Assignment 4

Q18: Server Templates
a. Explain the advantages of a multi-threaded server compared to a single-threaded server.
b. Enumerate and explain the different models for a multithreaded server.
c. Discuss the advantages and disadvantages of stateful and stateless servers, respectively.

Q19: Migration & Load Balancing
a. Explain the relationship between migration and load balancing.
b. What goals can be achieved using migration?
c. What kinds of objects can be migrated?
d. Migration can be used to move code and data to the same node by either (1) moving the code to the data, or by (2) moving the data to the code. Depict two scenarios in which (1) respectively (2) is more appropriate.

Q20: Migration Problems
a. Code migration has been classified into weak and strong migration. Explain the differences, indicate the particular problems faced by strong migration, and show possible solutions.
b. When migrating an active process/task, is it necessary to pause its execution until all of its state (complete address space contents) has been copied to the new machine?
c. Applications can bind themselves to resources such as printers, files, or system services. How can such resources be handled during migration? What styles of resource binding exist?
d. Can code be migrated between heterogeneous nodes?

Q21: Load Balancing
a. What kinds of load can be balanced?
b. What is the difference between centralized and decentralized load balancing?
c. Classify and explain different (abstract) load balancing algorithms.

Q22: Balancing Policies
a. Migration can be initiated either by the sender or by the receiver. Will both solutions perform equally well in all situations?
b. Explain the four policies that can be used to select a target machine for a to-be-migrated process. Enumerate advantages and disadvantages of each policy.
c. Enumerate different solutions that allow for exchange of load information in a DS.