**CPU Scheduling Simulator**

This project simulates various **CPU scheduling algorithms** to explore their impact on system performance and resource utilization. Developed in **Java**, it supports both traditional and innovative approaches to scheduling, providing detailed outputs for analysis.

**Features**

* **Non-Preemptive Priority Scheduling**:
  + Schedules processes based on their priority. Higher-priority processes are executed first, with context switching between processes.
* **Non-Preemptive Shortest Job First (SJF)**:
  + Selects the process with the shortest burst time for execution. This method prevents starvation by ensuring that processes with longer burst times are not indefinitely delayed.
* **Shortest Remaining Time First (SRTF)**:
  + Dynamically handles process execution by selecting the process with the shortest remaining burst time. This method effectively prevents starvation by preemptively adjusting to the shortest burst time.
* **FCAI Scheduling Algorithm**:
  + A dynamic scheduling approach that combines **priority**, **arrival time**, and **remaining burst time** into a composite scheduling factor.
  + Features dynamic quantum adjustments that optimize efficiency and fairness in process execution.
  + Supports both **preemptive** and **non-preemptive** execution phases, providing more accurate simulation of real-world CPU scheduling scenarios.