IMS DB ONLINE TRAINING – DAY 6

DLI PROCESSING

Sequential Processing:-

Database is processed in cursor sequence from Root

(Top-Down, Left-Right among different segment types in any levels, Front-Back of twins within same segment type).

Order of retrieval of data is determined by the **physical hierarchical order in the database**. Usually CALL is given without a SSA or an unqualified SSA (Only Segment Type) or in a GNP call. It works based on the **logical view** defined in that PCB.

Random Processing:-

Database is searched for a value specified in the **qualified SSA from Start of the database every time for GU calls** from the current cursor position in the database for GN calls

Common Status Codes (PCB Status)

The following table shows some common status codes returned from the various retrieval calls.

(blank)	Call was successful.
GA	DL/I returned a segment at a level higher in the hierarchy.
GB	Logical end of data base.
GE	Segment not found.
GK	DL/I returned a different segment type at the same level.
GP	Parentage never established prior to a GNP call.

SEGMENT SEARCH ARGUMENT

There are 2 types of calls to IMS based on presence of absence of a SSA.

UNQUALIFIED CALL:-

CALL without any SSA. IMS determines what segment to process. For retrieval calls, IMS retrieves the next segment occurrence. For Update calls, IMS processes the segments that have been held

QUALIFIED CALL:-

CALL with one or more SSAs. Application program provides SSA telling IMS which segment to process

SEGMENT SEARCH ARGUMENT

There are two types of SSAs as given below:-

1) An Unqualified SSA (9 bytes)
2) Qualified SSA

1) An Unqualified SSA

Specifies the segment type that program is interested in. We don't indicate a specific segment occurrence of data value to process instead mention only segment type.

Ex;- 01 W-PATIENT-SSA PIC X(09) VALUE 'PATIENT'.

First 8 Bytes – SEGMENT NAME
Last Byte - Blank

1	2	3	4	5	6	7	8	9
P	**A**	**T**	**I**	**E**	**N**	**T**	b	b

b – Blank

SEGMENT SEARCH ARGUMENT

Qualified SSA

Specifies the segment type along with segment occurrence that we are interested in. We can use the primary key field or search fields defined in DBD to do random processing. Also, more than one search criteria can be mentioned by combining with Boolean operators AND (&) , OR(|).

Position	Description
1-8	Segment Name
9	Open Parenthesis - (
10-17	Primary key of Search key field from DBD
18-19	Relational Operator (EQ,NE,LE,GE,LT,GT)
20-XX	Data Value
XX+1	Close Parenthesis -)

SEGMENT SEARCH ARGUMENT

```
          DBD      NAME=DPSPAYRP,ACCESS=(HISAM,VSAM)
DATASET   DD1=FPSPAYRP,OVFLW=FPSPAYRO
SEGM      NAME=PSEMPLYR,PARENT=0,BYTES=50
FIELD     NAME =(EMPLYCOD,SEQ,U),BYTES=9,                          X
               START=1,TYPE=C
SEGM      NAME=PSPAYCKR,PARENT=PSEMPLYR,BYTES=50
FIELD     NAME=(PAYDATE,SEQ),BYTES=6,                              X
               START=1,TYPE=C
FIELD     NAME=PAYAMT,BYTES=4,START=7,TYPE=P
DBDGEN
END
```

```
01 EMPL-SSA.
       05     EMPL-NAME     PIC X(08) VALUE 'PSEMPLYR'.
       05     FILLER PIC X(01) VALUE '('.
       05     EMPL-FLD      PIC X(09) VALUE 'EMPLYCOD'.
       05     FILLER PIC X(02) VALUE 'EQ'.
       05     EMPL-CODE     PIC X(09) VALUE 'WAL100001'.
       05     FILLER PIC X(01) VALUE ')'.
```

DLI FUNCTION (ISRT CALL)

Adding Segment Occurrence to an Existing Database

- Segment Occurrence is added at the cursor position.
- Unqualified SSA is given with the Segment Name that we are inserting.
- We need to make sure that cursor is placed at the appropriate parent before issuing Insert call, so previous call decides where we are going to insert the current segment occurrence.

If you want to insert a root segment, cursor position of the previous call doesn't matter.

Status Codes

Blank - Denotes successful insertion of Segment occurrence

II – Duplicate key value is being inserted to. Segment occurrence already exists.

IX – Program is trying to insert a segment occurrence in a wrong place.

DLI FUNCTION (REPL CALL)

We need to Read the Segment Occurrence that we intend to update through a Get Hold call (GHU or GHN or GHNP) and then issue the REPL call.

Read and get the Segment occurrence to be updated. Change the I-O area without disturbing any key field (fields defined as U – Unique in DBD).

Now, do a REPL call without SSA. A REPL call uses unqualified SSAs, if Get Hold call is a Path call.

Any intervening call between the GET HOLD calls and the REPL call will nullify the effect of GET HOLD call. Thus an exclusive release call is not required if you decide not to update after the Get hold calls.

Status Codes

Blank - Denotes successful replacement of Segment occurrence

DJ – Replace call is issued without an immediately preceding GET HOLD call

DA – Replace call is trying to change the key field

DLI FUNCTION (DLET CALL)

We need to Read the Segment Occurrence that we intend to update through a Get Hold call (GHU or GHN or GHNP) and then issue a delete call.

Read and get the Segment occurrence to be deleted. Now, do a DLET call without SSA. A DLET call uses unqualified SSAs, if Get Hold call is a Path call.

A DLET call will delete the current segment occurrence and all its corresponding children in lower level. If you delete a root segment occurrence, it is then going to delete all its subordinate segment occurrences.

Any intervening call between the GET HOLD calls and the REPL call will nullify the effect of GET HOLD call. Thus an exclusive release call is not required if you decide not to delete after the Get hold calls.

Status Codes

Blank - Denotes successful deletion of Segment occurrence

DJ – Delete call is issued without an immediately preceding GET HOLD call

End of Day 6