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L:-1

* What is Operating System ?

Ans A piece of Software that manages all the resources of a Computer System, both hardware and Software, and provides an environment where user can executes his programs efficiently.

* Why DBMS ?

Ans If there is no :-

1. Bulky and complex app. (code will also contain the code of memory management). (Violation of DRY (Don't repeat yourself) Principle,
2. Resource will hold by one app at a time.
3. NO memory Management.

- Other things OS Do :-

1. Hides the complexity of the hardware.
2. Acts as an interface between the user and computer hardware.

L:-2

* Goals of an OS :-

1. Maximum CPU utilization.
2. Less Process starvation (like one process taking alot of time and other processes are not getting time to start).
3. High priority jobs. (like anti-virus scan).

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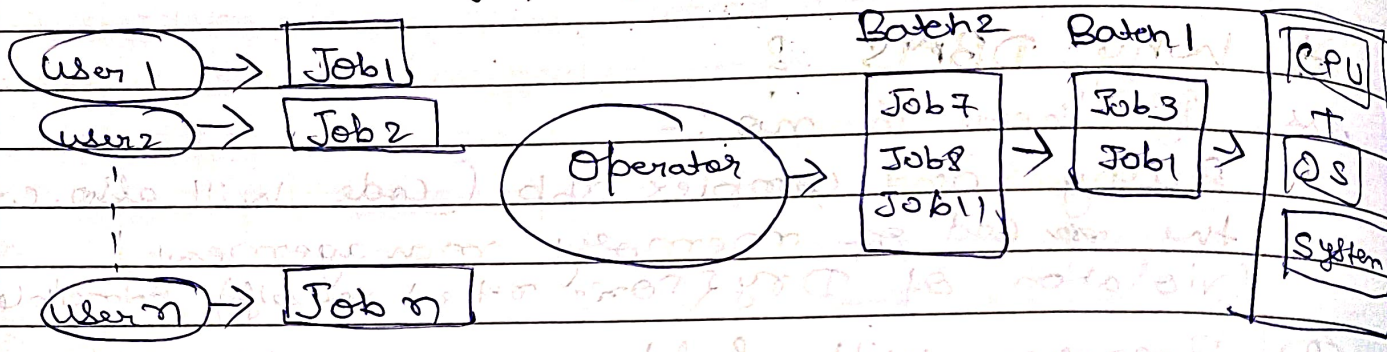
* Types of OS

① **Single process OS** :- At a time only one process will execute. (earlier used OS).
E.g. ⇒ MS DOS.

② **Batch processing OS** :-



- Firstly user prepares an punch card which contains the job in the form of 0 and 1, an scanner reads that and convert it into digital form.
- The operator collects all jobs and make different batches of similar jobs.
- Here Batch 1 has two jobs, Job 3 & Job 1., Job 1 goes for execution like the single process OS then Job 4 and the process goes on.
E.g. ⇒ ATLAS.

* Both the above OS does not full fill the goals of the best OS.

③ **Multi programming OS** :-
- Single CPU is there, makes an ready queue

J1	J2	J3	J4

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- Let's say "J1" goes for execution, in middle of execution it goes for I/O, now CPU will start executing J2 taking from the queue.
- CPU idle time is reduced.
- Context switching :- A way in which if one process goes for I/O then its current state will store in PCB (Process Control Block) a type data structure which stores the process state.
- This OS use context switching.
- e.g. ⇒ THE, Dijkstra

④ Multi-tasking OS

- An extended version of multi-programming OS; Single CPU, able to run more than one task simultaneously.
- It also uses context switching
- New thing used is "time sharing" like every job is alotted a fixed time after that other job is executed.
- This reduce the process starvation.
- e.g. ⇒ CTSS, MIT.

⑤ Multi-processing OS

- More than 1 CPU is used, more reliable, lessar starvation.
- E.g. ⇒ Windows NT.

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(6) Distributed OS

- Many CPU's are there and all are connected through network. & to OS.

E.g.:- LOCUS.

(7) RT OS (Real Time OS)

- An OS which has very very less error.
- These OS are used in Air Traffic Control system and in Nuclear Power Plant.

E.g.:- ATCS.