and provide a JSON report
3
4   # -x enables verbose execution of scripts to see what is happening
5   # -e makes the shell exit immediately whenever something returns an error
6   set -xe
7
8   # Clone the repository
9   git clone https://github.com/hectorolagues/TC4002_dev_exercises.git
10
11  # Change directory
12  cd TC4002_dev_exercises
13
14  # Run the static analysis
15  prospector --zero-exit
16
17  #Provide a report
18  prospector --zero-exit --output-format json:./Lab7.1/report.json
```

3. Script is uploaded into the repo

```
uid87850@TQLB772W /d/Documents/Continental Docs/Master's Degree/MCC_GDL-ITESM/2n
d_February-June_2021/TC4002.1 Análisis, diseño y construcción de software/GitHub
_repositories/TC4002_dev_exercises
$ git add .
warning: CRLF will be replaced by LF in Lab7.1/README.md.
The file will have its original line endings in your working directory
warning: CRLF will be replaced by LF in Lab7.1/sca_script.sh.
The file will have its original line endings in your working directory
```

```
uid87850@TQLB772W /d/Documents/Continental Docs/Master's Degree/MCC_GDL-ITESM/2n
d_February-June_2021/TC4002.1 Análisis, diseño y construcción de software/GitHub
_repositories/TC4002_dev_exercises
$ git commit -am "Uploaded script for static analysis and README file."
[main 97c31a0] Uploaded script for static analysis and README file.
 2 files changed, 34 insertions(+)
 create mode 100644 Lab7.1/README.md
 create mode 100644 Lab7.1/sca_script.sh
```

```
uid87850@TQLB772W /d/Documents/Continental Docs/Master's Degree/MCC_GDL-ITESM/2n
d_February-June_2021/TC4002.1 Análisis, diseño y construcción de software/GitHub
_repositories/TC4002_dev_exercises
$ git push origin main
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 12 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 1.10 KiB | 1.10 MiB/s, done.
Total 5 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/hectorolagues/TC4002_dev_exercises.git
   8035b1b..97c31a0  main -> main
```

```
$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
```

4. Link to GitHub Repo and screenshot for the findings after fixes

https://github.com/hectorolagues/TC4002_dev_exercises

https://github.com/hectorolagues/TC4002_dev_exercises/tree/main/Lab7.1

```
uid87850@TQLB772W /d/Documents/Continental Docs/Master's Degree/MCC_GDL-ITESM/2n
d_February-June_2021/TC4002.1 Análisis, diseño y construcción de software/Lab7
$ ./sca_script.sh
++ git clone https://github.com/hectorolagues/TC4002_dev_exercises.git
Cloning into 'TC4002_dev_exercises'...
remote: Enumerating objects: 123, done.
remote: Counting objects: 100% (123/123), done.
remote: Compressing objects: 100% (79/79), done.
remote: Total 123 (delta 38), reused 110 (delta 34), pack-reused 0
Receiving objects: 100% (123/123), 2.56 MiB | 650.00 KiB/s, done.
Resolving deltas: 100% (38/38), done.
++ cd TC4002_dev_exercises
++ prospector --zero-exit
Messages
========

Lab3.2\test\test_records_handler.py
  Line: 2
    pylint: unused-import / Unused import os



Check Information
=================
         Started: 2021-04-12 19:49:48.518010
        Finished: 2021-04-12 19:49:50.024908
      Time Taken: 1.51 seconds
       Formatter: grouped
        Profiles: default, no_doc_warnings, no_test_warnings, strictness_medium, strictness
_high, strictness_veryhigh, no_member_warnings
      Strictness: None
   Libraries Used:
       Tools Run: dodgy, mccabe, pep8, profile-validator, pyflakes, pylint
   Messages Found: 1

++ prospector --zero-exit --output-format json:./Lab7.1/report.json
```