**Scheduling Analysis**

**Assignment 2: Report**

*Submitted for the Subject:*

**Real Time Embedded Systems CSE522**

*By:*

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Thank You

Following project is used to program various schedulability testing approaches for EDF, RM, and DM schedule algorithms and comparative analysis of the schedulability of EDF, RM and DM algorithms using synthetic tasks sets.

Part 1 :

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In part 1, for taskset file provided to program, given program reads the input file for details such as no. of tasksets, no. of tasks in each taskset, task parameters and implements EDF,RM & DM scheduling analysis for each of taskset in input file.

Part 2 :

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In part 2, we are synthetically generating tasksets to run our scheduling analysis in program.

For each plot cases, the utilization ranges from 0.05 to 0.95 in the steps of 0.1 which serves as X values.

Now for each of these utilization cases, we have used 5000 task sets.

Periods of tasks for every task set are determined within following 3 ranges with M=3 & implemented the below UUniFast algorithm to determine the utilizations of tasks in a taskset according to the algorithm stated in the referred paper.

1] 100-1000

2] 1000- 10000

3] 10000-100000

Code :

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function vectU = UUniFast(n, U)

%UUNIFAST generate syntethic task utilizations with uniform distribution

% An explanation of the method can be found in

% E Bini, GC Buttazzo, Measuring the Performance of Schedulability

% Tests, Real-Time Systems 30 (1-2), pp. 129-154, May 2005.

% Syntax:

% vectU = UUniFast(n, U)

% Input:

% n, number of tasks in the set

% U, total utilization of the task set

% Output:

% vectU, vector of individual task utilizations

sumU = U; % the sum of n uniform random variables

vectU = zeros(1,n); % initialization

for i=1:n-1,

nextSumU = sumU.\*rand^(1/(n-i)); % the sum of n-i uniform random variables

vectU(i) = sumU - nextSumU;

sumU = nextSumU;

end

vectU(n) = sumU;

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WCET of each task in all tasksets s calculated from given relation with the period and the utilization.

WCET = Utilization\*Period.

Folowing 4 cases have been used to generate required XY plots :  
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Taskset contains 10 tasks & Task deadline uniformly distributed in: [Ci,Ti]

Taskset contains 25 tasks & Task deadline uniformly distributed in: [Ci,Ti]

Taskset contains 10 tasks & Task deadline uniformly distributed in: [Ci+(Ti-Ci)/2,Ti]

Taskset contains 25 tasks & Task deadline uniformly distributed in: [Ci+(Ti-Ci)/2,Ti]

Plots are as follows :







