

# Assignment 3

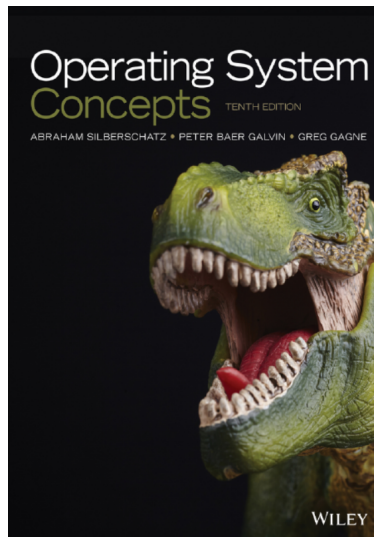
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Please complete a report.

The documents to be submitted for this assignment are:

- report.pdf
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1. **[20 pts]** Read Chapter 2 of “Three Easy Pieces” (<https://pages.cs.wisc.edu/~remzi/OSTEP/intro.pdf>). Answer the following questions:
  - (1) What are the “three easy pieces” of operating systems? Explain each of them with your own words.
  - (2) How do these “three easy pieces” map to the chapters in the “dinosaur book”?



2. **[20 pts]** Read Chapter 6 of “Three Easy Pieces” (<https://pages.cs.wisc.edu/~remzi/OSTEP/cpu-mechanisms.pdf>) and explain what happens during **context switch** in detail?
3. **[20 pts]** Read slides “L03 Processes I” and “L04 Processes II” and answer the following questions:
  - (1) Explain what happens when the kernel handles the fork() system call (hint: your answer should include the **system call mechanism**, **PCB**, **address space**, **CPU scheduler**, **context switch**, **return values** of the system call).
  - (2) Explain what happens when the kernel handles the exit() system call (hint: your answer should include discussion on the zombie state and how it is related to the wait() system call).
4. **[20 pts]** What are the three methods of transferring the control of the CPU from a user process to OS kernel? Compare them in detail.
5. **[20 pts]** Describe the life cycle of a process (hint: explain the reasons for process state transitions).