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VSAM Interview Questions

VSAM is a unique disk storage system that is short for Virtual Storage Access System. This is used in various applications for managing different types of data times at a time. Also, it is a highly secure form of the data storage system as it stores the disk records in a unique format that cannot be comprehended by any other access methods. **VSAM Interview Questions** are generally based on the concept of this subject, discussion, and the way you answer them. These are mostly technical questions and this will discuss the most important **VSAM Interview Questions**. You will be facing both subjective and objective questions based on VSAM. So we will focus on **VSAM interview questions** and their answers.

Q1. What is a VSAM dataset?

There are three types of datasets access methods used by VSAM. A dataset is a physical record made into a collection which is stored in disks. It is identified by MVS with labels.

- **ESDS** - Entry Sequence Data Set. This contains all files that are interface specific. It can be accessed through Relative Byte Address.
- **KSDS** - Key Sequence Data Set. This also contains files that are interface specific. It can be accessed through a secondary index.
- **RRDS** - Relative Data Set. It contains interface specific files and can be accessed through Relative Record Number.

All the records in VSAM files are either fixed or variable in length. They are all organized in fixed-size blocks which are known as Control Intervals. It is measured in bytes. When the size increases they are called Control Areas. These are measured in disk tracks or cylinders.

Q2. Explain about the file objects in VSAM?

Every file in VSAM has two objects which define this storage system.

- **File object -** File object represents the entire file itself. You can use the method like Delete, Read, Rewrite, Write, Unlock, StartBr and perform those actions.
- **FileBrowse object -** This represents the browse operations in a file. The methods used in this are Enable, ReadNext, ResetBr, ReadPrv and perform these activities on IDCAMS (Integrated Data Cluster Access Method Services) or TSO prompt.

The **IDCAMS** is a utility that is used to create, modify or delete the datasets in VSAM. This is an Access Method Service(AMS). It is capable of handling both VSAM and non-VSAM datasets.

Q3. Differentiate between Control Interval (CI) and Control Area (CA).

Control Interval	Control Area
CI is represented in the unit of 1/0	CA is represented in the unit of cylinders
The unit range is from 512 bytes to 32 KB	The maximum size of one record is 1 cylinder
It is the smallest unit for datasets	CA is a group of control intervals.
It offers good performance for sequential processing.	The performance of CA depends upon the reserved space during the time of data set creation.

The one similarity between Control Interval and Control Area is the way of filling them. Both follow the same steps to fill in these with data.

Q4. Explain the process in which flat files are converted into VSAM files.

Flat files can be converted into VSAM files with this process.

- First, identify the primary key or the whole record can be the primary key top. You can also use the alternate key if necessary.
- All the files are to be sorted by the primary key or by the whole record.
- The "Sort" command can be used to delete all the duplicates from files.
- One JCL/ IDCAMS command needs to be submitted with the result got by sorting mechanism. This result should be input.
- Finally, the IDCAMS command for "Repro" should be used to load the flat file into a VSAM file.
- In this way, one can convert flat files into a VSAM file.

Q5. Differentiate between CI split and CA split.

CI split	CA split
All records in CI can be moved freely into another CI	In CA split, half of the records of one CA into another new CASmith
The final result is half empty CI on the contrary to a full CI and one empty CI	The final result is half full CA on the contrary to a full CA and one empty CA

Q6. What are the information stored in CI?

CI (Control Interval) consists of Record Descriptor Field (RDF) and Control Interval Descriptor Field (CIDF). Every CI will consist of one CI which consists of the last 4 bytes. This CIDF has all the information about the length of free space in CI and also the offset. If the fixed size records are used, then the every CI contains 2 RDF which is of 3 bytes each. The size of the index portion can be of 512, 1024, 2048, and 4096. The data portion in every CI should be stored in the multiples of 512 or 2048 bytes only.

Q7. State the differences between VSAM and non-VSAM files.

The major **difference between VSAM and non-VSAM files** are as follows -

VSAM file	Non-VSAM files
Only the AMS program is used for the creation	Both JCL and ISPF can be used
Data set organization is key-sequenced, entry-sequenced, and Relative record sequence.	Data set organization is sequenced, indexed sequentially, direct, and partitioned.

Q8. What are the different commands used in IDCAMS for VSAM?

There are six main commands that are Alter, Define, Delete, Listcat, Print, and Repro. The Alter command is used for modifying the data for an index, cluster, catalog or paths. Define is used for alternate index. Delete removes the data from index or catalog. Listcat gives a list of commands used in which the information is contained in the dataset. Print command prints the contents of datasets. Repro is used to produce a copy of records from one file to another file.

Q9. Discuss record management in VSAM.

To maintain all the records and the dataset, record management is used. There are few organizations within VSAM that perform these activities.

KSDS is key-sequenced data set that stores data in a sequence with reference to the keyword.

RRDS is a fixed-length relative record database that keeps all the records with a fixed length.

VRRDS is a variable-length relative record database and it stores data records of various lengths.

LDS is a linear dataset and this stores data in a linear way with reference to the keyword.

Q10. Explain the function of entry-sequenced data set?

The major function of an entry-sequenced data set is to identify the dataset and then enable its access to the physical location. It also specifies the byte address for every dataset and displays the relationship at the beginning of dataset. Thus, every dataset is ordered sequentially for easy maintenance of records. A person can access the dataset using the physical location based upon the order of entry. As the records are related to the byte address these cannot be deleted. However, the addition of records is possible.

Q11. What is the main function of key-sequenced data set?

Key-sequenced dataset checks every record method to enable access to the location of data. It is based on the unique keyword declared at the beginning of a record. Since it maintains the record using the value provided along with data, it is simple to locate. It also maintains the total number of keywords present in one cluster along with the index, number of characters etc.

Q12. Explain the function of the relative record data set.

The relative record data is managed by creating a relative record with the previous datasets. That is relative records are identified and are accessed through a number of records related to the first dataset. It has only one component which is a data component which maintains the set in a linear manner. It is limited only to a fixed number of records. The number of records that can be present in the dataset is based on the record position of data. Both sequential and random access to records is available in this type of dataset. It is ideal for maintaining disk records.

Q13. What is the main function of linear dataset?

The linear dataset consists only of data component and stores data in a linear manner. This is helpful when one has to take a print of all the records. This avoids confusion and makes location easy. This consists of byte addresses through which records can be located. These are used in virtual storage. This dataset has no boundaries that are there are no CIs assigned for this linear dataset.

Q14. Tell about the AMS used in VSAM

The catalogs in VSAM can be created and maintained using several utility programs. Catalogs contain the data spaces for the data that is arriving and it has enough space required by every dataset. VSAM used IDCAMS as the AMS that gives simple commands for creation, modification and deleting of records. These enable easy to use interface and can be used with simple commands.

Q15. Describe the uses of AMS?

Access Method Services (AMS) are used to easily load all the VSAM data using the structure that is fed while creating. It enables one to add as many details as possible. The interface is simple and one can define the dataset using plenty of data entries. Also, there are data fields provided that can be directly connected to the control area.

Q16. What is VSAM?

VSAM (Virtual Storage Access Method) is a file storage access method that is used in MVS, ZOS and OS/390 operating systems. It is a high-performance access method that is used for organizing data in the form of files in Mainframes.

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