

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The title bar displays "SAT4650".

**EXPLORER** View:

- SAT4650
  - docs
  - env
  - submissions\Labs
    - Lab1
    - Lab2
    - Lab3
      - ChemicalProcessData
        - \_MACOSX
        - ChemicalProcessData
        - ChemicalProcessData
      - bin
        - outdated\_output.bin
        - reactor\_output.bin
      - logs
      - reports
  - chem\_proc\_file\_analyser.py
  - test.py

**CODE** View:

```
est.py 3 ● health_data_analysis.py chem_proc_file_analyser.py X
2
3 count = 0
4 # 1. Automatically accessing the folder
5 for root, dirs, files in os.walk("."):
6
7     for filename in files:
8         # 2. Locating the file
9         if filename == "outdated_output.bin":
10             file_path = os.path.join(root, filename)
11             print(f"Found: {file_path}")
```

**PROBLEMS** View:

```
(C:\Users\Jones\Documents\Data Science\SAT4650v)
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650
$ cd submissions\Labs\Lab3\ChemicalProcessData/
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650/submissions\Labs\
/ChemicalProcessData
$ python chem_proc_file_analyser.py
Found: .\ChemicalProcessData\bin\outdated_output.bin
(C:\Users\Jones\Documents\Data Science\SAT4650v)
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650/submissions\Labs\
\Lab3\ChemicalProcessData
$ "C:/Users/Jones/Documents/Data Science/SAT4650/env/python.exe" "c:/Users/Jones\
/ Documents/Data Science/SAT4650/submissions\Labs\Lab3\ChemicalProcessData/chem_p
● roc_file_analyser.py"
Found: .\ChemicalProcessData\bin\outdated_output.bin
(C:\Users\Jones\Documents\Data Science\SAT4650v)
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650/submissions\Labs\
\Lab3\ChemicalProcessData
$
```

Bottom status bar:

Ln 11, Col 41 Spaces: 4 UTF-8 CRLF [ ] Python 3.11.14 (conda)

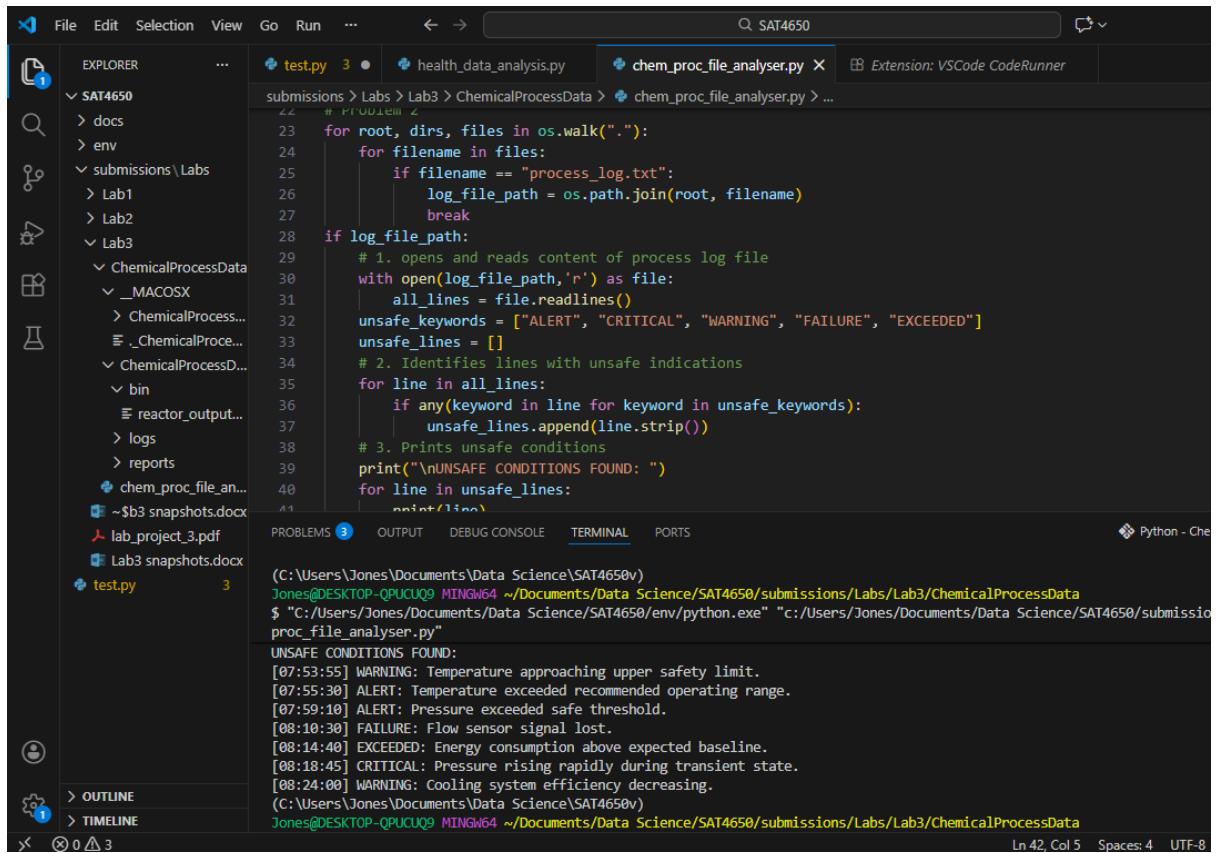
File deleted:

The screenshot shows the Visual Studio Code interface with the following details:

- EXPLORER** view: Shows a project structure under "SAT4650". The "ChemicalProcessData" folder contains subfolders like "\_MACOSX", "ChemicalProcessData", and "bin", which contains "reactor\_output.bin". There are also "logs" and "reports" folders.
- CODE** view: Displays a Python script named "chem\_proc\_file\_analyser.py". The code uses the `os.walk` function to traverse a directory, then checks if a file is named "outdated\_output.bin", creates its path, prints it, removes the file, and prints the deletion message.
- TERMINAL** view: Shows the command-line output of running the script. It shows the user's path, the command used ("python.exe"), the script name ("chem\_proc\_file\_analyser.py"), and the results of the file search and deletion. The output includes:

```
(C:\Users\Jones\Documents\Data Science\SAT4650v)
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650/submissions/Labs/
Lab3/ChemicalProcessData
$ "C:/Users/Jones/Documents/Data Science/SAT4650/env/python.exe" "c:/Users/Jones/
/ Documents/Data Science/SAT4650/submissions/Labs/Lab3/ChemicalProcessData/chem_p
● roc_file_analyser.py"
(C:\Users\Jones\Documents\Data Science\SAT4650v)
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650/submissions/Labs/
Lab3/ChemicalProcessData
$ "C:/Users/Jones/Documents/Data Science/SAT4650/env/python.exe" "c:/Users/Jones/
/ Documents/Data Science/SAT4650/submissions/Labs/Lab3/ChemicalProcessData/chem_p
● roc_file_analyser.py"
Found: ..\ChemicalProcessData\bin\outdated_output.bin
Deleted: ..\ChemicalProcessData\bin\outdated_output.bin
(C:\Users\Jones\Documents\Data Science\SAT4650v)
Jones@DESKTOP-QPUCUQ9 MINGW64 ~/Documents/Data Science/SAT4650/submissions/Labs/
Lab3/ChemicalProcessData
$ 
```
- STATUS BAR**: Shows the current line (Ln 16, Col 1), spaces (Spaces: 4), encoding (UTF-8), line endings (CRLF), language (Python), and version (3.11.14 (conda)).

## Printed unsafe conditions:



```
22 # P1001EM #
23 for root, dirs, files in os.walk("."):
24     for filename in files:
25         if filename == "process_log.txt":
26             log_file_path = os.path.join(root, filename)
27             break
28 if log_file_path:
29     # 1. opens and reads content of process log file
30     with open(log_file_path, 'r') as file:
31         all_lines = file.readlines()
32     unsafe_keywords = ["ALERT", "CRITICAL", "WARNING", "FAILURE", "EXCEEDED"]
33     unsafe_lines = []
34     # 2. Identifies lines with unsafe indications
35     for line in all_lines:
36         if any(keyword in line for keyword in unsafe_keywords):
37             unsafe_lines.append(line.strip())
38     # 3. Prints unsafe conditions
39     print("\nUNSAFE CONDITIONS FOUND: ")
40     for line in unsafe_lines:
41         print(line)
```

(C:\Users\Jones\Documents\Data Science\SAT4650v)  
Jones@DESKTOP-QPUCUQ9 MINGW64 ~\Documents\Data Science\SAT4650\submissions\Labs\Lab3\ChemicalProcessData  
\$ "C:/Users/Jones/Documents/Data Science/SAT4650/env/python.exe" "c:/Users/Jones/Documents/Data Science/SAT4650/submissions\Labs\Lab3\ChemicalProcessData\chem\_proc\_file\_analyser.py"  
UNSAFE CONDITIONS FOUND:  
[07:53:55] WARNING: Temperature approaching upper safety limit.  
[07:55:30] ALERT: Temperature exceeded recommended operating range.  
[07:59:10] ALERT: Pressure exceeded safe threshold.  
[08:10:30] FAILURE: Flow sensor signal lost.  
[08:14:40] EXCEEDED: Energy consumption above expected baseline.  
[08:18:45] CRITICAL: Pressure rising rapidly during transient state.  
[08:24:00] WARNING: Cooling system efficiency decreasing.  
(C:\Users\Jones\Documents\Data Science\SAT4650v)  
Jones@DESKTOP-QPUCUQ9 MINGW64 ~\Documents\Data Science\SAT4650\submissions\Labs\Lab3\ChemicalProcessData

After adding the word 'ANOMALY' to flagged unsafe events:

The screenshot shows a code editor interface with the title bar "SAT4650". The left sidebar displays a file tree for a project named "SAT4650". The "EXPLORER" tab is selected, showing files like "test.py", "health\_data\_analysis.py", "chem\_proc\_file\_analyser.py", and "flagged\_events.txt". Other files visible include "docs", "env", "submissions\Labs\Lab1", "submissions\Labs\Lab2", "submissions\Labs\Lab3", "ChemicalProcessData", "bin", "reactor\_output...", "logs", "flagged\_events...", "process\_log.txt", and "reports".

The main editor area contains the following Python code:

```
# Problem 2
for root, dirs, files in os.walk("."):
    for filename in files:
        if filename == "process_log.txt":
            log_file_path = os.path.join(root, filename)
            break
if log_file_path:
    # 1. opens and reads content of process log file
    with open(log_file_path,'r') as file:
        all_lines = file.readlines()
    unsafe_keywords = ["ALERT", "ANOMALY", "CRITICAL", "WARNING", "FAILURE", "EXCEEDED"]
    unsafe_lines = []
    # 2. Identifies lines with unsafe indications
    for line in all_lines:
        if any(keyword in line for keyword in unsafe_keywords):
            unsafe_lines.append(line.strip())
    # 3. Prints unsafe conditions
    ...
```

The "PROBLEMS" tab shows one error: "proc\_file\_analyser.py" with the message "UNSAFE CONDITIONS FOUND". The terminal output shows the results of running the script:

```
UNSAFE CONDITIONS FOUND:
[07:53:55] WARNING: Temperature approaching upper safety limit.
[07:55:30] ALERT: Temperature exceeded recommended operating range.
[07:59:10] ALERT: Pressure exceeded safe threshold.
[08:03:10] ANOMALY: Unexpected fluctuation in flow sensor readings.
[08:10:30] FAILURE: Flow sensor signal lost.
[08:14:40] EXCEEDED: Energy consumption above expected baseline.
[08:18:45] CRITICAL: Pressure rising rapidly during transient state.
[08:24:00] WARNING: Cooling system efficiency decreasing.
```

The terminal also shows the path: "C:\Users\Jones\Documents\Data Science\SAT4650\submissions\Labs\Lab3\ChemicalProcessData".