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Scheme and Semester

R16 CBC Sem VI

Subject : DE

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Q3 A)

1] RAID stands for Redundant array of Inexpensive Disks.

2] It is designed to take multiple physical disks and address them as a single logical unit.

3] The most commonly used RAID technologies are as follows
RAID 0 :

i) It refers to a setup of atleast two disks that are striped at a block level.

ii) Given two disks 0 and 1, block A will be written on disk 0 and so on block B will be written on disk 1 and so on...

iii) This tends to increase write speed and does not sacrifice any storage space, but it increases the fragility of data, as losing half of our blocks.

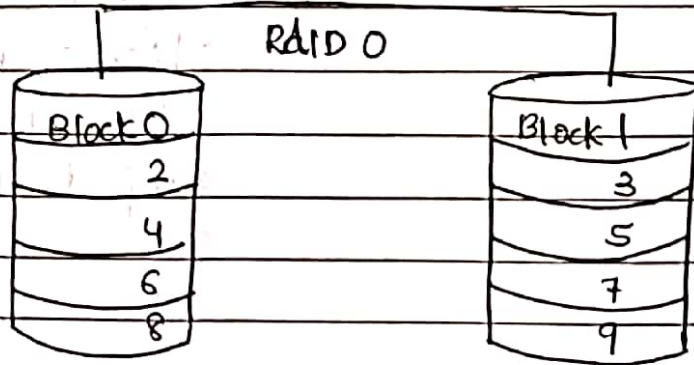
iv) It is great for situations where performance is a priority over other aspects.

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Advantages:

- 1) Performance boost for read and write.
- 2) Space is not wasted as the entire volume of individual disks are used up to store unique data.

Disadvantages:

- 1) There is no redundancy / duplication of data.
- 2) If one of the disks fails, then the entire data will be lost.

RAID 1

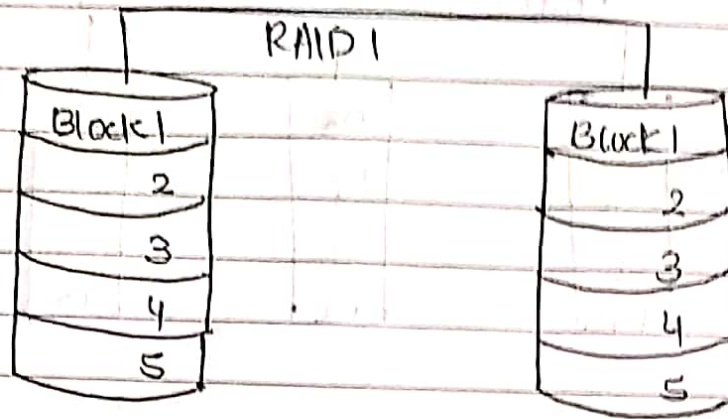
i) It is opposite of RAID 0.

- ii) Blocks are mirrored across pairs of drives.
- iii) There increases read speed and reliability.
- iv) But it also reduces the amount of available storage to half of the physical disk space.
- v) It improves read performance since different blocks of data can be accessed from all the disks simultaneously.

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Advantages:

- 1) Data can be recovered in case of disk failure
- 2) Increased performance for read operation

Disadvantage:

- 1) Slow write performance
- 2) Space is wasted.

RAID 5

- i) It needs atleast 3 disk and performs striping across multiple disks in addition to creating parity blocks.
- ii) These blocks are also striped across disks and are used to remake data in event of drive is lost.
- iii) Here parity information is distributed over all the disks instead of storing them in a dedicated disk.

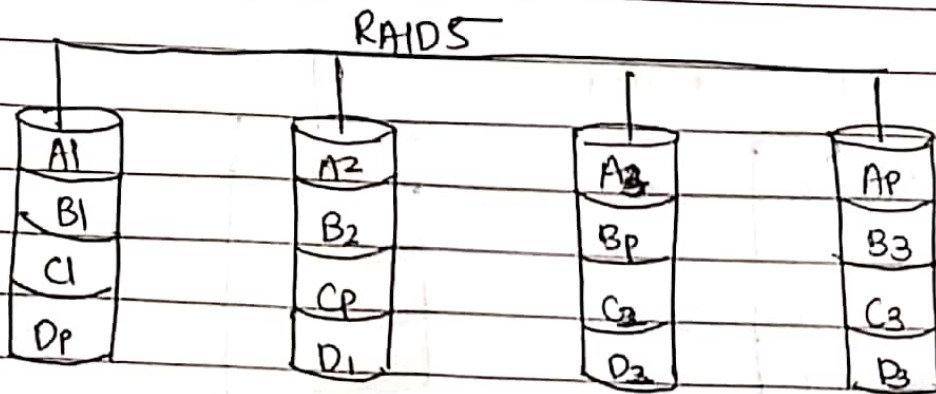
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Advantages

- 1) Efficient data redundancy in terms of cost per unit memory
- 2) performance boost for read operation
- 3) Increased write speed.

Disadvantages

- 1) can only handle upto one disk failure.

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- Q3) D)
- 1] Rule of evidence is also called as Law of evidence.
 - 2] It surrounds the rules and legal principles that govern all the proofs of facts.
 - 3] It helps us to determine what evidence must or must not be considered as a matter of fact.
 - 4] The rules may vary according to the criminal court, civil court, etc.
 - 5] The rules must be:
 - i) Admissible: must be usable in the court.
 - ii) Authentic: The evidence should act positively to an incident.
 - iii) Complete: The proof that covers all the perspectives.
 - iv) Reliable: There ought to be no doubt about the reality of the specialist's decision.
 - v) Believable: The evidence should be understandable and believable to the jury.

6] Rule 103: Rule of evidence.

1. Maintaining a claim of error
2. No renewal of objection or proof
3. Also an offer of proof
4. Plain error taken as notice.

Evidence collection should always be performed to ensure that it will withstand legal proceedings.

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Key criteria for handling such evidence are outlined as follows:

- 1) The proper protocol should be followed for acquisition of the evidence irrespective of whether it is physical or digital.
- 2) Special handling may be required for some situations. For ex. when the device is actively destroying data through disk formatting it may need to be shut down immediately to preserve the evidence.
- 3) All artifacts, should be collected retained and transferred using a preserved chain of custody.
- 4) All materials should be date and time stamped.
- 5) Proper logs should be maintained when transferring possession.
- 6) when storing evidence, suitable access controls should be implemented.

Characteristics of Digital evidence:

These characteristics can help and challenge investigation during an investigation.

- 1) Locard's exchange principle.
- when two items make contact there will be an interchange.
- 2) Digital stream of bits.