

**SIDDAGANGA INSTITUTE OF TECHNOLOGY,  
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**ACTIVITY BASED LEARNING  
ABL 2**

Submitted by

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**SUBJECT: Introduction to Python Programming  
(PLC2)**

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# Python ABL 2

## 1. Write a Python program for Renaming Files with American-Style Dates to European-Style Dates

```
import os
import re

def convert_date(date_str):
    match = re.match(r'(\d{2})-(\d{2})-(\d{4})', date_str)
    if match:
        return f'{match.group(2)}-{match.group(1)}-{match.group(3)}'
    return date_str

def rename_files_in_directory(directory):
    for filename in os.listdir(directory):
        new_filename = re.sub(r'(\d{2})-(\d{2})-(\d{4})', lambda x: convert_date(x.group(0)), filename)

        if new_filename != filename:
            old_file = os.path.join(directory, filename)
            new_file = os.path.join(directory, new_filename)
            os.rename(old_file, new_file)
            print(f'Renamed: {filename} -> {new_filename}')

directory_path = directory_path = 'C:\\Users\\18che\\Code_Projects\\PythonIDLE'
rename_files_in_directory(directory_path)
```

### Output :

```
===== RESTART: C:/Users/18che/Code_Projects/PythonIDLE/rename_files.py
Renamed: Canva4_11-03-2024.png -> Canva4_03-11-2024.png
Renamed: example_01-14-2025.txt -> example_14-01-2025.txt
Renamed: Prg1_01-14-2025.py -> Prg1_14-01-2025.py
Renamed: wallpaper4_01-14-2025.png -> wallpaper4_14-01-2025.png
```

## 1. Write a Python program using an Assertion in a Traffic Light Simulation

```
import time

class TrafficLight:
    def __init__(self):
        self.state = 'red'

    def change_state(self, new_state):
        assert new_state in ['red', 'yellow', 'green'], f"Invalid state: {new_state}. Must be 'red', 'yellow', or 'green'."
        self.state = new_state
        print(f"Traffic light is now {self.state}")

    def run_cycle(self):
        while True:
            self.change_state('red')
            time.sleep(5)

            self.change_state('green')
            time.sleep(5)

            self.change_state('yellow')
            time.sleep(2)

if __name__ == "__main__":
    traffic_light = TrafficLight()
    traffic_light.run_cycle()
```

PLC2\_ABL\_2

### Output :

```
===== RESTART: C:/Users/18che/Code_Projects/PythonIDLE/PLC2_ABL2_b.py  
Traffic light is now red  
Traffic light is now green  
Traffic light is now yellow  
Traffic light is now red  
Traffic light is now green  
Traffic light is now yellow
```