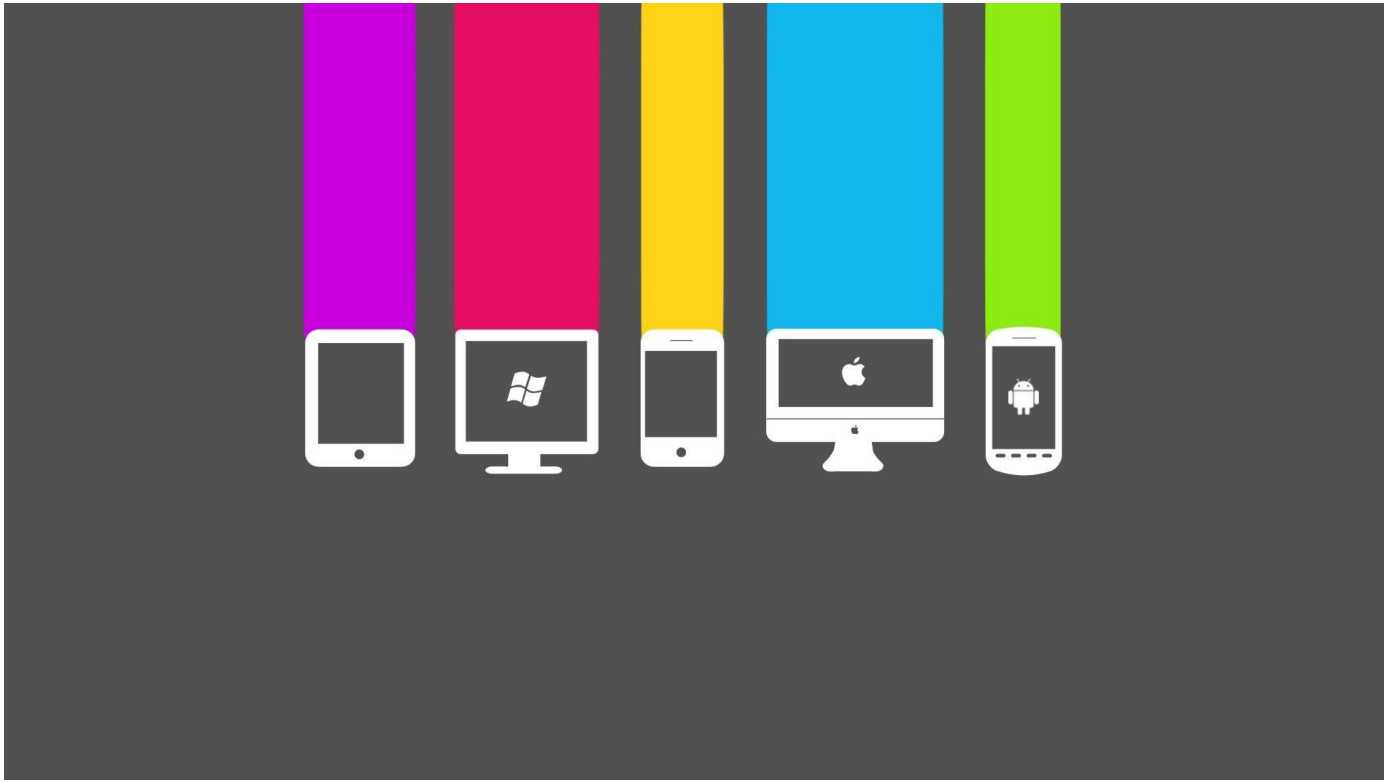
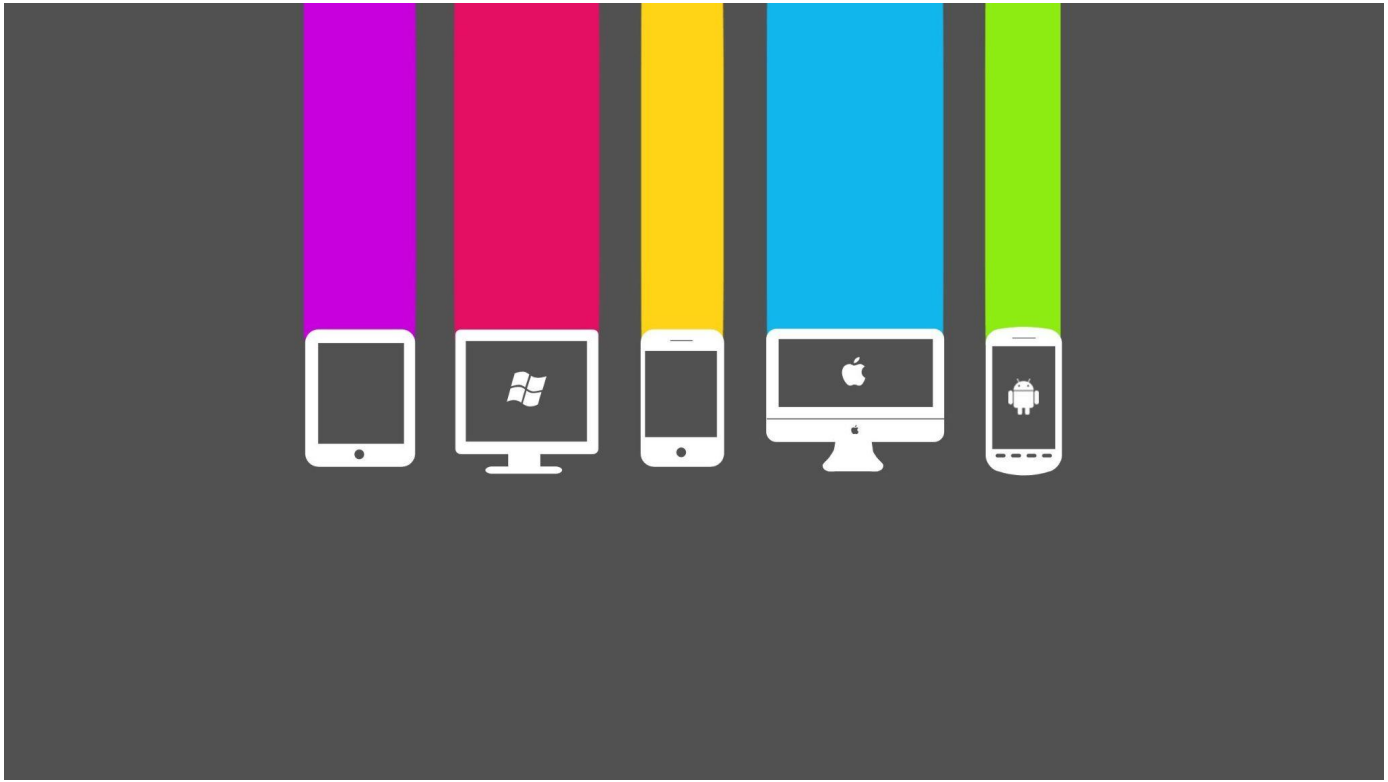
Laboratory 2

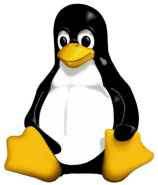


Introduction to Laboratory 2



Introduction to Laboratory 2

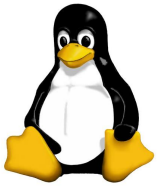
In this session, we will introduce the management of events as a mechanism for communication and synchronization between processes. Additionally, we will discuss aspects related to process concurrency.



Abilities

- Be able to reprogram/wait/send events using the Unix interface between processes. We will practise with: sigaction/sigsuspend/alarm/kill.

- Be able to send events to processes using the command kill.



Previous Knowledge

The signals or events can be sent by other processes or by the system itself automatically, for example when a child processes ends (SIGCHLD) or ends an alarm timer (SIGALRM).
Each process has a table within its PCB where it's written, for each signal, which action has to be realized, which can be: **Ignore the event** (not all events can be ignored), **do the by defect action** that the system has programmed for this event, or **execute a function that the process has defined** explicitly using the sigaction system call. The signal treatment functions must have the following header:

```
void function_name( int number_of_the_signal_received );
```

Previous Knowledge

When the process receives a signal, the system executes the associated treatment to that signal for that process. In the case the treatment is a user-defined function, the function receives as a parameter the signal number that has caused its execution. This allows us to associate a same function to different types of signals and do a differentiated treatment inside this function.

```
void function_name( int number_of_the_signal_received );
```

Previous Knowledge

For this session it is important to know:

`sigaction`	Reprogram the action associated to a particular event	
`kill (system call)`	Send an event to a particular process	
`sigsuspend`	Blocks the process that executes it until it receives a signal (the signals which treatment is to be ignored don't unblock the process)	
`sigprocmask`	Modifies the mask of blocked signals of the calling process	
`alarm`	Program the sending of a SIGALRM signal in N seconds	
`sleep`	C library function that blocks the process during the time passed as a parameter	
`/bin/kill (command)`	Send an event to a process	-L
`ps`	Shows information about the processes in the system	-o pid,s,cmd,time
`waitpid`	Waits for the finalization of a process	WNOHANG