# Operating Systems

## Roles of the OS

### Referee

Controls/orchestrates/shares access to resources and hardware by multiplexing. Used for CPU, memory, devices and more. Needs to protect applications from each other through memory, CPU, etc. Must still allow communication. Fairness, no starving and everybody makes progress. Be efficient while doing all of that and guarantee real-time performance.

### Illusionist

Creates illusion of real resources which seem to be physical but are simpler, larger, better. Used for processor, storage, network, links, etc. virtual memory, virtual machines, files, windows are examples.

### Glue

API/Interfaces between components. Virtual machine interface, physical machine interface. High-level abstractions, extends hardware.