Zagazig university   **Spring 2018**
Faculty of Engineering   **3rd Year**
Computer and Systems Dept.   **CSE 325: Operating Systems**

Assignment #2

Covers: Chapters 6   Due Date: Thursday 29/3/2018

Questions:

Solve the following questions:

Question 1:

Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed.

Process	Arrival Time	Burst Time
P1	0.0	9
P2	0.4	3
P3	1.0	2

a) What is the average turnaround time for these processes with the SJF scheduling algorithm? (use **preemptive** scheduling.)
b) What is the average turnaround time for these processes with the RR scheduling algorithm (quantum = 1)?
c) What is the average turnaround time for these processes with the RR scheduling algorithm (quantum = 2)?

Question 2:

Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	Burst Time	Priority
P1	3	2
P2	2	1
P3	9	4
P4	5	2
P5	6	3

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0.

a) Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, preemptive priority (a larger priority number implies a higher priority), and RR (quantum = 4).
b) What is the turnaround time of each process for each of the scheduling algorithms in part a?
c) What is the waiting time of each process for each of these scheduling algorithms?

d) Which of the algorithms results in the minimum average waiting time (over all processes)?

Question 3:
Consider two processes, P1 and P2, where p1 = 100, t1 = 50, p2 = 150, and t2 = 60.

a) Can these two processes be scheduled using rate-monotonic scheduling? Illustrate your answer using a Gantt chart.
b) Illustrate the scheduling of these two processes using earliest-deadline-first (EDF) scheduling.

Submission

On 29/3/2018, the writeup of your solution should be submitted. Follow the following instructions carefully, otherwise your submission will not be accepted:

- Covert your solution to a pdf file and name it "CSE325_SP18__Assign2_YOURNAME.pdf", where YOURNAME is your name.
- Attach the pdf file into an email message which have the subject "CSE325 SP18 Assignment2" exactly.
- In the body of the message include your full name and bench number. You could also add any notes or special instructions.
- Send the message to the email address of your teaching assistant s.khalil9191@gmail.com

Important Notes:

This assignment must be done <u>individually</u>; any act of plagiarism will be penalized and reported.