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HW4 Comp 530H

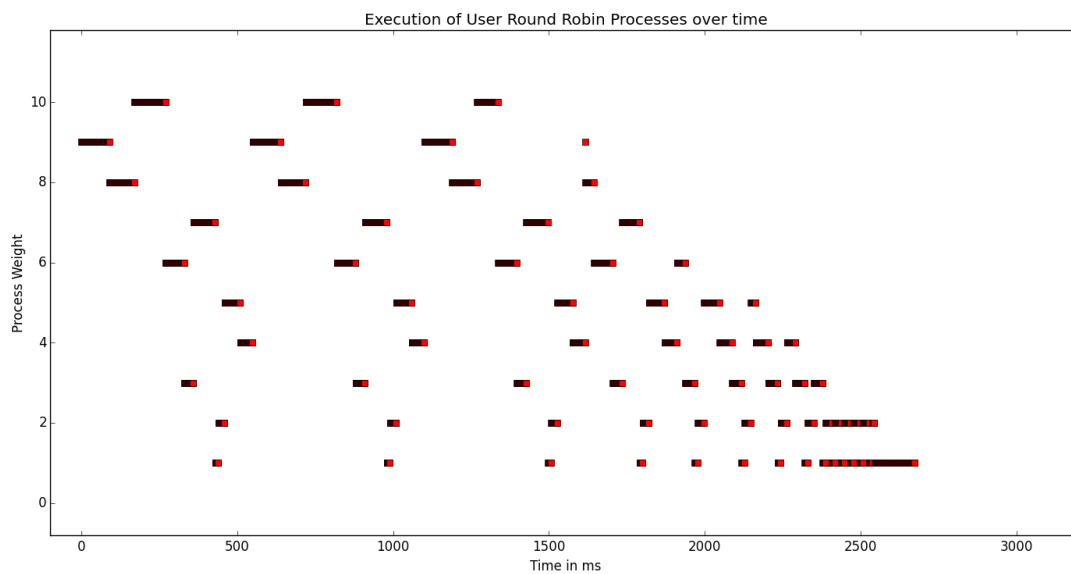
Fall 2014

SmithFD

User Round Robin Scheduling:

In this assignment we implement a User-controlled round robin scheduler via a psuedo systemcall implemented via a linux kernel module for the 2.6.32 kernel (using debugfs).

Running 10 processes with weights ranging from 1 to 10 (where the time allotted in a processes quantum was equal to $10\text{ms} * \text{weight}$), the following graph was created from the data:



The following chart is a collection of each PID's final entry in the kernel log, and the relevant data associated with it.

PID	WEIGHT	TIMESLICE(MS)	RUNTIME(NS)	ACTUALTIME(NS)	TICK	STARTTIME(NS)
16115	4	13	3297338988	88458177008019	267	88454879669031
16116	5	34	3170442048	88458050008002	266	88454879565954
16117	1	81	3680648369	88458560008061	269	88454879359692
16118	2	14	3551546057	88458431008083	266	88454879462026
16119	3	2	3385831286	88458265008117	268	88454879176831
16120	6	33	2944929752	88457824008041	267	88454879078289
16121	7	14	2797746616	88457677008099	266	88454879261483
16122	8	53	2652156501	88457531007989	267	88454878851488
16123	10	33	2344063222	88457223018544	267	88454878955322
16124	9	89	2625262778	88457504008328	271	88454878745550

As shown, Each tick count roughly was equal. Worth noting is the timeslice: as the timeslice is decremented each tick, and then reset to a predefined value before our module modify's that value, we can see where in the quantum each of these processes finished execution.

PID	WEIGHT	TIMESLICE(MS)	RUNTIME(NS)	ACTUALTIME(NS)	TICK	STARTTIME(NS)
16115	4	39	1517339878	88456397008909	1	88454879669031
16116	5	49	1467442688	88456347008642	1	88454879565954
16117	1	9	1437649078	88456317008770	1	88454879359692
16118	2	19	1447546851	88456327008877	1	88454879462026
16119	3	29	1337832334	88456217009165	1	88454879176831
16120	6	59	1277930912	88456157009201	1	88454879078289
16121	7	69	1367747299	88456247008782	1	88454879261483
16122	8	79	1098157435	88455977008923	1	88454878851488
16123	10	99	1178053667	88456057008989	1	88454878955322
16124	9	89	1008270965	88455887016515	1	88454878745550

Here we can see the initial values for comparison (after the realtime class decremented the timeslice).