## Batch Operating System

### Scenario

You are working in a payroll department in the 1970s. The company has 1000 payslips to print.

### Simulation Steps

* Students line up holding 'jobs' (pieces of paper with tasks written on them).
* One student is the scheduler: collects jobs into a pile.
* Scheduler processes them all at once, with no interaction from the 'users.'
* At the end, everyone gets their completed job back.

### Key Learning Points

* Handles large volumes of non-interactive jobs.
* Jobs are processed in batches.
* Efficient for repetitive tasks (e.g., payroll, billing).

## Multitasking Operating System

### Scenario

You are on a modern PC running Word, Spotify, and a web browser.

### Simulation Steps

* Three students each act as a program (Word, Spotify, Browser).
* One student is the CPU with a stopwatch/timer.
* Every 5 seconds, the CPU gives attention to a different 'program.'
* Each 'program' says what it’s doing when given CPU time.

### Key Learning Points

* Uses time-slicing so many tasks appear to run at once.
* Interrupts allow urgent jobs to break in.
* Smooth multitasking for the user.

## Real-Time Operating System

### Scenario

You are controlling a self-driving car.

### Simulation Steps

* Students act as sensors: one calls out 'Obstacle!', another calls out 'Turn left!'.
* One student is the CPU: must respond immediately to each input with an action card (e.g., 'Brake!' or 'Turn wheel!').
* Any delay could cause a 'crash.'

### Key Learning Points

* Prioritises immediate responses.
* Used in safety-critical systems (cars, planes, medical devices).
* No tolerance for delay.

## Network Operating System

### Scenario

You are running a computer lab with shared files and printers.

### Simulation Steps

* Several students act as 'users' logging in.
* One student is the server: gives out login permissions and grants access to shared resources (file, printer).
* Users request a file or print job; the server decides if they can access it.

### Key Learning Points

* Provides resource sharing (files, printers).
* Manages user accounts and communication.
* Centralises security and management.

## Mobile Operating System

### Scenario

You are using a smartphone to play music, check messages, and save battery.

### Simulation Steps

* Three students act as apps (Music, Messages, Game).
* One student is the OS: decides which apps run and when.
* When 'battery is low,' the OS shuts down some apps or dims the 'screen' (student holding a sign).
* Apps complain, but OS keeps control.

### Key Learning Points

* Designed for smartphones and tablets.
* Balances low power use with performance.
* Prioritises user experience (smooth multitasking, battery life).