OSH Homework 1

Problem 1

Job set

Name	Arrive Time	Time Required	Deadline	Difficulty
OSH, Lab	2 days ago	2 days	10 days left	3
Write a VGG16 Network	5 days ago	3 days	20 days left	4
Probability, Homework	today	1 day	6 days left	2
Read PRML	10 days ago	20 days	100 days left	3
Differential Equations, Homework	yesterday	2 days	10 days left	5
CSAPP Malloc Lab, Report	today	1 day	20 days left	1

Schedulable?

$$
\begin{aligned}
U &= \sum_{i=1}^{n} \frac{T_{\text{cost}}(i)}{T_{\text{remains}}(i)} \\
&= \frac{2}{10} + \frac{3}{20} + \frac{1}{6} + \frac{20}{100} + \frac{2}{10} + \frac{1}{20} \\
&\approx 0.967
\end{aligned}
$$

we have $U \leq 1$ So the set of jobs is schedulable.

Scheduler

PRINCIPLE: Earliest deadline first

1. Probability, Homework
2. OSH, Lab
3. Differential Equations, Homework
4. CSAPP Malloc Lab, Report
5. Write a VGG16 Network
6. Read PRML

Problem 2

Code for Context Switch:

```
;void swtch(struct context **old, struct context *new);
swtch:
  ;save old registers
  movq 8(%rsp), %rax  ;put old ptr into eax
  popq 0(%rax)        ;save old IP
  movq %rsp, 8(%rax)
  movq %rbx, 16(%rax)
  movq %rcx, 24(%rax)
  movq %rdx, 32(%rax)
  movq %rsi, 40(%rax)
  movq %rdi, 48(%rax)
  movq %rbp, 56(%rax)

  ;load new registers
  movq 8(%rsp), %rax
  movq 56(%rax), %rbp
  movq 48(%rax), %rdi
  movq 40(%rax), %rsi
  movq 32(%rax), %rdx
  movq 24(%rax), %rcx
  movq 16(%rax), %rbx
  movq 8(%rax), %rsp
  pushq 0(%rax)
  ret
```