Python

Race Condition

Round Rubin Method

Thread

Race condition

- A **race condition** is a phenomenon that occurs in concurrent programming when the outcome of the program depends on the relative timing or interleaving of multiple threads or processes. It arises when two or more threads or processes attempt to modify a shared resource simultaneously, leading to unpredictable or erroneous behavior.

- **Key characteristics of a race condition:**

- Shared Resource: A race condition typically involves a shared resource such as a variable, memory location, file, or data structure that is accessed and potentially modified by multiple threads or processes concurrently.

- Unpredictable Behavior: The behavior of the program becomes unpredictable because the outcome depends on the specific timing of each thread's execution. Small differences in the timing or order of thread execution can lead to different results.

- Interleaved Execution: Concurrent threads or processes execute in an interleaved manner, meaning that their instructions may be executed in an unpredictable order. This interleaving can result in unexpected interactions between threads accessing the shared resource.

Round Robin scheduling method

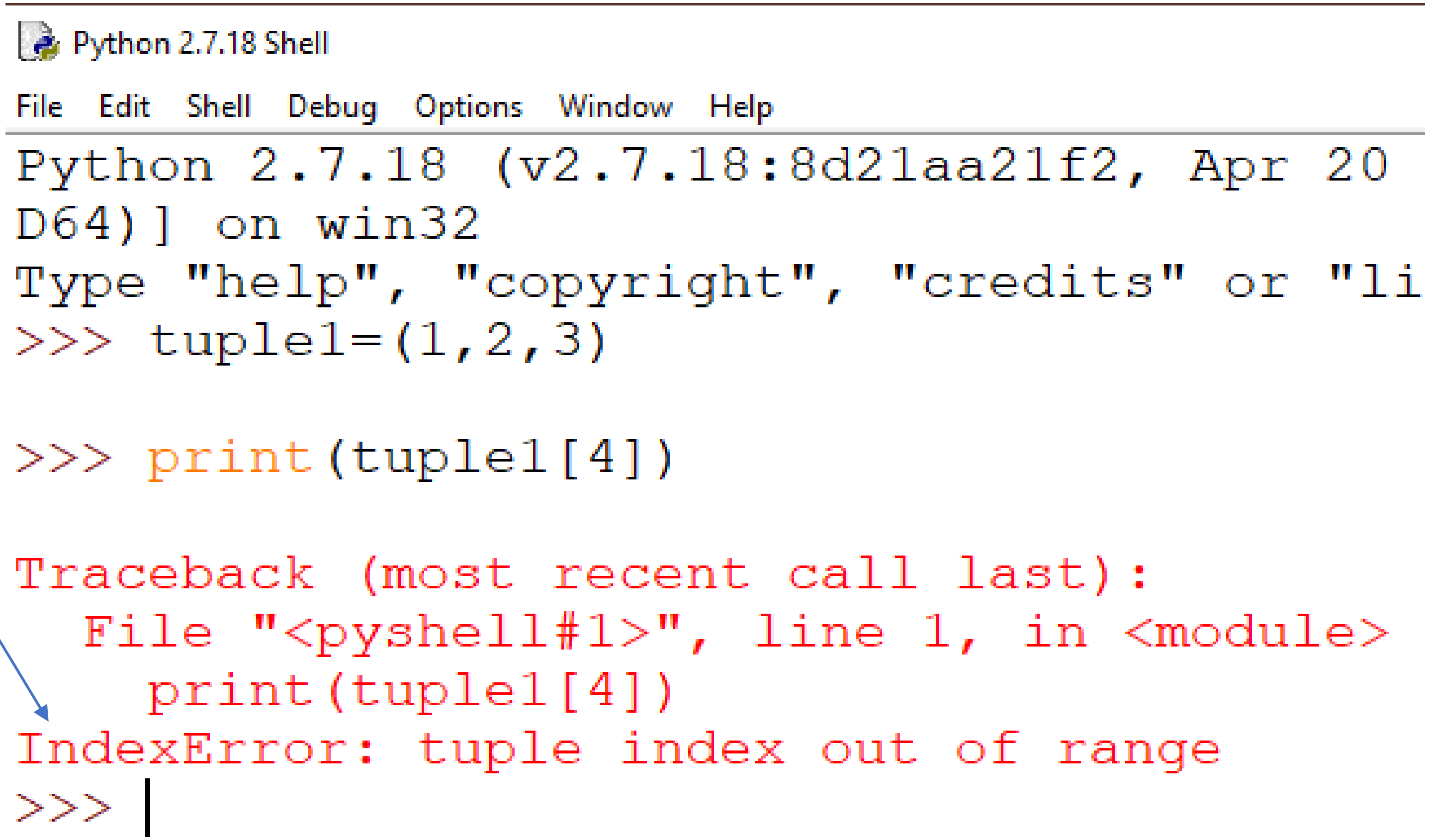
- The term that describes the execution of tasks in a circular manner, such that after completing the last task, the process returns to the first task, is "Round Robin scheduling method." In this scheduling algorithm, each task is assigned a fixed time slice or quantum, and the tasks are executed in a circular order. When a task's time slice expires, it is preempted, and the next task in the queue is given the CPU to execute. This process continues until all tasks are completed or until a specified time limit is reached. Round Robin scheduling is commonly used in operating systems for time-sharing systems and in scheduling algorithms for CPU scheduling.

Thread

- A Threads represent individual units of execution within a process and share the same memory space, making them more lightweight than separate processes.

Exception handling

```
tuple1=(1,2,3)
print(tuple1[4])
```



```
Python 2.7.18 (v2.7.18:8d21aa21f2, Apr 20
D64)] on win32
Type "help", "copyright", "credits" or "li
>>> tuple1=(1,2,3)

>>> print(tuple1[4])

Traceback (most recent call last):
  File "<pyshell#1>", line 1, in <module>
    print(tuple1[4])
IndexError: tuple index out of range
>>> 
```

Python GUI

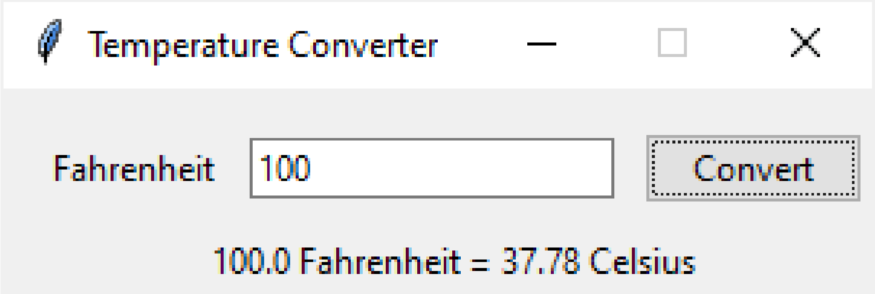
Tkinter module

- The primary purpose of using a Canvas-container in Python's Tkinter library
  - To draw shapes like lines, curves, and circles in a GUI.

- Reference to GUI program on LMS!

Temperature converter

temperatureconverter.py on LMS



100.0 Fahrenheit = 37.78 Celsius

Reference

- https://www.pythontutorial.net/
- https://www.pythontutorial.net/tkinter/tkinter-window/
- https://www.pythontutorial.net/tkinter/tkinter-event-binding/
- https://www.pythontutorial.net/tkinter/tkinter-command/

- Data science reference link
- https://www.datacamp.com/blog/top-python-libraries-for-data-science