Scheduler Task Selection

scheduler()

Task State Changed ?

NO → Runtime Exceeded ?

NO → Run currentTCB (task is allowed to continue to run)

YES

reset runtime and yield state

Free resources of all terminated tasks

Wake sleeping tasks from sleep heap that have reached or exceeded their sleep duration

SysTick rollover detected ?

YES → Update sleep state of all sleeping task to prevent erroneous sleep durations due to rollover

NO

Are there any tasks in the scheduler heap ?

NO → Run the IDLE TASK

YES

Start with nodeIndex = 0

Is task @ nodeIndex sleeping, waiting or done?

NO → lastActiveNodeIndex = nodeIndex

Check/update tasks sleep/wait state

Still waiting/sleeping ?

YES → Remove node @ nodeIndex (and restore heap)

NO

Are there any tasks in the scheduler heap ?

YES

Is The current nodeIndex still within the heap ?

NO → Run task @ lastActiveNodeIndex

Draw random number for node selection (0 = parent, 1=left child, 2= right child)

Current node (nodeIndex) selected ?

YES → Run task @ nodeIndex in heap

NO

Is selected child index valid (not out of range) ?

YES → nodeIndex = childIndex

NO