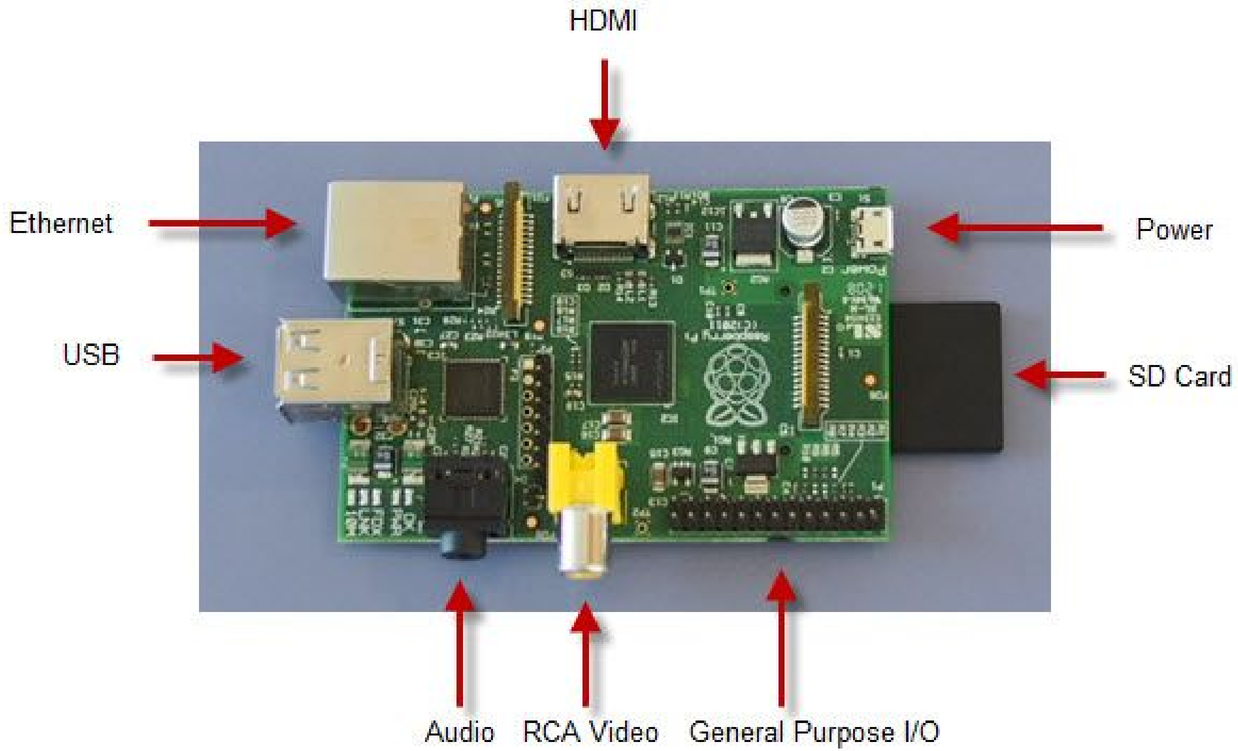
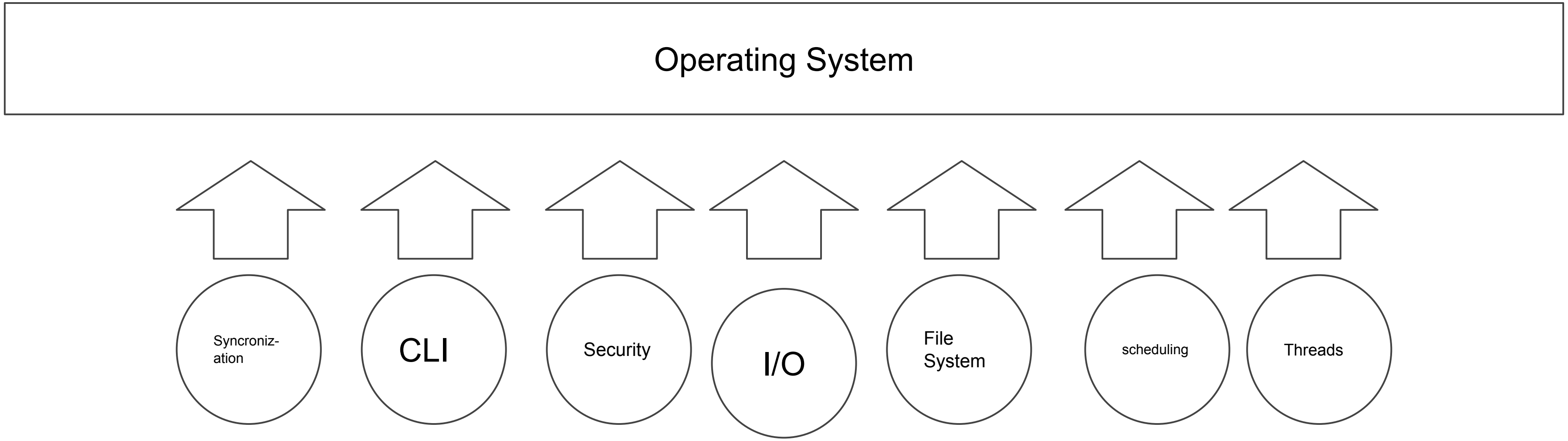
What is an OS?

By :
Afshin Binesh

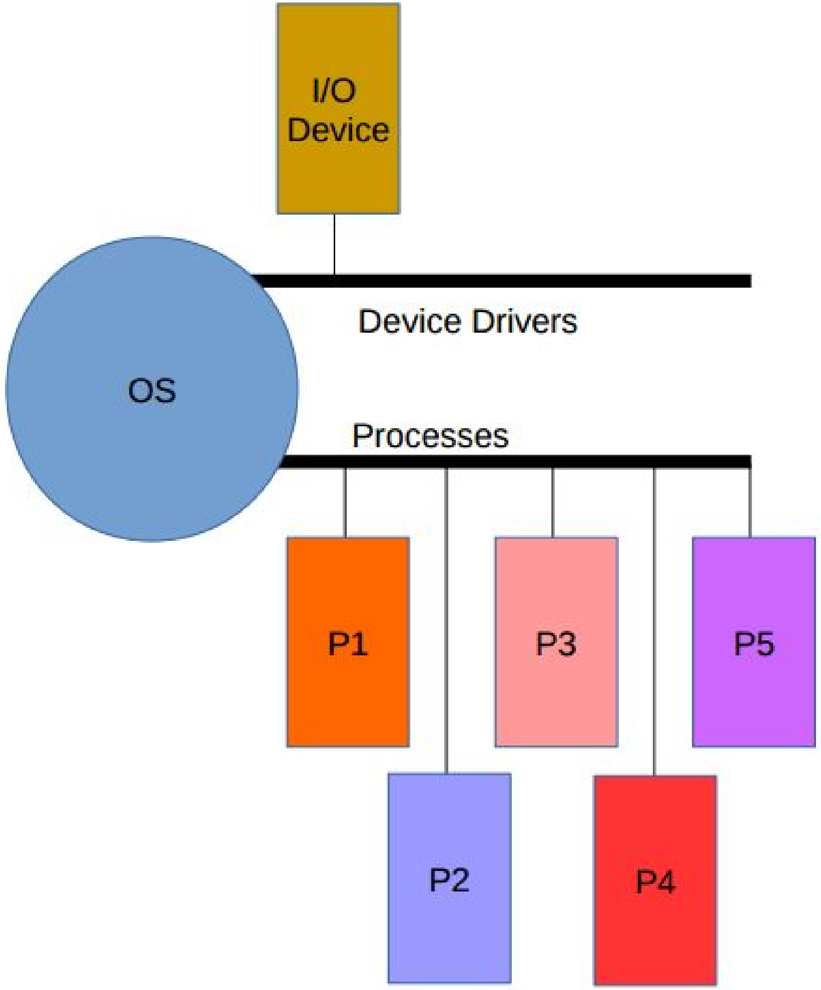
Basic OS


HDMI
Ethernet
Power
USB
SD Card
Audio
RCA Video
General Purpose I/O

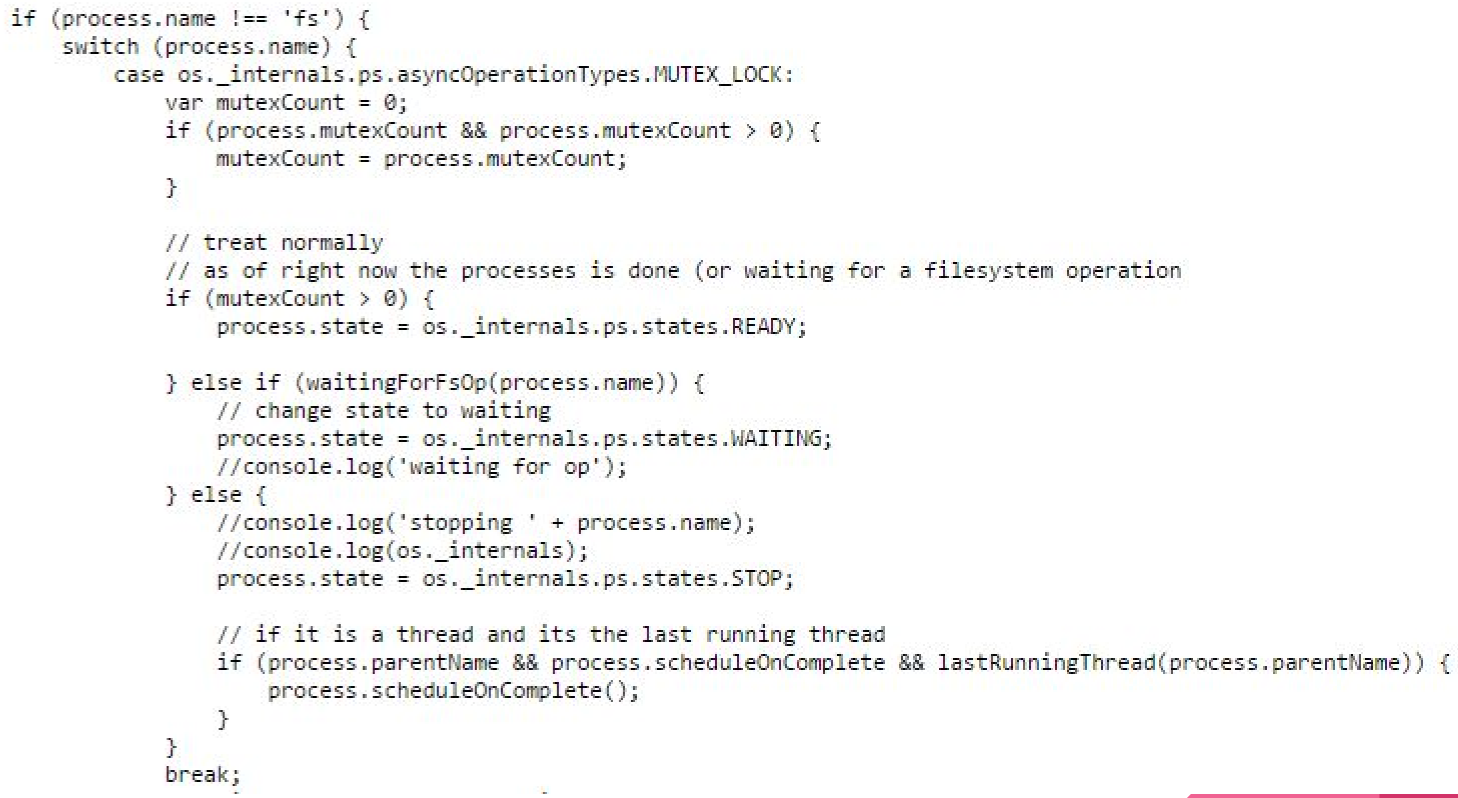
What makes up an OS?



Scheduling

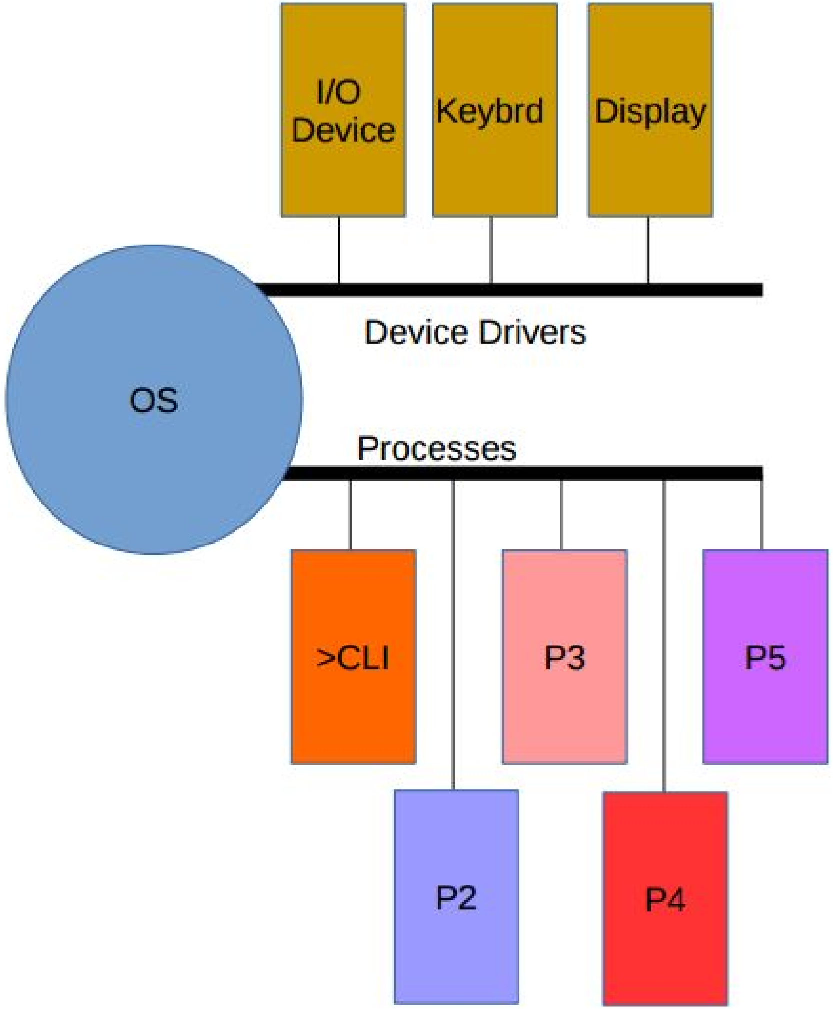


Scheduling

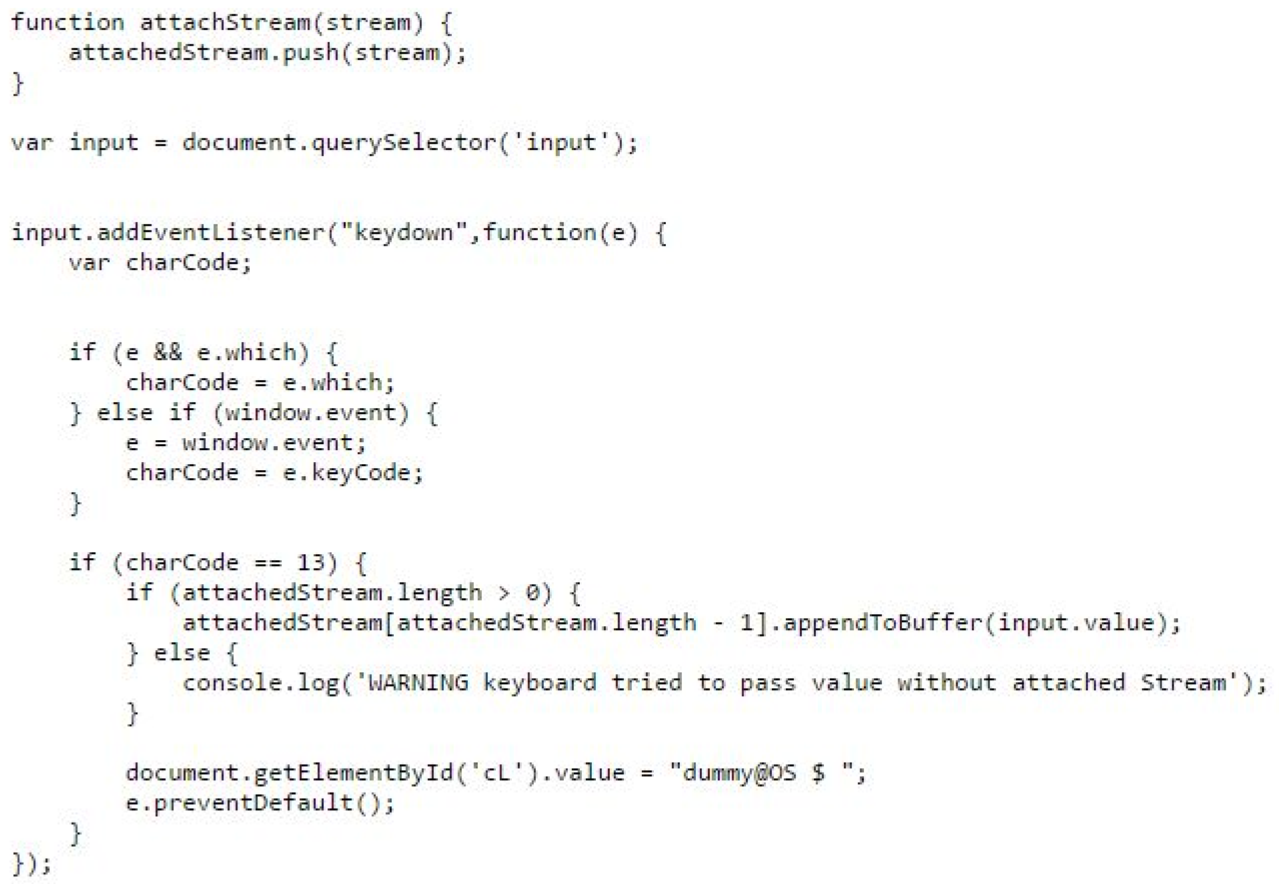


```
if (process.name !== 'fs') {
    switch (process.name) {
        case os._internals.ps.asyncOperationTypes.MUTEX_LOCK:
            var mutexCount = 0;
            if (process.mutexCount && process.mutexCount > 0) {
                mutexCount = process.mutexCount;
            }

            // treat normally
            // as of right now the processes is done (or waiting for a filesystem operation
            if (mutexCount > 0) {
                process.state = os._internals.ps.states.READY;

            } else if (waitingForFsOp(process.name)) {
                // change state to waiting
                process.state = os._internals.ps.states.WAITING;
                //console.log('waiting for op');
            } else {
                //console.log('stopping ' + process.name);
                //console.log(os._internals);
                process.state = os._internals.ps.states.STOP;

                // if it is a thread and its the last running thread
                if (process.parentName && process.scheduleOnComplete && lastRunningThread(process.parentName)) {
                    process.scheduleOnComplete();
                }
            }
            break;
```

CLI

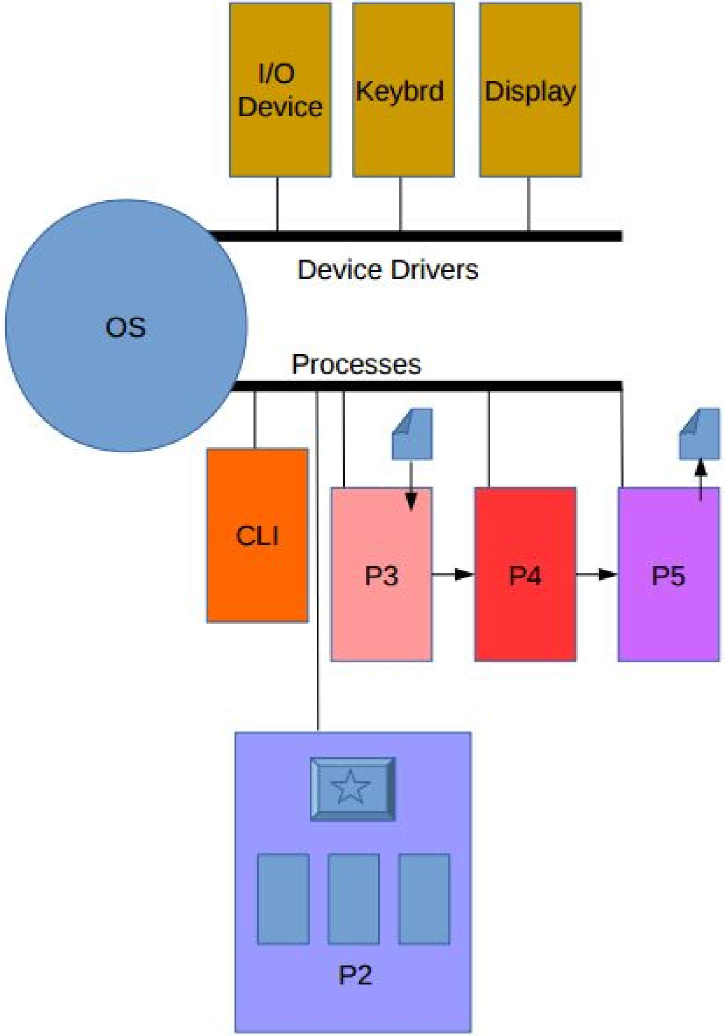

I/O Device
Keybrd
Display
Device Drivers
OS
Processes
>CLI
P3
P5
P2
P4

CLI



```
function attachStream(stream) {
    attachedStream.push(stream);
}

var input = document.querySelector('input');


input.addEventListener("keydown",function(e) {
    var charCode;


    if (e && e.which) {
        charCode = e.which;
    } else if (window.event) {
        e = window.event;
        charCode = e.keyCode;
    }

    if (charCode == 13) {
        if (attachedStream.length > 0) {
            attachedStream[attachedStream.length - 1].appendToBuffer(input.value);
        } else {
            console.log('WARNING keyboard tried to pass value without attached Stream');
        }

        document.getElementById('cL').value = "dummy@OS $ ";
        e.preventDefault();
    }
});
```

Threads


I/O Device
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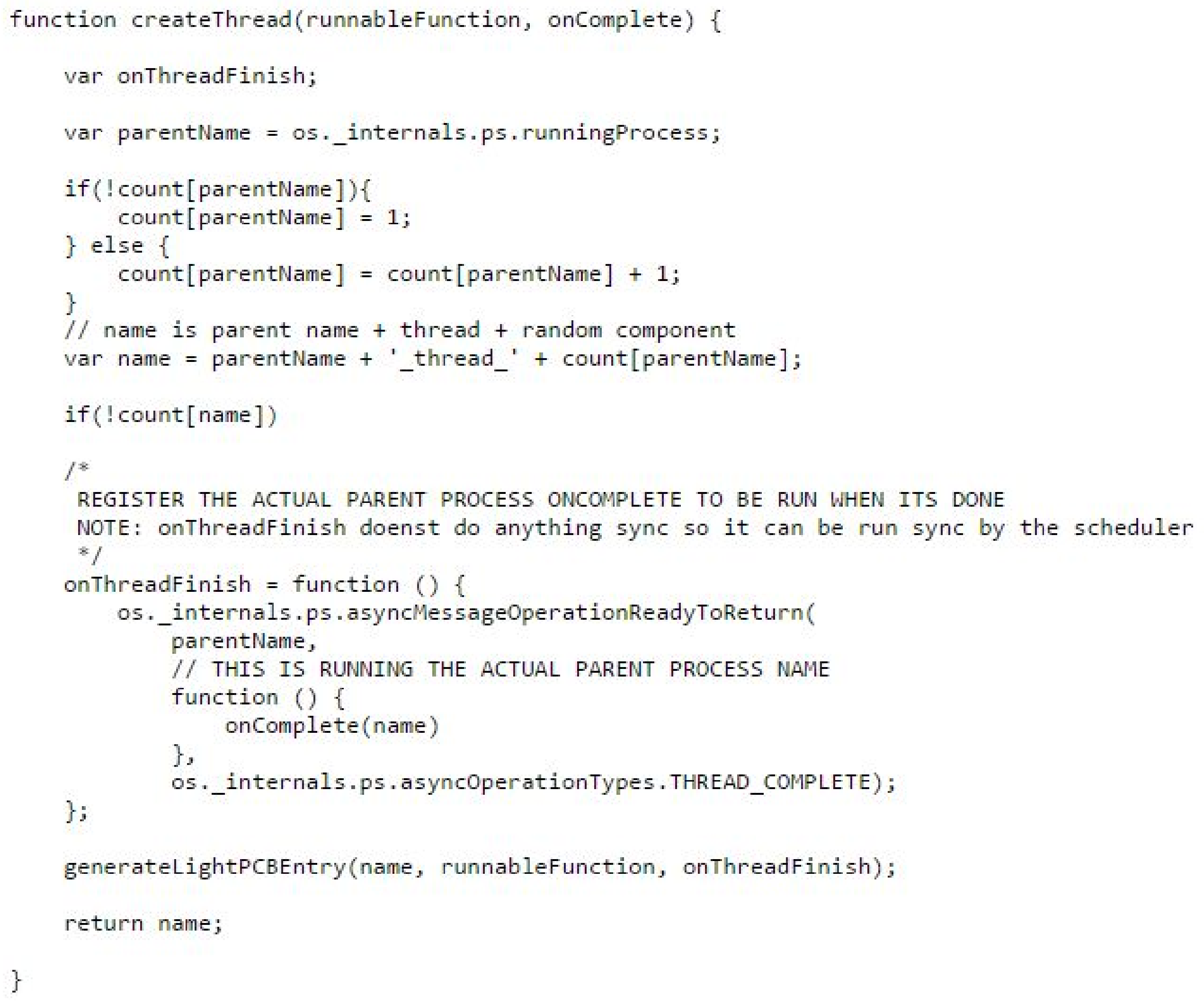
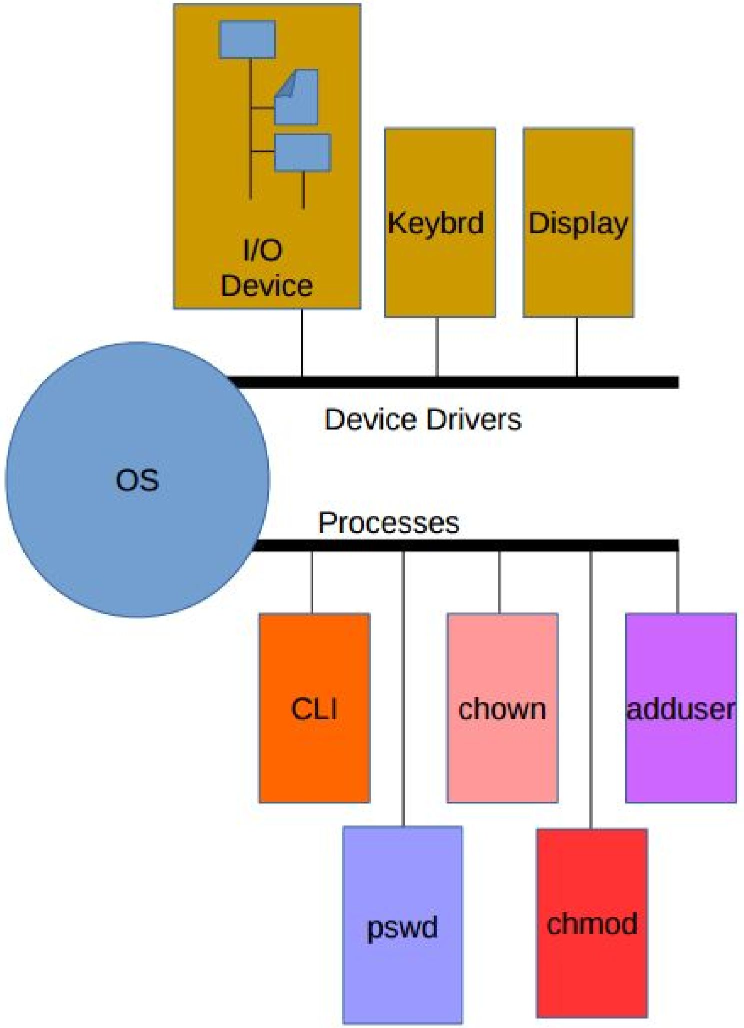
Threads

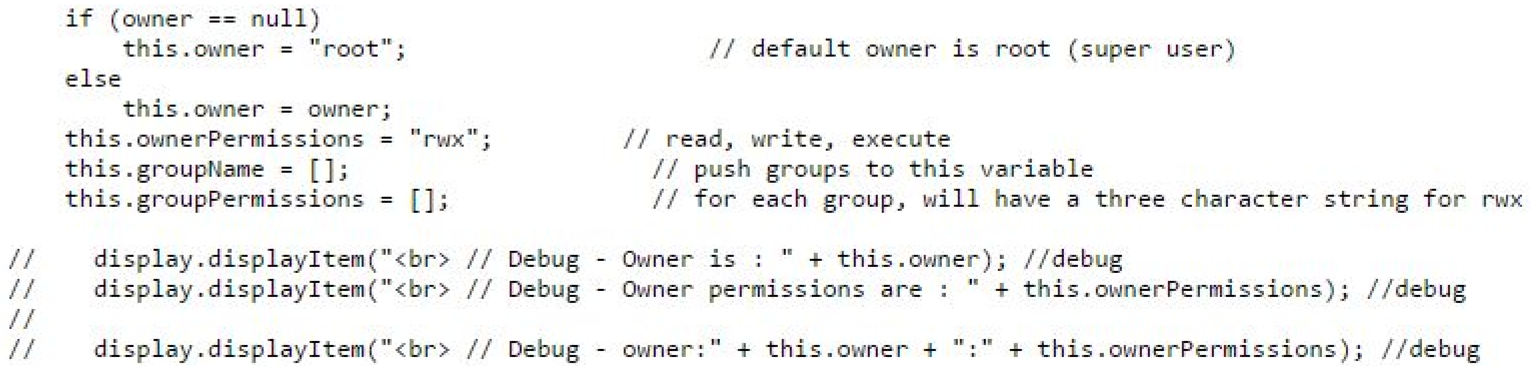


```
function createThread(runnableFunction, onComplete) {

    var onThreadFinish;

    var parentName = os._internals.ps.runningProcess;

    if(!count[parentName]){
        count[parentName] = 1;
    } else {
        count[parentName] = count[parentName] + 1;
    }
    // name is parent name + thread + random component
    var name = parentName + '_thread_' + count[parentName];

    if(!count[name])

    /*
     REGISTER THE ACTUAL PARENT PROCESS ONCOMPLETE TO BE RUN WHEN ITS DONE
     NOTE: onThreadFinish doenst do anything sync so it can be run sync by the scheduler
     */
    onThreadFinish = function () {
        os._internals.ps.asyncMessageOperationReadyToReturn(
            parentName,
            // THIS IS RUNNING THE ACTUAL PARENT PROCESS NAME
            function () {
                onComplete(name)
            },
            os._internals.ps.asyncOperationTypes.THREAD_COMPLETE);
    };

    generateLightPCBEntry(name, runnableFunction, onThreadFinish);

    return name;

}
```

Security


I/O
Device
Keybrd
Display
Device Drivers
OS
Processes
CLI
chown
adduser
pswd
chmod

Security



```
    if (owner == null)
        this.owner = "root";                    // default owner is root (super user)
    else
        this.owner = owner;
    this.ownerPermissions = "rwx";          // read, write, execute
    this.groupName = [];                      // push groups to this variable
    this.groupPermissions = [];               // for each group, will have a three character string for rwx

//    display.displayItem("<br> // Debug - Owner is : " + this.owner); //debug
//    display.displayItem("<br> // Debug - Owner permissions are : " + this.ownerPermissions); //debug
//
//    display.displayItem("<br> // Debug - owner:" + this.owner + ":" + this.ownerPermissions); //debug
```

Thank you very much for all your help!