Instituto Tecnológico y de Estudios Superiores de Monterrey

Maestría en Inteligencia Artificial
Pruebas de software y aseguramiento de la calidad

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1. **Problema 1: computeStatistics.py**

- Primer Código:

```
-   import sys
-   import time
-   import math
-
-   def convert_to_float(data):
-       converted_data = []
-
-       for idx, item in enumerate(data):
-           try:
-               converted_data.append(float(item))
-           except ValueError:
-               print(f"Invalid data at index {idx}: {item}")
-
-       return converted_data
-
-   def compute_statistics(data):
-       n = len(data)
-       mean = sum(data) / n
-
-       # Median
-       sorted_data = sorted(data)
-       if n % 2 == 0:
-           median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
-       else:
-           median = sorted_data[n // 2]
-
-       # Mode
-       frequency = {}
-       for item in data:
-           frequency[item] = frequency.get(item, 0) + 1
-       b ={}
-       b = max(frequency.values())
-       if b == 1:
-           mode = "N/A"
-       else:
-           mode = [k for k, v in frequency.items() if v == max(frequency.values())]
-       #mode = [k for k, v in frequency.items() if v == max(frequency.values())]
-
-       # Variance
-       variance = sum((item - mean) ** 2 for item in data) / n
-
-       # Standard Deviation
-       std_deviation = math.sqrt(variance)
-
-       return n, mean, median, mode, std_deviation, variance
-
-   def main():
-       if len(sys.argv) != 2:
-           print("Usage: python computeStatistics.py fileWithData.txt")
-           sys.exit(1)
-
-       input_file_path = sys.argv[1]
-
-       try:
-           with open(input_file_path, 'r') as file:
-               data = file.read().split()
-               data = convert_to_float(data)
-       except FileNotFoundError:
-           print(f"Error: File '{input_file_path}' not found.")
-           sys.exit(1)
-
-       start_time = time.time()
-
-       n, mean, median, mode, std_deviation, variance = compute_statistics(data)
-
```

```
-       elapsed_time = time.time() - start_time
-
-       with open("StatisticsResults.txt", 'w') as results_file:
-           print(f"Count: {n}\nMean: {mean}\nMedian: {median}\nMode: {mode}\nStandard
    Deviation: {std_deviation}\nVariance: {variance}")
-           results_file.write(f"Count: {n}\nMean: {mean}\nMedian: {median}\nMode:
    {mode}\nStandard Deviation: {std_deviation}\nVariance: {variance}\n")
-           print(f"Execution time: {elapsed_time} seconds")
-           results_file.write(f"\nExecution time: {elapsed_time} seconds")
-
-   if __name__ == "__main__":
-       main()
```

Resultado de PyLint:

```
(base) MacBook-Air-5:P1 Luis$ pylint computeStatistics.py
************* Module computeStatistics
computeStatistics.py:13:0: C0303: Trailing whitespace (trailing-whitespace)
computeStatistics.py:69:0: C0301: Line too long (133/100) (line-too-long)
computeStatistics.py:70:0: C0301: Line too long (148/100) (line-too-long)
computeStatistics.py:75:0: C0304: Final newline missing (missing-final-newline)
computeStatistics.py:1:0: C0103: Module name "computeStatistics" doesn't conform to snake_case
naming style (invalid-name)
computeStatistics.py:1:0: C0114: Missing module docstring (missing-module-docstring)
computeStatistics.py:5:0: C0116: Missing function or method docstring (missing-function-docstring)
computeStatistics.py:16:0: C0116: Missing function or method docstring (missing-function-docstring)
computeStatistics.py:17:4: C0103: Variable name "n" doesn't conform to snake_case naming style
(invalid-name)
computeStatistics.py:31:4: C0103: Variable name "b" doesn't conform to snake_case naming style
(invalid-name)
computeStatistics.py:32:4: C0103: Variable name "b" doesn't conform to snake_case naming style
(invalid-name)
computeStatistics.py:47:0: C0116: Missing function or method docstring (missing-function-docstring)
computeStatistics.py:64:4: C0103: Variable name "n" doesn't conform to snake_case naming style
(invalid-name)

-----------------------------------
Your code has been rated at 7.45/10
```

Se logró uno a uno los problemas presentados en el código, definiendo las variables observadas, los docstring solicitados, los cambio de nombre, etc. corregir el problema obteniendose el siguiente resultado en cada uno de los elementos marcados obteniendose el siguiente resultado.

```
(base) MacBook-Air-5:P1 Luis$ pylint compute_statistics.py

--------------------------------------------------------------------
Your code has been rated at 10.00/10 (previous run: 9.80/10, +0.20)
```

2. Problema 2: convertNumbers.py

A continuación se muestra el resultado de Pylint del primer código presentado, al igual que en el caso anterior se procedio a revisar cada uno de los errores reportados.

```
(base) MacBook-Air-5:P2 Luis$ pylint convertNumbers.py
```

********** Module convertNumbers
convertNumbers.py:54:0: C0303: Trailing whitespace (trailing-whitespace)
convertNumbers.py:61:0: C0305: Trailing newlines (trailing-newlines)
convertNumbers.py:1:0: C0103: Module name "convertNumbers" doesn't conform to snake_case naming style (invalid-name)
convertNumbers.py:1:0: C0114: Missing module docstring (missing-module-docstring)
convertNumbers.py:10:0: C0116: Missing function or method docstring (missing-function-docstring)
convertNumbers.py:24:0: C0116: Missing function or method docstring (missing-function-docstring)

Your code has been rated at 8.29/10

Se logró uno a uno los problemas presentados en el código, donde la mayoria de los problemas indicado por pylint eran los mismos del caso 1: definiendo las variables observadas, los docstring solicitados, los cambio de nombre, etc.

(base) MacBook-Air-5:P2 Luis$ pylint convert_numbers.py

Your code has been rated at 10.00/10 (previous run: 9.71/10, +0.29)

3. Problema 3: wordcount.py

A continuación se muestra el resultado de Pylint. Al igual que en los casos anteriores se muestran los mismos tipos de errores generales que son corregidos en el código final presentado.

(base) MacBook-Air-5:P3 Luis$ 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:1:0: C0114: Missing module docstring (missing-module-docstring)
wordCount.py:4:0: C0116: Missing function or method docstring (missing-function-docstring)
wordCount.py:13:0: C0116: Missing function or method docstring (missing-function-docstring)
wordCount.py:22:0: C0116: Missing function or method docstring (missing-function-docstring)

Your code has been rated at 8.61/10

Se logró uno a uno los problemas presentados en el código, donde la mayoria de los problemas indicado por pylint eran los mismos del caso 1: definiendo las variables observadas, los docstring solicitados, los cambio de nombre, etc.

((base) MacBook-Air-5:P3 Luis$ pylint word_count.py

Your code has been rated at 10.00/10 (previous run: 9.72/10, +0.28)