

Internal Table Operations in SAP ABAP

Internal table operations are most important for an ABAP developer. Following are the operations which can be performed on Internal Tables which are listed below:

APPEND

APPEND statement is used to append or add a record from work area to internal table, the new record will be added at the end of the internal table.

Syntax: APPEND <WA> TO <ITAB>
DATA: IT_MARA TYPE TABLE OF MARA.
DATA : WA_MARA TYPE MARA.
WA_MARA-MATNR = '00001'.
WA_MARA-MTART = 'FERT'.
WA_MARA-MEINS = 'EA'.
APPEND WA_MARA TO IT_MARA . "APPEND WORK AREA TO INTERNAL TABLE

INSERT

INSERT statement is used to insert or add a record from work area into internal table at the specified location

Syntax: INSERT <WA> INTO <ITAB> INDEX <index>
DATA: IT_MARA TYPE TABLE OF MARA.
DATA: WA_MARA TYPE MARA.
WA_MARA-MATNR = '00001'.
WA_MARA-MTART = 'FERT'.
WA_MARA-MEINS = 'EA'.
INSERT WA_MARA INTO IT_MARA INDEX 2 . "The record will be inserted into internal table at 2nd position

SORT

SORT is used to sort a Internal table data in ascending order or descending order, by default it will sort the data in ascending order. In addition to this we can able to sort data based on specified fields.

Syntax1: SORT <ITAB> . "Default sorts data in ascending order
Syntax2 : SORT <ITAB> DESCENDING . " Sort in descending order
Syntax3: SORT <ITAB> BY <FIELD1> <FIELD2>...ASCENDING/DESCENDING . "It sorts data by specified fields <FIELD1>, <FIELD2>..

DESCRIBE TABLE

DESCRIBE TABLE is used to count the no of records in a internal table

Syntax: DESCRIBE TABLE <ITAB> LINES <v_lines> ." Count the no. Of

record of an internal table, here v_lines store count
DATA : V_LINES TYPE I. "Type integer
DESCRIBE TABLE IT_MARA LINES V_LINES ." Count the no. of record of a internal table
Write: v_lines .

READ TABLE WITH INDEX

READ TABLE WITH INDEX is used to read a single record from an internal table into work area specified by index.

Syntax: READ TABLE <ITAB> INTO <WA> INDEX <index_no>
." Read a record into work area using index (position)
READ TABLE IT_MARA INTO WA_MARA INDEX '2'. "Read a record into work area where index is 2.

LOOP...ENDLOOP.

Loop...Endloop. is also used to read data from a internal table into work area, this is used to read multiple records serially one after one .

Syntax1: LOOP AT <ITAB> INTO <WA> .

ENDLOOP.

Syntax2: LOOP AT <ITAB> INTO <WA> WHERE <FIELDS1> = <VALUE> .

ENDLOOP.

Syntax3: LOOP AT <ITAB> INTO <WA> FROM <INDEX1> TO <INDEX2>.

ENDLOOP.

MODIFY

MODIFY is used to modify a single or multiple internal table records based on condition

TRANSPORTING is a keyword which is used to specify a list of fields to be modified instead of all fields.

Syntax1: MODIFY <ITAB> FROM <WA> INDEX <INDEX NO> TRANSPORTING <FIELD1> <FIELD2>

Syntax1: MODIFY <ITAB> FROM <WA> TRANSPORTING <FIELD1><FIELD2> WHERE <CONDITION>
SY-TABIX is a key word which stores the index no of currently processed record.

DATA: IT_MARA TYPE TABLE OF MARA.
DATA: WA_MARA TYPE MARA.

SELECT * FROM MARA INTO TABLE IT_MARA . " GET DATA INTO ITAB IT_MARA

WA_MARA-MTART = 'FERT'; "ASSIGN A VALUE TO WORKAREA TO MODIFY INTERNAL TABLE

MODIFY IT_MARA FROM WA_MARA INDEX SY-TABIX TRANSPORTING MTART. " NOW THE VALUE OF FIELD MTART WILL BE MODIFIED FOR CURRENT RECORD IN IT_MARA

DATA: IT_MARA TYPE TABLE OF MARA.
DATA: WA_MARA TYPE MARA.

SELECT * FROM MARA INTO TABLE IT_MARA. " GET DATA INTO ITAB IT_MARA

WA_MARA-MTART = 'FERT'; "ASSIGN A VALUE TO WORKAREA TO MODIFY INTERNAL TABLE

MODIFY IT_MARA FROM WA_MARA TRANSPORTING MTART WHERE MATNR = '0001'. " NOW THE VALUE OF FIELD MTART WILL BE MODIFIED WHERE MATNR = '0001' IN ITAB

DELETE

DELETE is used to delete single or multiple records from an internal table from work area based on some condition.

Syntax1: DELETE <ITAB> INDEX <INDEX NO>.

Syntax2: DELETE <ITAB> WHERE <FIELD1> = <FIELD1 VALUE>

<FIELD2> = <FIELD2 VALUE>.

DELETE IT_MARA INDEX 3. "3rd RECORD WILL BE DELETED IN IT_MARA

DELETE IT_MARA WHERE MTART = 'FERT'. "MATERIALS WITH MTART = 'FERT' WILL BE DELETED

DELETE ADJACENT DUPLICATES

DELETE ADJACENT DUPLICATES is used to delete duplicate records which are adjacent to each-other. Pre-requisite for this is the internal table must be sorted in ascending order

Syntax1: DELETE ADJACENT DUPLICATES FROM <ITAB>.

"ADJACENT DUPLICATES WILL BE DELETED IN INTERNAL TABLE COMPARING ALL FIELDS

Syntax2: DELETE ADJACENT DUPLICATES FROM <ITAB> COMPARING <FIELD1> <FIELD2>.

"ADJACENT DUPLICATES WILL BE DELETED COMPARING SPECIFIED FIELDS

SORT IT_MARA ASCENDING.

DELETE ADJACENT DUPLICATES FROM IT_MARA.

"3rd RECORD WILL BE DELETED IN IT_MARA

SORT IT_MARA ASCENDING.

DELETE ADJACENT DUPLICATES IT_MARA COMPARING MATR, MTART. "DUPLICATES WILL BE DELETED BY COMPARING MATNR AND MTART

CLEAR, REFRESH, FREE

CLEAR is used to clear a value in a work area or in a variable.

REFRESH is used to clear all values in an internal table.

FREE is used to clear (free) memory of an internal table or work area. We all know whenever we declare an internal table or work area, 8kb memory will be allocated.

Syntax clear : CLEAR <WA> "CLEAR WORK AREA OR VARIABLE

Syntax REFRESH: REFRESH <ITAB> "CLEAR ALL RECORDS OF INTERNAL TABLE BUT MEMORY WILL BE THERE

Syntax FREE : FREE <WA> "FREE INTERNAL TABLE MEMORY
CLEAR WA_MARA.

REFRESH IT_MARA.

FREE IT_MARA.

APPEND LINES OF

APPEND LINES OF is used to append multiple records to an internal table from another internal table.

Syntax : APPEND LINES OF <ITAB1> FROM <index no> TO <index no2>
TO <ITAB2>.

DATA: IT_MARA TYPE TABLE OF MARA. "FIRST INTERNAL TABLE

DATA: IT_MARA1 TYPE TABLE OF MARA. "SECOND INTERNAL TABLE

APPEND LINES OF IT_MARA FROM 3 TO 5 TO IT_MARA1.

"DATA IN IT_MARA WILL BE APPENDED TO IT_MARA1 FROM INDEX 3 TO INDEX 5.

INSERT LINES OF

INSERT LINES OF is used to INSERT multiple records to an internal table from another internal table at the specified location.

Syntax : INSERT LINES OF <ITAB1> FROM <index no> TO <index no2>
INTO <ITAB2> INDEX <index no>.

DATA: IT_MARA TYPE TABLE OF MARA. "FIRST INTERNAL TABLE

DATA: IT_MARA1 TYPE TABLE OF MARA. "SECOND INTERNAL TABLE

INSERT LINES OF IT_MARA FROM 3 TO 5 INTO IT_MARA1 INDEX 3.

"DATA IN IT_MARA WILL BE INSERTED INTO IT_MARA1 FROM INDEX 3 TO INDEX 5 AT INDEX 3 LOCATION.

MOVE

MOVE keyword is used to move one internal table data to another.

Syntax: <ITAB2[]> = []> . "Move ITAB1 to ITAB2

COLLECT

COLLECT is similar to APPEND, the difference is it (COLLECT) will check whether the work area record already exists with the same key (only C, D, N, T), if exists it will add numerical fields (sum) to the existing record, if the work area record does not exist it will append a new record.

Syntax: COLLECT <WA> INTO <ITAB>.