Processor Execution Simulator

Atypon

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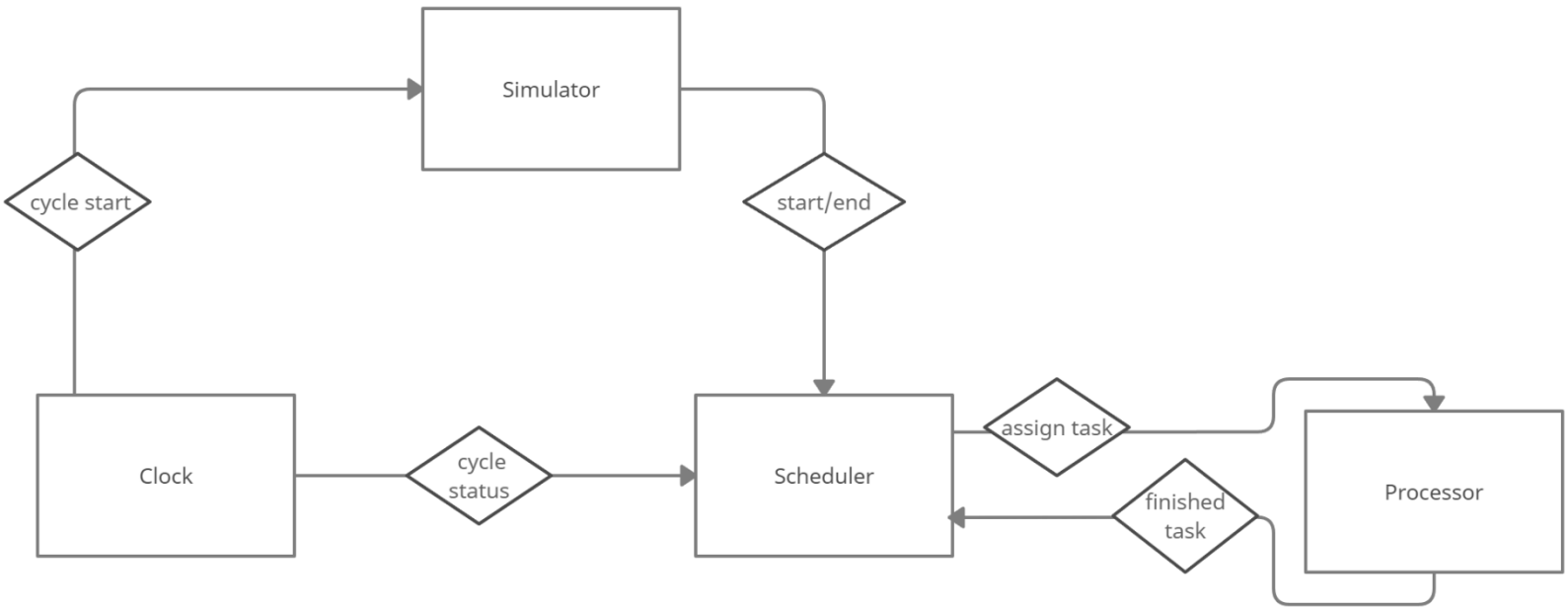
State Diagram



Thread Cooperation Strategy

- At the beginning of the program the Simulator creates a new thread in the clock, scheduler and all the processors.

- All the treads will be waiting using the wait method except the clock that will sleep for 1 second.

- The Simulator notifies the Schedular using notify method and the schedular wakes up.

- The Schedular then fetch the tasks based on the cycles and add them to the Queue based on priority.

- The Schedular continue its work and assign the tasks to the available processors.

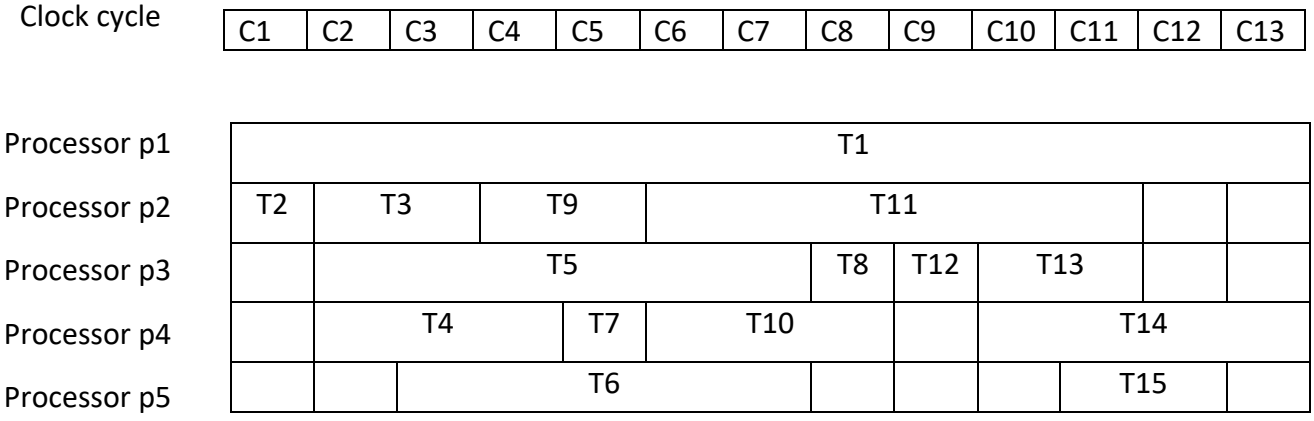
- Then the schedular goes to a method called check (in the main thread) to handle the current task holding by the processor, and after that the method notify its object to wakes the thread.

- The Clock notifies the Simulator after each cycle, causing process to do the job until we reach the Simulation Time.

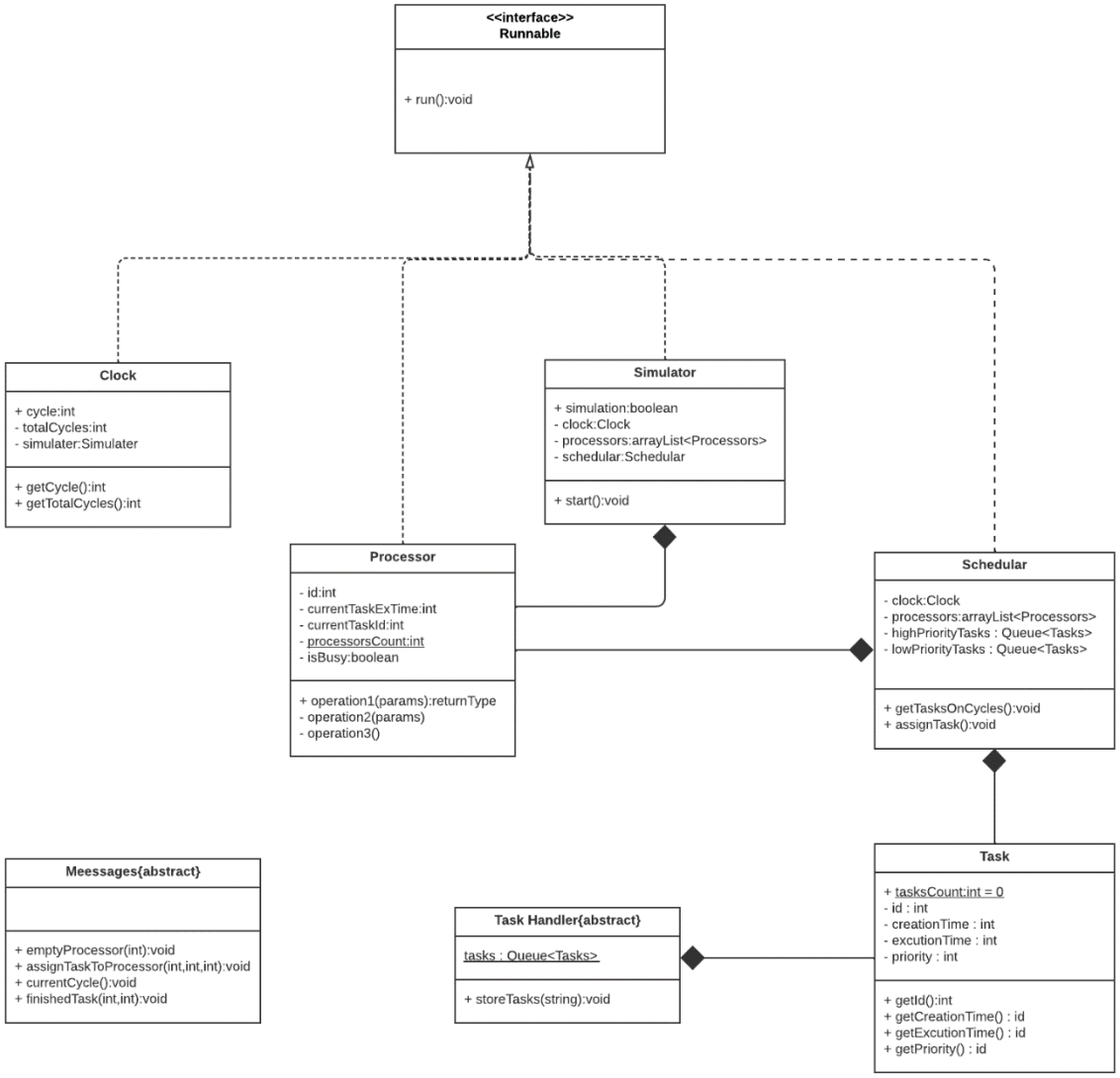
THREAD EXAMPLE

```
15
1 13  1
1   1  0
2   2  1
2   3  1
2   6  1
3   5  0
4   1  0
4   1  0
4   2  1
5   3  0
6   6  1
9   1  0
10 2  1
10 4  1
11 2  0
```

Assuming 5 processors and 13-cycle simulation, the below diagram describes one possible simulation.



Software Design



Delegation Pattern

It express the behavior using a composition where each class has an object of what the is needed to implement.