Instituto Tecnológico y de Estudios Superiores de Monterrey

Pruebas de software y aseguramiento de la calidad

Actividad 4.2 Ejercicio de programación

Susana Pérez Carranza

Matrícula: A01796151

El siguiente reporte contiene un análisis de los resultados obtenidos en la ejecución de los programas realizados para los 3 ejercicios planteados.

Ejercicio 1 Compute statistics.

Se plantean los siguientes requisitos:

Req1. The program shall be invoked from a command line. The program shall receive a file as parameter. The file will contain a list of items (presumable numbers).
Req 2. The program shall compute all descriptive statistics from a file containing numbers. The results shall be print on a screen and on a file named StatisticsResults.txt. All computation MUST be calculated using the basic algorithms, not functions or libraries. The descriptive statistics are mean, median, mode, standard deviation, and variance.
Req 3. The program shall include the mechanism to handle invalid data in the file. Errors should be displayed in the console and the execution must continue.
Req 4. The name of the program shall be computeStatistics.py
Req 5. The minimum format to invoke the program shall be as follows: python computeStatistics.py fileWithData.txt
Req 6. The program shall manage files having from hundreds of items to thousands of items.
Req 7. The program should include at the end of the execution the time elapsed for the execution and calculus of the data. This number shall be included in the results file and on the screen.
Req 8. Be compliant with PEP8.

Se implementa el programa siguiendo la guía del standard PEP8 incluyendo las siguientes reglas:

Using 4 spaces per indentation level.
Limiting lines to 79 characters.
Including appropriate comments and docstrings.
Using descriptive variable and function names.

Resultados iniciales

Resultado inicial al correr pylint:

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P1>pylint computeStatistics.py
************* Module computeStatistics
computeStatistics.py:106:0: C0304: Final newline missing (missing-final-newline)
computeStatistics.py:1:0: C0114: Missing module docstring (missing-module-docstring)
computeStatistics.py:1:0: C0103: Module name "computeStatistics" doesn't conform to snake_case naming style (invalid-name)
computeStatistics.py:9:9: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)
computeStatistics.py:29:4: R1705: Unnecessary "else" after "return", remove the "else" and de-indent the code inside it (no-else-return)
computeStatistics.py:44:4: R1705: Unnecessary "else" after "return", remove the "else" and de-indent the code inside it (no-else-return)
computeStatistics.py:60:9: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)
computeStatistics.py:64:0: C0116: Missing function or method docstring (missing-function-docstring)
computeStatistics.py:102:9: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)

---------------------------------
Your code has been rated at 8.71/10
```

Resultados al aplicar las sugerencias de pylint:

El siguiente resultado refleja una calificación de 9.86 debido al que el nombre computeStatistics no cumple con el estándar sugerido.

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P1>pylint computeStatistics.py
************* Module computeStatistics
computeStatistics.py:1:0: C0103: Module name "computeStatistics" doesn't conform to snake_case naming style (invalid-name)

-------------------------------------------------------------------
Your code has been rated at 9.86/10 (previous run: 9.71/10, +0.14)
```

Decidí agregar la siguiente línea para que el error se ignore puesto que en los requisitos del ejercicio viene especificado el nombre que debe tener.

```
# pylint: disable=invalid-name
```

Después de hacer esto obtuve el siguiente resultado:

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P1>pylint computeStatistics.py

-------------------------------------------------------------------
Your code has been rated at 10.00/10 (previous run: 9.86/10, +0.14)
```

Ejercicio 2: Converter

Se plantean los siguientes requisitos:

Req1. The program shall be invoked from a command line. The program shall receive a file as parameter. The file will contain a list of items (presumable numbers).
Req 2. The program shall convert the numbers to binary and hexadecimal base. The results shall be print on a screen and on a file named *ConvertionResults.txt*. All computation MUST be calculated using the basic algorithms, not functions or libraries.
Req 3. The program shall include the mechanism to handle invalid data in the file. Errors should be displayed in the console and the execution must continue.
Req 4. The name of the program shall be
convertNumbers.py
Req 5. The minimum format to invoke the program shall be as follows:
python convertNumbers.py fileWithData.txt
Req 6. The program shall manage files having from hundreds of items to thousands of items.

Req 7. The program should include at the end of the execution the time elapsed for the execution and calculus of the data. This number shall be included in the results file and on the screen.
Req 8. Be compliant with PEP8.

Resultados iniciales

Resultado inicial al correr pylint:

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P2>pylint convertNumbers.py
************* Module convertNumbers
convertNumbers.py:69:0: C0305: Trailing newlines (trailing-newlines)
convertNumbers.py:1:0: C0114: Missing module docstring (missing-module-docstring)
convertNumbers.py:1:0: C0103: Module name "convertNumbers" doesn't conform to snake_case naming style (invalid-name)
convertNumbers.py:3:0: C0116: Missing function or method docstring (missing-function-docstring)
convertNumbers.py:8:0: C0116: Missing function or method docstring (missing-function-docstring)
convertNumbers.py:10:9: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)
convertNumbers.py:19:0: C0116: Missing function or method docstring (missing-function-docstring)
convertNumbers.py:32:0: C0116: Missing function or method docstring (missing-function-docstring)
convertNumbers.py:46:0: C0116: Missing function or method docstring (missing-function-docstring)
convertNumbers.py:47:9: W1514: Using open without explicitly specifying an encoding (unspecified-encoding)
convertNumbers.py:56:0: C0413: Import "import time" should be placed at the top of the module (wrong-import-position)
convertNumbers.py:58:0: C0116: Missing function or method docstring (missing-function-docstring)

-----------------------------------
Your code has been rated at 8.00/10
```

Resultados al aplicar las sugerencias de pylint:

El siguiente resultado refleja una calificación de 10 una vez que las recomendaciones fueron aplicadas. Nota: Decidí agregar la siguiente línea para que el error se ignore puesto que en los requisitos del ejercicio viene especificado el nombre que debe tener.
pylint: disable=invalid-name

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P2>pylint convertNumbers.py

--------------------------------------------------------------------
Your code has been rated at 10.00/10 (previous run: 9.83/10, +0.17)
```

Ejercicio 3: Count Words

Se plantean los siguientes requisitos:

Req1. The program shall be invoked from a command line. The program shall receive a file as parameter. The file will contain a words (presumable between spaces).
Req 2. The program shall identify all distinct words and the frequency of them (how many times the word “X” appears in the file). The results shall be print on a screen and on a file named *WordCountResults.txt*. All computation MUST be calculated using the basic algorithms, not functions or libraries.

Req 3. The program shall include the mechanism to handle invalid data in the file. Errors should be displayed in the console and the execution must continue.
Req 4. The name of the program shall be
wordCount.py
Req 5. The minimum format to invoke the program shall be as follows:
python wordCount.py fileWithData.txt
Req 6. The program shall manage files having from hundreds of items to thousands of items.
Req 7. The program should include at the end of the execution the time elapsed for the execution and calculus of the data. This number shall be included in the results file and on the screen.
Req 8. Be compliant with PEP8.

Resultados iniciales

Resultado inicial al correr pylint:

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P3>pylint wordCount.py
************* Module wordCount
wordCount.py:1:0: C0103: Module name "wordCount" doesn't conform to snake_case naming style (invalid-name)
wordCount.py:61:0: C0116: Missing function or method docstring (missing-function-docstring)

-----------------------------------
Your code has been rated at 9.63/10
```

Resultados al aplicar las sugerencias de pylint:

El siguiente resultado refleja una calificación de 10 una vez que las recomendaciones fueron aplicadas. Nota: Decidí agregar la siguiente línea para que el error se ignore puesto que en los requisitos del ejercicio viene especificado el nombre que debe tener.
pylint: disable=invalid-name

```
(myenv) C:\Users\PerezSus\OneDrive - Unisys\TMP\maestria\Periodo4\PruebasDeSoftware\Semana4\P3>pylint wordCount.py

--------------------------------------------------------------------
Your code has been rated at 10.00/10 (previous run: 9.63/10, +0.37)
```

Referencias:

1. Van Rossum, G., Warsaw, B. & Coghlan, Alyssa (2013). *PEP 8 – Style Guide for Python Cod. Convención de codificación de Python - PEP8*