

Hands-on Lab: Static Code Analysis



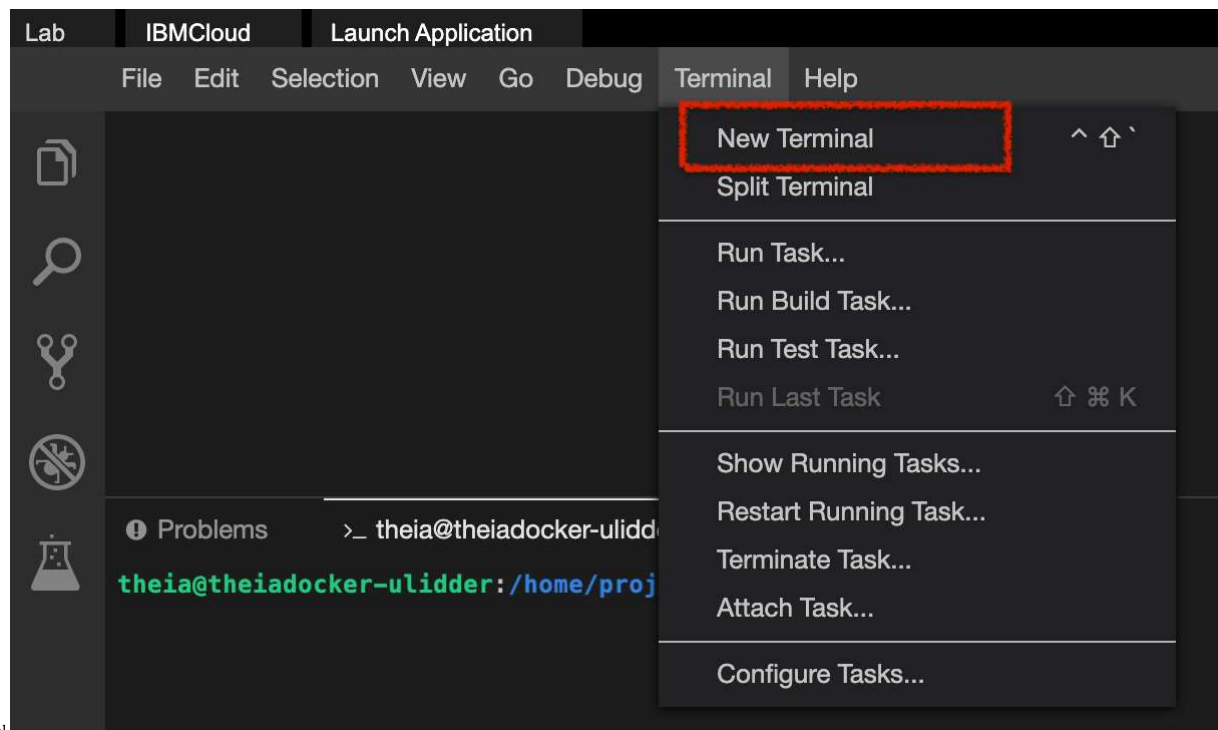
Estimated time needed: 30 minutes

Objectives

After completing this lab you will be able to:

- Install pylint package
- Run Static Code Analysis on a python program
- Check the compliance score of a python program.
- Fix common mistakes and improve the compliance score.

Install the pylint package



1. Open a new terminal
2. At the terminal run the following command to install pylint.

1. 1

1. pip3 install pylint==2.11.1

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```

theia@thei: /home/project$ pip3 install pylint
/usr/lib/python3/dist-packages/secretstorage/dhcrypto.py:15: CryptographyDeprecationWarning: int_from_bytes is deprecated, use int.from_bytes instead
  from cryptography.utils import int_from_bytes
/usr/lib/python3/dist-packages/secretstorage/util.py:19: CryptographyDeprecationWarning: int_from_bytes is deprecated, use int.from_bytes instead
  from cryptography.utils import int_from_bytes
Defaulting to user installation because normal site-packages is not writeable
Collecting pylint
  Downloading pylint-2.9.3-py3-none-any.whl (372 kB)
    |#####| 372 kB 17.4 MB/s
Requirement already satisfied: mccabe<0.7,>=0.6 in /usr/local/lib/python3.6/dist-packages (from pylint) (0.6.1)
Collecting isort<6,>=4.2.5
  Downloading isort-5.9.2-py3-none-any.whl (105 kB)
    |#####| 105 kB 43.2 MB/s
Collecting astroid<2.7,>=2.6.2
  Downloading astroid-2.6.2-py3-none-any.whl (228 kB)
    |#####| 228 kB 39.7 MB/s
Requirement already satisfied: toml<=0.7.1 in /usr/local/lib/python3.6/dist-packages (from pylint) (0.10.2)
Collecting wrapt<1.13,>=1.11
  Downloading wrapt-1.12.1.tar.gz (27 kB)
Requirement already satisfied: typing-extensions>=3.7.4 in /home/theia/.local/lib/python3.6/site-packages (from astroid<2.7,>=2.6.2->pylint) (3.7.4.3)
Collecting typed-ast<1.5,>=1.4.0
  Downloading typed_ast-1.4.3-cp36-cp36m-manylinux1_x86_64.whl (743 kB)
    |#####| 743 kB 36.6 MB/s
Requirement already satisfied: lazy-object-proxy>=1.4.0 in /home/theia/.local/lib/python3.6/site-packages (from astroid<2.7,>=2.6.2->pylint) (1.4.3)
Building wheels for collected packages: wrapt
  Building wheel for wrapt (setup.py) ... done
  Created wheel for wrapt: filename=wrapt-1.12.1-cp36-cp36m-linux_x86_64.whl size=69407 sha256=200a0571ea2dccc2792d5d50c31cf2edb755b3bcd14154e5b6a0171266f60f85
  Stored in directory: /home/theia/.cache/pip/wheels/32/42/7f/23cae9ff6ef66798d00dc5d659088e57dbba01566f6c60db63
Successfully built wrapt
Installing collected packages: wrapt, typed-ast, isort, astroid, pylint
Successfully installed astroid-2.6.2 isort-5.9.2 pylint-2.9.3 typed-ast-1.4.3 wrapt-1.12.1

```

3. This should install the pylint package.

Create a sample python file for static code analysis

Create a new file named **sample1.py**

Copy and paste the below code into **sample1.py**

```

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7

1. def add(number1, number2):
2.     return number1 + number2
3.
4. num1 = 4
5. num2 = 5
6. total = add(num1, num2)
7. print("The sum of {} and {} is {}".format(num1, num2, total))

```

Copied!

Save the file **sample1.py**

Run pylint

- Open a terminal
- run the below command
- `pylint sample1.py`
- Pylint goes through every line of code and gives you a list all the non-compliant lines.
- Pylint gives you a compliance score (10 being maximum).

Correct the mistakes identified by pylint.

- Based on the report given by pylint changes were made to this code to address the following issues.
 - Exactly one space required after comma
 - Exactly one space required around assignment
- Create a new file named **sample2.py**
- Copy and paste the below code into **sample2.py**

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8

1.
2. def add(number1, number2):
3.     return number1 + number2
4.
5. NUM1 = 4
6. num2 = 5
7. total = add(NUM1, num2)
8. print("The sum of {} and {} is {}".format(NUM1, num2, total))
```

Copied!

Save the file **sample2.py**

Run pylint

- Open a terminal
- run the below command
- `pylint sample2.py`
- This will give you the compliance score.
- This time you should see the score improve.

Your task

Improve the score in sample2.py to a perfect 10 by correcting all the issues pointed out by pylint. If cant figure out how to solve some issues it is helpful to google the pylint message.

Congratulations!

You now know how to perform static code analysis.

Author(s)

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Other Contributors

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Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2020-01-29	1.1	Rav Ahuja	Formatting & license changes
2020-11-25	1.0	Ramesh Sannareddy	Created initial version of the lab
2022-10-21	2.0	Ratima	Updated Skill Network Logo screenshot

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