

Assignment2

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[1]: import re

def extract_critical_errors(log_data: str) -> list[tuple]:
    pattern = r'\[(\d{4}-\d{2}-\d{2} \d{2}:\d{2}:\d{2})\] \[ERROR\] \[(\w+)\] (.
    ↪.*?(\b(?:\d{1,3}\.){3}\d{1,3}\b).*?(0x[A-Fa-f0-9]{8}))'

    # Extracting matches using re.findall
    matches = re.findall(pattern, log_data)

    # Extracting only necessary groups (timestamp, module, full message)
    return [(timestamp, module, message) for timestamp, module, message, _, _
    ↪in matches]

# Example usage
log_data = """[2025-02-10 14:23:01] [INFO] [Auth_Module] User login successful.
[2025-02-10 15:45:32] [ERROR] [Net_Module] Connection timeout from 192.168.1.10.
    ↪ Error Code: 0xAB12CD34
[2025-02-10 16:01:10] [WARN] [Disk_Module] Low disk space warning.
[2025-02-10 17:12:05] [ERROR] [Security_Module] Unauthorized access detected_
    ↪from 10.0.0.5. Error Code: 0xDEADBEEF"""

result = extract_critical_errors(log_data)
print(result)
```

```
[('2025-02-10 15:45:32', 'Net_Module', 'Connection timeout from 192.168.1.10.
Error Code: 0xAB12CD34'), ('2025-02-10 17:12:05', 'Security_Module',
'Unauthorized access detected from 10.0.0.5. Error Code: 0xDEADBEEF')]
```