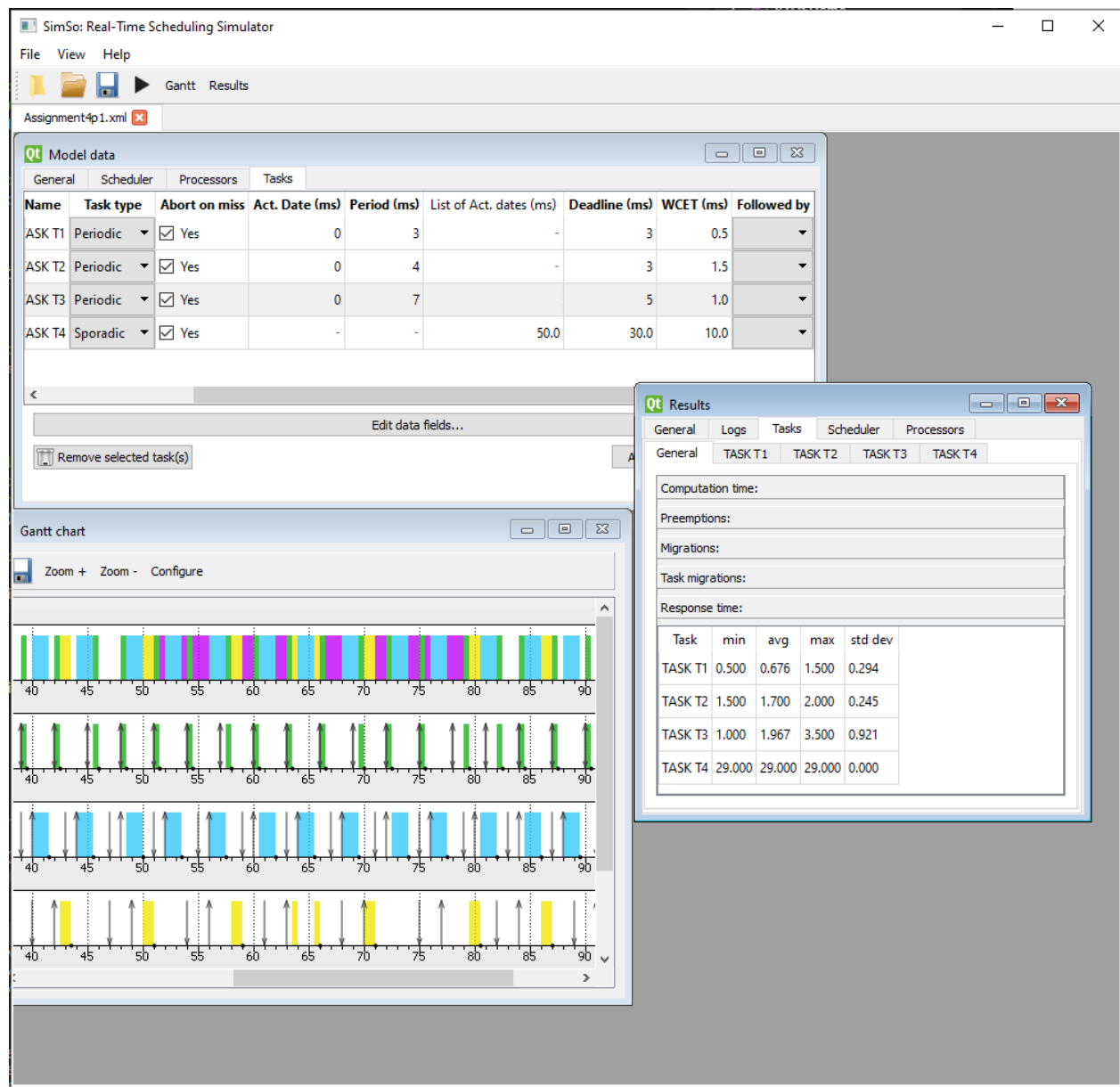


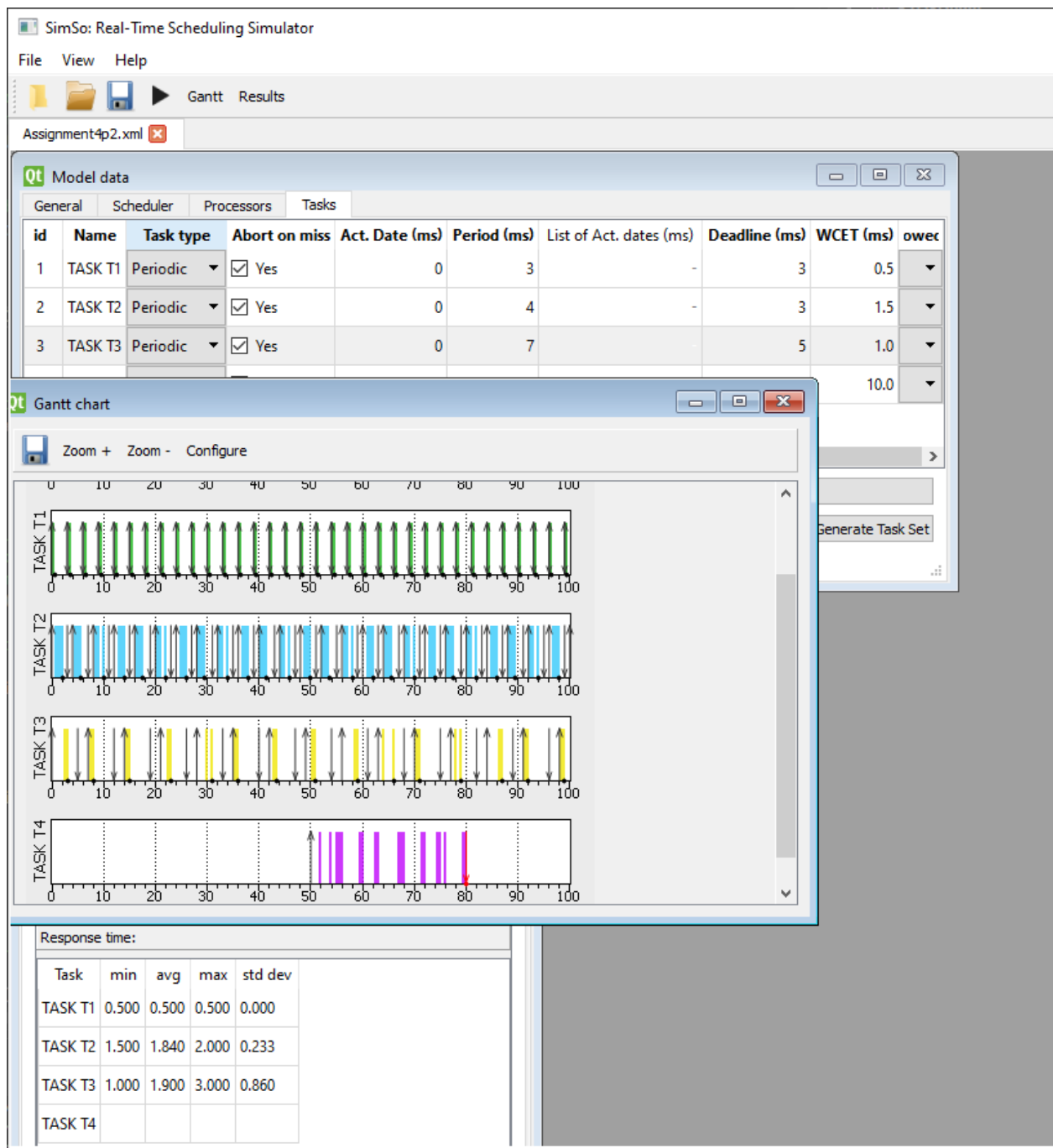
## Simulation Assignment

### EDF



- Response Times are listed in the screenshot.
- None of the tasks missed their deadlines.
- The sporadic job meets its deadline as well with a response time of 29 seconds.

## RM



- Response Times are listed in the screenshot
- Task 4 misses its deadline however all the other tasks succeed.
- The sporadic job does not meet its deadline
- The response time for the sporadic job is the full 30 ms because it does not meet the deadline.
- EDF works best because all tasks are able to execute, including the sporadic job.

## Coding Assignment

```
C:\ D:\Workspace\FreeRTOSv10.0.1\FreeRTOSv10.0.1\FreeRTOS\Demo\WIN32-MSVC\Debug\RTOSDemo.exe
Matrix exec time:      625 ms
Matrix exec time:      626 ms
Matrix exec time:      625 ms
Matrix exec time:      625 ms
Aperiodic task done!
Aperiodic task response time:      4384 ms
Timer callback!
Matrix exec time:      625 ms
Aperiodic task started!
Matrix exec time:      625 ms
Matrix exec time:      624 ms
Matrix exec time:      635 ms
Matrix exec time:      645 ms
Matrix exec time:      648 ms
Matrix exec time:      629 ms
Aperiodic task done!
Aperiodic task response time:      4528 ms
Timer callback!
Matrix exec time:      625 ms
Aperiodic task started!
Matrix exec time:      625 ms
Matrix exec time:      625 ms
Matrix exec time:      631 ms
Matrix exec time:      630 ms
Matrix exec time:      630 ms
Matrix exec time:      624 ms
Aperiodic task done!
Aperiodic task response time:      4609 ms
Timer callback!
```

- The system is able to handle all aperiod tasks at first. As the callback function creates a new task every 5 seconds, in my case it does not execute as soon as the 5 seconds are up. The task is created and before it finishes the matrix function executes a number of times before the aperiodic task is done due to the higher priority. Therefore my response time for the aperiodic task keeps increasing.
- To make sure the aperiodic task runs, I would need to increase its priority. In doing so, the aperiodic function will execute as soon as the call back function is called.
- The response time of the aperiodic task ranges upwards of 4384 upon running the task with a priority of 2. With a priority of 4, its response time can be 632 ms

```
D:\Workspace\FreeRTOSv10.0.1\FreeRTOSv10.0.1\FreeRTOS\Demo\WIN32-MSVC\Debug\RTC
Matrix exec time:      649 ms
Matrix exec time:      647 ms
Matrix exec time:      643 ms
Matrix exec time:      632 ms
Matrix exec time:      634 ms
Matrix exec time:      632 ms
Timer callback!
Aperiodic task started!
Aperiodic task done!
Aperiodic task response time:      632 ms
Matrix exec time:      1267 ms
Matrix exec time:      636 ms
Matrix exec time:      633 ms
Matrix exec time:      637 ms
Matrix exec time:      631 ms
Matrix exec time:      641 ms
Timer callback!
Aperiodic task started!
Aperiodic task done!
Aperiodic task response time:      632 ms
Matrix exec time:      1269 ms
Matrix exec time:      651 ms
Matrix exec time:      640 ms
Matrix exec time:      630 ms
Matrix exec time:      623 ms
Matrix exec time:      623 ms
```

This is with a priority of 4 for the aperiodic task.