

4. Source code control

The URL is (<https://github.com/ucl-comp0035/comp0035-cwi-King-in-black.git>)

5. Linting

I used black as python style linting. I installed it in the (.venv) virtual environment and use it to correct my coding style. The evidence of using linting is in Fig.17.

```
PS C:\Users\arnol\PycharmProjects\comp0035-cwi-King-in-black> .\.venv\Scripts\Activate.ps1
(..venv) PS C:\Users\arnol\PycharmProjects\comp0035-cwi-King-in-black> cd src
(..venv) PS C:\Users\arnol\PycharmProjects\comp0035-cwi-King-in-black\src> cd coursework1
(..venv) PS C:\Users\arnol\PycharmProjects\comp0035-cwi-King-in-black\src\coursework1> black data.py
All done! 🍌 🍰 🍌
```

Fig.17 the linting evidence

The linting software helps me to make my code cleaner and I can have a better view of the logic of the code when I program. After linting, it is easier for others to read my code have a better understanding on my code. Also, I checked through the python-app.yml to see whether there is an error in the format of the code.

```
Lint with flake8 1s
1 ▶ Run # stop the build if there are Python syntax errors or undefined names
10 0
11 ./src/coursework1/data.py:47:15: E712 comparison to True should be 'if cond is True:' or 'if cond:'
12 ./src/coursework1/data.py:150:46: E203 whitespace before ':'
13 ./src/coursework1/data.py:345:30: E203 whitespace before ':'
14 ./src/coursework2/tests/test_employee.py:2:1: F401 'pytest' imported but unused
15 ./src/coursework2/tests/test_employee.py:28:1: W391 blank line at end of file
16 2 E203 whitespace before ':'
17 1 E712 comparison to True should be 'if cond is True:' or 'if cond:'
18 1 F401 'pytest' imported but unused
19 1 W391 blank line at end of file
20 5
```

Fig.18 the linting part of python-app.yml

6. Use of AI

As somebody who is going to study machine learning in the master's degree, I generally used ChatGPT 4.0 in the coding by exploring the ideas of preprocessing, construction of code and debug the existing function.

6.1) Search:

I searched online about how to preprocess of the time series data. I asked ChatGPT. They gave me the idea about using dynamic methods ([rolling window](#) and [smoothing](#)) to preprocess the data. I asked ChatGPT to explain the mathematical principles behind the smoothing and rolling window and let it give me a code sample to see that how I could construct the function. Also, I asked the question of the datatype information and learn how to convert due to sample provided by the ChatGPT.

6.2) Code construction:

Some of the code is just constructed by the Chatgpt and I adjusted it to adapt the requirements of the preprocessing task. The [rolling_window](#) function and simple functions like [histogram drawn function](#), [boxplots drawn function](#) and [division of data frame](#) according to Activity are constructed like what I mentioned.

6.3) Debug

Some of the complex functions like [time_stamp_delete](#) and [interpolation](#) are written by me. However, there were some mistakes which I could not figure out on the logic. In this case, I asked the help of ChatGpt4 to help me to debug the program. I copied the corrected program and adapted it into my program and learnt why I was wrong before.

The use of ChatGPT4 plays an important role in my study and make a positive effect on me. It is really an important tool for me to make progress on learning.