Homework 1 - Catherine Austria

2.12

The services and functions provided by an operating system can be

divided into two main categories. Briefly describe the two categories,

and discuss how they differ.

The two main categories are providing services that help users and functions help keep the computer running more efficiently. The services are used more to help the user like providing a user interface, program execution, I/O operations, file-system manipulation, networking/communication with other computers and error detection. The example of functions used so that the computer can run more efficiently are resource allocation for file storage, memory, CPU cycles and I/O, accounting for what and how much resources users are in need of and statistics of it and finally, protection and security from unauthorized data manipulation and data theft.

2.18

What are the two models of interprocess communication? What are the

strengths and weaknesses of the two approaches?

The two models for IPC are the shared-memory model and the message-passing model.

The shared-memory model is faster when the processes that are running are found on the same computer. This however, leads to the problem of writing data to the same location, thus there is a need to ensure that the location being written to is not currently being used by another process. Memory protection and synchronization needs to be seriously considered when using this model.

The message-passing model is a lot easier to implement that the former model. This model is slower than the former due to the buffer time when the process send messages of their status to and fro from each other. This model is also only good for small amounts of data because conflicts are easily avoided, but only for small amounts data.