

SAP
ABAP HR

Programming in HR

HR-ABAP

Knowledge of

- ✓ ABAP Programming
- ✓ Logical Database
- ✓ Module pool programming
- ✓ SAP Scripts

Training will cover

- Brief description of modules in SAP-HR
- Concept of Infotypes
- Infotype Structures
- Creation of infotype
- Enhancement of infotype
- HR Macros
- Use of Provide statement
- Cluster reading for Payroll results
- Example of PA letters infotype (Customer defined)

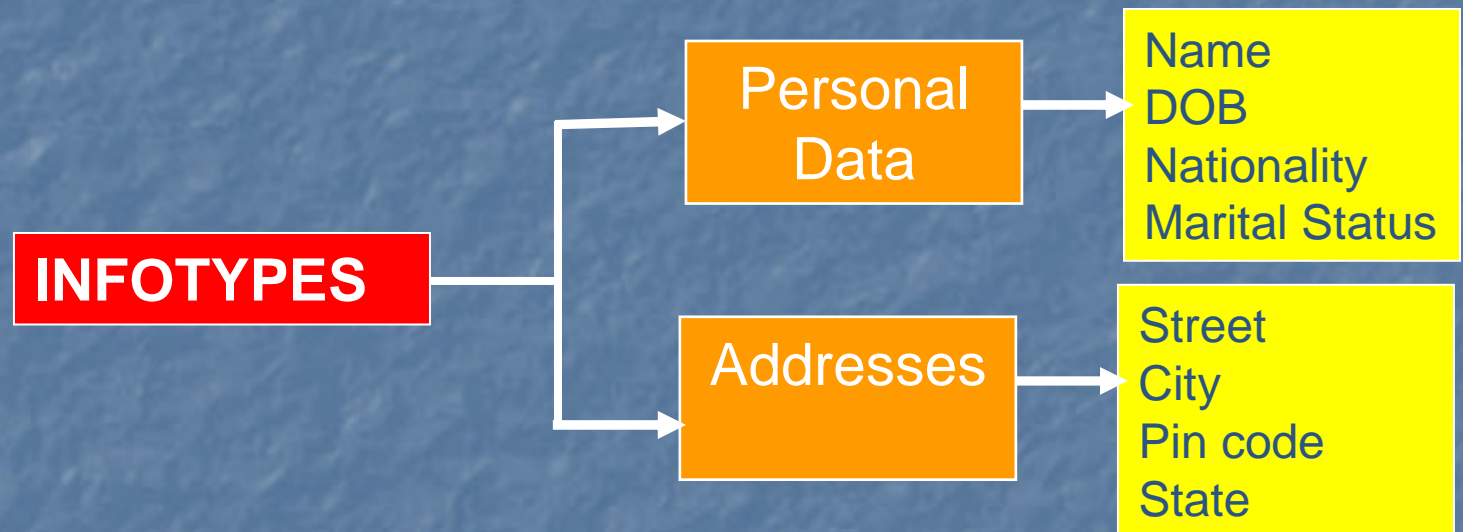
Modules in SAP-HR

- Personnel Management (PA)
- Time Management (PT)
- Recruitment (PB)
- Organizational Management (OM)
- Personnel Development (PD)
- Training & Event Management (TM)

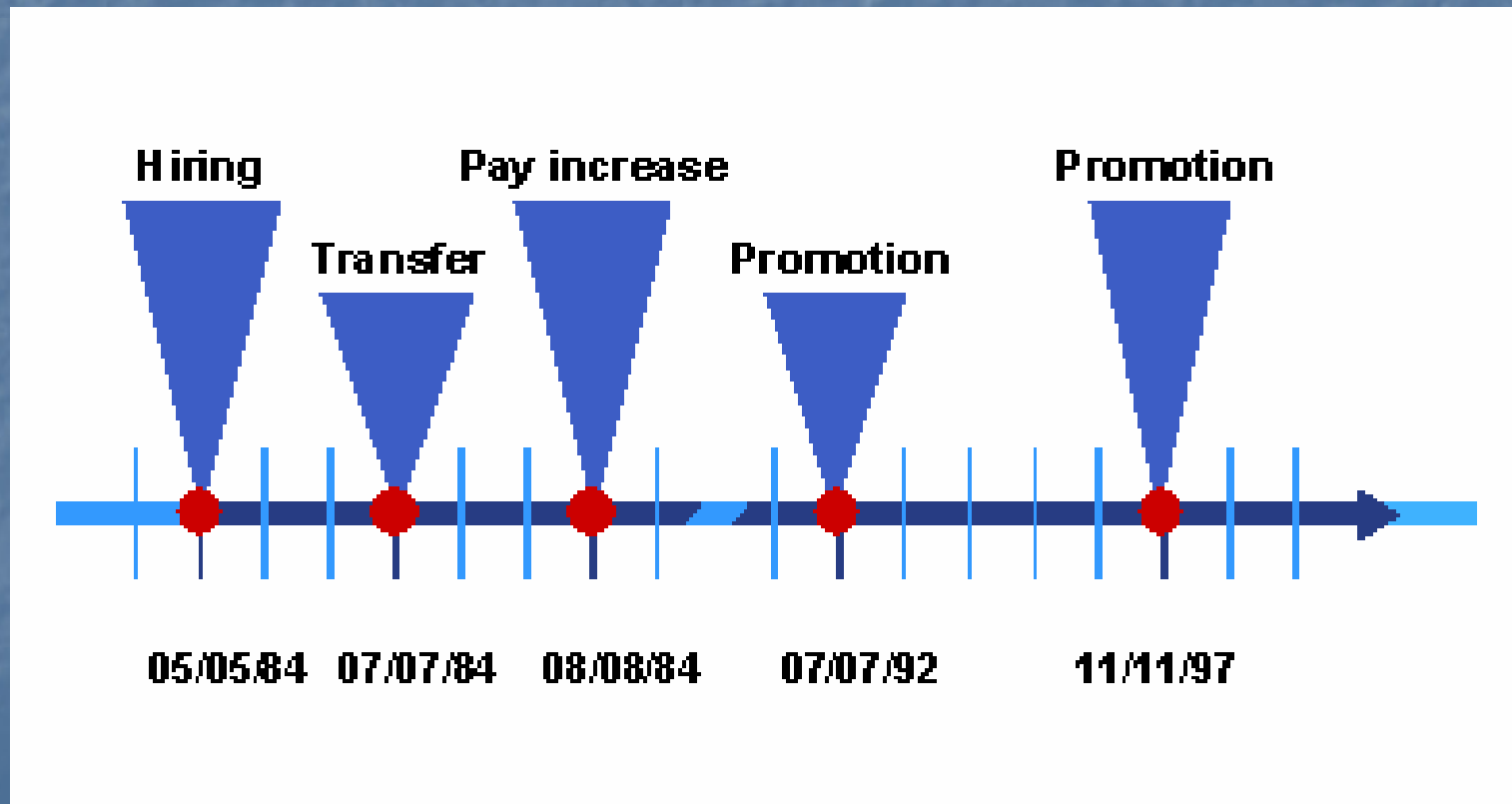
Definition

Units of information.

- To group related data fields



- Maintaining Employee Information by Date



Infotype Numbers

- Four digit number *nnnn*
- Unique identification
- **9000** to **9999** reserved for customer infotypes

Naming conventions for Infotypes

- 0000 to 0999 – HR Master data / Applicant data
- 1000 to 1999 – Organizational Management
- 2000 to 2999 – Time data
- 4000 to 4999 – Applicant data
- 9000 to 9999 – Customer defined

Definition of Infotype within the Data Dictionary

Each infotype *nnnn* requires at least two structures and one table:

- Structure *PSnnnn*

Structure *PSnnnn* contains all of the infotype data fields.

- Structure *Pnnnn*

Structure *Pnnnn* contains infotype key fields and all of the data fields from structure *PSnnnn*.

- Transparent table *PAnnnn* and/or transparent table *PBnnnn*

Transparent table *PAnnnn* is required if you want to use an infotype within Personnel Administration.

If you want to use an infotype within Recruitment, transparent table *PBnnnn* is required.

In accordance with the distribution of infotype name ranges, objects *P9nnn*, *PS9nnn*, *PA9nnn* and *PB9nnn* are assigned to the customer name range.

Infotype Module Pool

- A module pool should be used with each infotype. This module pool is the main program for the maintenance interface for the infotype.
- The name of the program is **MPnnnn00**. Where P stands for Human Resources (personnel) and nnnn is the four-digit infotype number.

Infotype-specific Includes

The main program only contains INCLUDE statements. If you create the main program using transaction PM01 *Dialogs in HR*, the system also creates the following four includes:

| Name of include | The include contains |
|-----------------|--|
| MPnnnn10 | The PROGRAM statement and the declaration of common data objects |
| MPnnnn20 | PBO modules for the screens |
| MPnnnn30 | PAI modules for the screens |
| MPnnnn40 | subroutines |

Infotype-specific Includes

The system also inserts **INCLUDE** statements in the main program for the following includes:

| Name of include | Use |
|-----------------|---|
| FP50PPSB | Declaration of common data objects This data area is used as a buffer for imported infotype records and maintenance information. The variables specified in this area are used as export or import parameters when the infotype dialog module is accessed. |
| MPPDAT00 | Declaration of common data objects |
| MPPERS00 | Standard infotype modules |
| MPPIRC00 | Definition of infotype return codes |
| MPPREF00 | Definition of two data objects that contain the number of reference personnel numbers in structure P0031 or P0121 |

Infotype Screens

Each infotype has at least three screens:

- An initial screen
- A single screen
- A list screen

Initial Screens

- Initial screen is used as technical interface
- Screen 1000 is used for all infotypes
- Processed in background and not displayed
- Performs general initialization procedures

Initial Screens - Preview

The screenshot displays the SAP 'Maintain HR Master Data' interface. The window title is 'Maintain HR Master Data'. The menu bar includes 'HR master data', 'Edit', 'Goto', 'Extras', 'Utilities', 'Settings', 'System', and 'Help'. The toolbar contains various icons for navigation and actions. The main data area shows the following information:

- Personnel no.: 2578
- Name: Ramchander Parmanand Dimri
- EE group: 1 Active employee
- Pers.area: ABAD Ahmedabad Asset
- EE subgroup: E1 ONGC EXEC E1

Below the data area are tabs for different data categories: 'Basic personal data', 'Organisational Data', 'Medical Data', 'Education Data', 'I.R. Data', 'Salary Data', and 'Time Data'. The 'Basic personal data' tab is active, showing a list of data categories with checkboxes and a 'Period' selection area.

| Category | Status |
|---------------------------|-------------------------------------|
| Actions | <input checked="" type="checkbox"/> |
| Addresses | <input checked="" type="checkbox"/> |
| Communication | <input checked="" type="checkbox"/> |
| Family/Related Person | <input checked="" type="checkbox"/> |
| Monitoring of Dates | <input checked="" type="checkbox"/> |
| Organizational Assignment | <input checked="" type="checkbox"/> |
| Personal Data | <input checked="" type="checkbox"/> |
| Personal IDs/Passport NOC | <input checked="" type="checkbox"/> |
| Print Office Orders | <input checked="" type="checkbox"/> |
| Resume Texts | <input checked="" type="checkbox"/> |

The 'Period' section includes a radio button for 'Period' (selected), a 'Fr.' field, a 'To' field, and several other radio button options: 'Today', 'All', 'From curr.date', 'To current date', 'Curr.period', 'Curr.week', 'Current month', 'Last week', 'Last month', and 'Current year'. A 'Choose' button is located below these options.

At the bottom, there is a 'Direct selection' section with an 'Infotype' field and an 'STy' field. The system status bar at the bottom right shows 'SUD (1) (350)', 'shramikd', 'OVR', and '09:12'. The Windows taskbar at the very bottom shows the Start button, several application icons, and the system clock '9:12 AM'.

Single Screens

- Its an interface between the system and the user.
- It enables to create, display or maintain data records.
- Screen 2000 is used for single screen.

Single Screen - Preview

Display Basic Pay

Infotype Edit Goto Wage types Extras System Help

Payments and deductions

Personnel no. **2578** Name **Ramchander Parmanand Dimri**
 EE group **1** Active employee Pers.area **ABAD** Ahmedabad Asset
 EE subgroup **E2** ONGC EXEC E2
 From **01.01.2003** to **31.12.9999** Chng **24.07.2002** **350MANISH**

Payment type **0** Basic contract
 Reason **02** Pay Anomalies Rectification

Pay scale

Type **0N** ONGC PAY SCALE TYPE
 Area **AH** ONGC Pay Scale Area
 Group **W4** Level **01**

Further information

Capacity util. level **100.00** % PER
 Work hours/period **173.00** Monthly
 Ann. salary **0.00** INR

| Wage | Wage type name | Op | Amount | Currenc | Inc | Ad | Number | Unit |
|------|----------------|----|-----------|---------|-----|-------------------------------------|--------|------|
| 9001 | Basic Pay | | 12,000.00 | INR | | <input checked="" type="checkbox"/> | 0.00 | |
| 9002 | Personal D A | | 100.00 | INR | | <input checked="" type="checkbox"/> | 0.00 | |
| 9005 | Special Pay | | 3,000.00 | INR | | <input checked="" type="checkbox"/> | 0.00 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

SUD (1) (350) shramikd OVR 09:13

Start Microsoft Pow... Local Disk (D:) SAP Logon 46D Display Ba... 9:13 AM

List Screen

- Unables to list all records in infotype
- Screen 3000 is used for list screen

List Screen - Preview

List Basic Pay

Infotype Edit Goto Extras System Help

Payments and deductions

Personnel no. **2578** Name **Ranchander Parmanand Dimri**

EE group **1** Active employee Pers.area **ABAD** Ahmedabad Asset

EE subgroup **E1** ONGC EXEC E1

Choose **01.01.1800** to **31.12.9999** STy.

| | STy | Re | Start date | End date | Ty | Ar | PS group | Lv | Amount | Total amount | |
|--------------------------|-----|----|------------|------------|----|----|----------|----|-----------|--------------|----|
| <input type="checkbox"/> | 0 | 02 | 01.01.2003 | 31.12.9999 | ON | AH | W4 | 01 | 12,000.00 | 15,100.00 | IN |
| <input type="checkbox"/> | 0 | 03 | 10.01.2002 | 31.12.2002 | ON | AH | W4 | 01 | 11,300.00 | 12,600.00 | IN |
| | | | | | | | | | | | |
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Update Reminder
Click here to set up automatic updates for your computer.

Start Microsoft Pow... Local Disk (D:) SAP Logon 46D List Basic ... 09:13 AM

Infotype Screen Control

- Through customization some field are made hidden.
- Attributes are specified during runtime.
- The appearance of the screens changes depending on the function chosen by the user.

Infotype Time Constraint

A time constraint indicates whether more than one infotype record may be available at one time. The following time constraint indicators are permissible:

- 1 No overlapping and no gaps.
- 2 No overlapping but time gaps are permitted.
- 3 Overlapping and and time gaps are permitted.

Other Possible Time Constraint

- A** Only one record may exist, valid from 01/01/1800 to 12/31/9999. Splitting and deletion is not permissible.
- B** Only one record may exist, valid from 01/01/1800 to 12/31/9999. Splitting is not permissible, but may be deleted.
- T** The time constraint varies depending on the subtype.
- Z** Refers to time management infotypes.

Infotype Characteristics

The following tables must be maintained for each infotype:

| Name of table | Task |
|---------------|--|
| T582A | Basic infotype characteristics (database tables, single screen, list screen, time constraint, dialog module, and so on) |
| T582S | Infotype short texts |
| T777A | Technical Characteristics of Infotype (database table, dialog module, and so on) |
| T77ID | Name of data field structure (PSnnnn) |

Transaction code

'PM01'.

Creating PA infotypes – PM01

The screenshot shows the SAP PM01 'Create Infotype' dialog box. The main window has a menu bar with 'Infotype', 'Edit', 'Goto', 'Utilities', 'System', and 'Help'. Below the menu bar is a toolbar with various icons. The dialog box is titled 'Create Infotype' and has two tabs: 'Infotype characteristics' (selected) and 'Technical characteristics'. The dialog box contains the following fields and options:

- Infotype no.: 9999
- Dev. class: \$TMP
- Buttons: All, Create
- Radio buttons: Employee infotype, Applicant infotype, Both
- Subsubjects section:
 - PS structure
 - Module pool
 - Screen
 - User interface
- Buttons: Create, Edit

The status bar at the bottom right shows 'S01 (1) (800) | bomsun01 | OVR'.

Creating PA infotypes – Maintain Structure

The screenshot shows the SAP Dictionary: Maintain Structure interface. The title bar includes 'Structure', 'Edit', 'Goto', 'Utilities', 'Extras', 'Environment', 'System', and 'Help'. The SAP logo is visible in the top right corner. Below the title bar, there are navigation icons and buttons for 'Hierarchy display' and 'Append structures...'. The main area displays the structure details for 'PS9999' (Active) with the short text 'test infotype'. Below this, there are tabs for 'Attributes', 'Components', 'Entry help/check', and 'Currency/quantity fields'. The 'Components' tab is active, showing a table with the following data:

| Component | Component type | DTyp | Length | Dec.p... | Short text |
|-----------|----------------|------|--------|----------|------------|
| NAME | | CHAR | 40 | 0 | name |
| | | | | | |
| | | | | | |
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At the bottom of the interface, there is a status bar showing 'S01 (1) (800)', 'bomsun01', and 'OVR'.

Creating PA info types – Infotype Table (Primary Key)

Table Edit Goto Utilities Extras Environment System Help

Dictionary: Display Table

Transparent table **PA9999** Active Technical settings (Ctrl+Shift+F9)

Short text HR Master Record: Infotype 9999

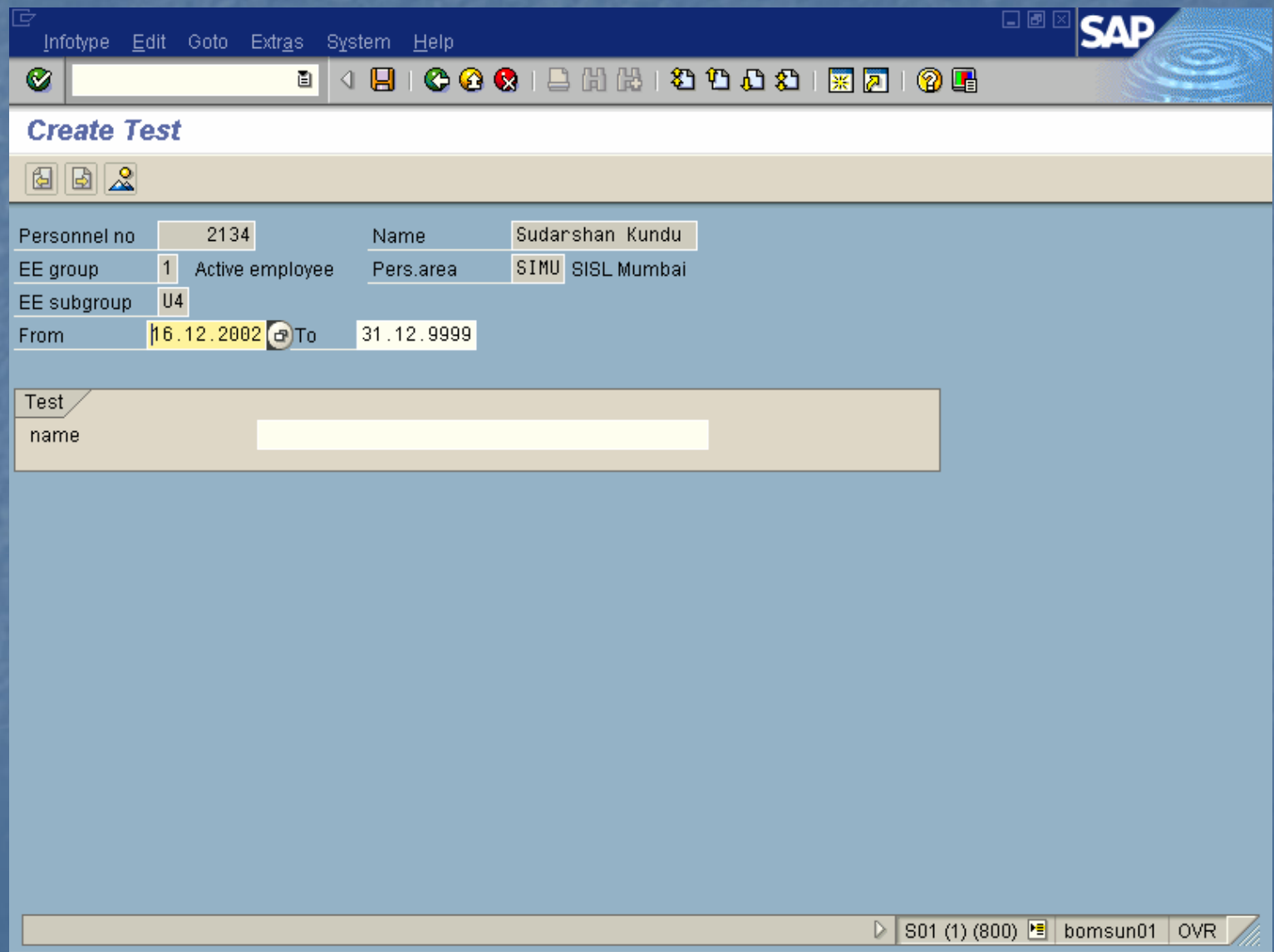
Attributes Fields Currency/quant. fields

New rows Data element/Direct type

| Fields | Key | Init | Field type | Data... | Lgth. | Dec.p... | Check ta... | Short text |
|--------------|-------------------------------------|-------------------------------------|---------------|---------|-------|----------|---------------|---|
| MANDT | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | MANDT | CLNT | 3 | 0 | | Client |
| . INCLUDE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>PAKEY</u> | | 0 | 0 | | Key for HR Master Data |
| <u>PERNR</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>PERSNO</u> | NUMC | 8 | 0 | <u>PA0003</u> | Personnel number |
| <u>SUBTY</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>SUBTY</u> | CHAR | 4 | 0 | | Subtype |
| <u>OBJPS</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>OBJPS</u> | CHAR | 2 | 0 | | Object identification |
| <u>SPRPS</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>SPRPS</u> | CHAR | 1 | 0 | | Lock indicator for HR master record |
| <u>ENDDA</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>ENDDA</u> | DATS | 8 | 0 | | End Date |
| <u>BEGDA</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>BEGDA</u> | DATS | 8 | 0 | | Start date |
| <u>SEQNR</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>SEQNR</u> | NUMC | 3 | 0 | | Number of infotype record with same key |
| . INCLUDE | <input type="checkbox"/> | <input type="checkbox"/> | PSHD1 | | 0 | 0 | | HR Master Record: Control Field |
| . INCLUDE | <input type="checkbox"/> | <input type="checkbox"/> | PS9999 | | 0 | 0 | | test infotype |

S01 (1) (800) bomsun01 OVR

Creating PA infotypes – Preview



The screenshot shows the SAP ABAP HR 'Create Test' dialog box. The title bar includes 'Infotype', 'Edit', 'Goto', 'Extras', 'System', and 'Help'. The main area contains the following fields:

| | | | |
|--------------|-------------------|-----------|------------------|
| Personnel no | 2134 | Name | Sudarshan Kundu |
| EE group | 1 Active employee | Pers.area | SIMU SISL Mumbai |
| EE subgroup | U4 | | |
| From | 16.12.2002 | To | 31.12.9999 |

Below the fields is a 'Test name' field with a text input area.

The status bar at the bottom right shows: S01 (1) (800) | bomsun01 | OVR

Enhancement of PA Infotype

1. Start the Personnel Administration infotype copier (PM01)
2. Enter the infotype number.
3. Choose Enhance infotype.

Enhancing a Single Screen

- Start transaction PM01
- You access the *Create Infotype* screen:
- Choose *Enhance Infotypes*.
- In the *Infotype no.* field, enter the four-digit number of the infotype you want to create. When you specify the infotype number, please remember to enter any leading zeros.
- In the *Sub-Objects* group box, flag *CI Include*.
- Choose *Create*. The *Dictionary: Initial Screen* is displayed.
- Create the CI include.
- Choose *Activate*.
- Return to the *Create Infotype* screen.
- Choose *Create All*.

Result

You have included additional fields in the standard single field for an infotype

Enhancing a Single Screen – PM01

The screenshot shows the SAP ABAP HR 'Enhance Standard Infotypes' dialog box. The window title is 'Enhance Standard Infotypes'. The menu bar includes 'Enhancement', 'Edit', 'Goto', 'Utilities', 'System', and 'Help'. The toolbar contains various icons for navigation and actions. The main area has a tabbed interface with tabs for 'IT', 'IT', '@ IT', '@ Lst scm', 'IT', and 'Action menu'. The 'IT' tab is active, showing the following fields:

- Infotype no.: 0001
- Dev.class: \$TMP

Below these fields is a 'Subobjects' section with three radio button options:

- CI include
- Module pool
- Include screen 0200

At the bottom of the dialog are three buttons: 'Create', 'Edit', and 'Modify funct. areas'. The status bar at the bottom right shows 'S01 (1) (800) | bomsun01 | OVR'.

Enhancing a Single Screen – Screen Preview

Infotype Edit Goto Extras System Help

SAP

Change Organizational Assignment

Org Structure

Enterprise structure

| | | | | |
|-----------|------|--------------------------|------------|-------------------|
| CoCode | SISL | Siemens Info Systems Ltd | Leg.person | |
| Pers.area | SIMU | SISL Mumbai | Subarea | SIAN SISL Andheri |
| Cost ctr | | | Bus. area | |
| Funds ctr | | | Fund | |

Personnel structure

| | | | | | |
|-------------|----|-----------------|-----------|----|---------|
| EE group | 1 | Active employee | Payr.area | 01 | Monthly |
| EE subgroup | U4 | | Contract | | |

Organizational plan

| | | | | |
|------------|----------|-----------|---------------|------|
| Percentage | 100.00 | | Administrator | |
| Position | 50018018 | Posn1 | Group | TORA |
| Job key | 50018017 | Job1 | Personnel | |
| Org. unit | 50018016 | Test Unit | Time | |
| Org.key | SIMU | | Payroll | |
| | | | Supervise | |

Additional fields

| | |
|------------|--|
| test field | |
|------------|--|

S01 (1) (800) bomsun01 OVR

Enhanced Field

Enhancing PA Infotype – CI INCLUDE

Only those PA Tables can be Enhanced, having structure CI Include

The screenshot shows the SAP Dictionary: Display Table interface for table PA0000. The table is active and its short text is 'HR Master Record: Infotype 0000 (Actions)'. The 'Fields' tab is selected, showing a list of fields. A blue callout bubble labeled 'CI_P0000' points to the last row in the table, which is a control field for the CI_P0000 structure.

| Fields | Key | Init. | Field type | Data... | Lgth. | Dec.p... | Check ... | Short text |
|----------|-------------------------------------|-------------------------------------|------------|---------|-------|----------|-----------|---|
| MANDT | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | MANDT | CLNT | | 3 | 0 T000 | Client |
| .INCLUDE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | PAKEY | | 0 | 0 | | Key for HR Master Data |
| .INCLUDE | <input type="checkbox"/> | <input type="checkbox"/> | PSHD1 | | 0 | 0 | | HR Master Record: Control Field |
| .INCLUDE | <input type="checkbox"/> | <input type="checkbox"/> | PS0000 | | 0 | | | HR Master Record: Infotype 0000 (Actions) |
| MASSN | <input type="checkbox"/> | <input type="checkbox"/> | MASSN | CHAR | 2 | | 0 T529A | Action type |
| MASSG | <input type="checkbox"/> | <input type="checkbox"/> | MASSG | CHAR | 2 | | 0 T530 | Reason for action |
| STAT1 | <input type="checkbox"/> | <input type="checkbox"/> | STAT1 | CHAR | 1 | | 0 T529U | Customer-defined status |
| STAT2 | <input type="checkbox"/> | <input type="checkbox"/> | STAT2 | CHAR | 1 | | 0 T529U | Employment status |
| STAT3 | <input type="checkbox"/> | <input type="checkbox"/> | STAT3 | CHAR | 1 | | 0 T529U | Special payment status |
| .INCLUDE | <input type="checkbox"/> | <input type="checkbox"/> | CI_P0000 | | 0 | 0 | | |

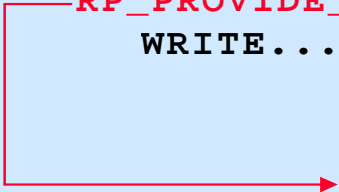
At the bottom of the screen, the status bar shows 'S01 (1) (800) | bomsun01 | OVR'.

- RP_PROVIDE_FROM_LAST
- RP_PROVIDE_FROM_FIRST
- RP_SET_DATA_INTERVAL
- RP_READ_INFOTYPE

Macro Modules

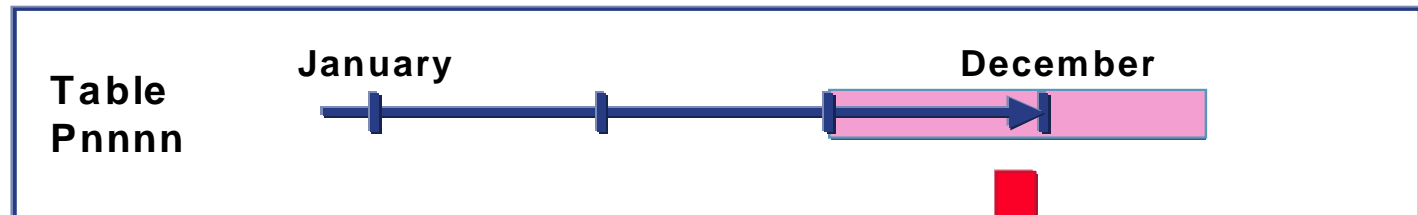
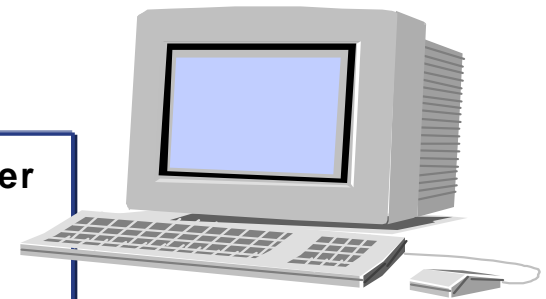
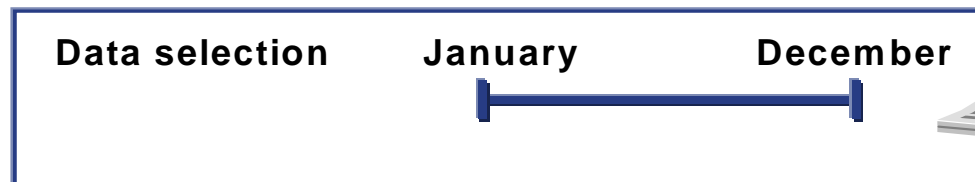
```
TABLES: PERNR.  
INFOTYPES:0001,      "Organizational Assignment  
           0002,      "Personal Data  
           0006,      "Addresses  
           ....  
  
GET PERNR.  
  RP_PROVIDE_FROM_LAST P0001 SPACE PN-BEGDA PN-ENDDA.  
  WRITE...
```

```
* * * Include program DBPNPMAC.  
  
DEFINE RP_PROVIDE_FROM_LAST.  
  PNP-SW-FOUND = '0'.  
  . . .  
END-OF-DEFINITION.
```



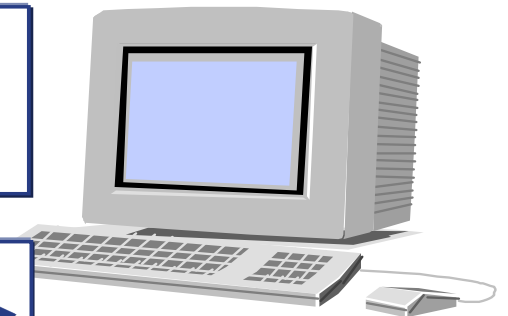
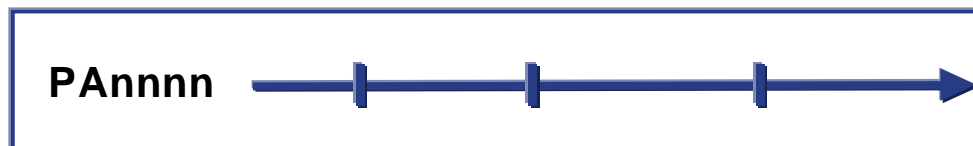
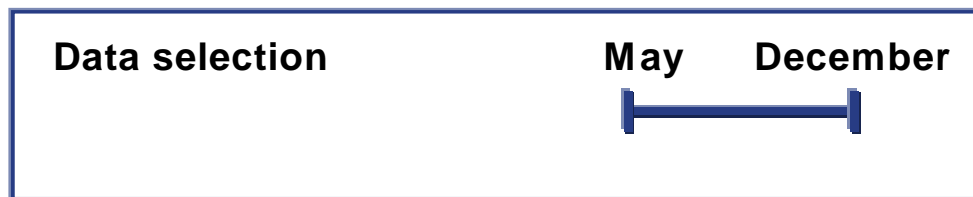
Infotype Record Processing

Processing a Specific Infotype Record

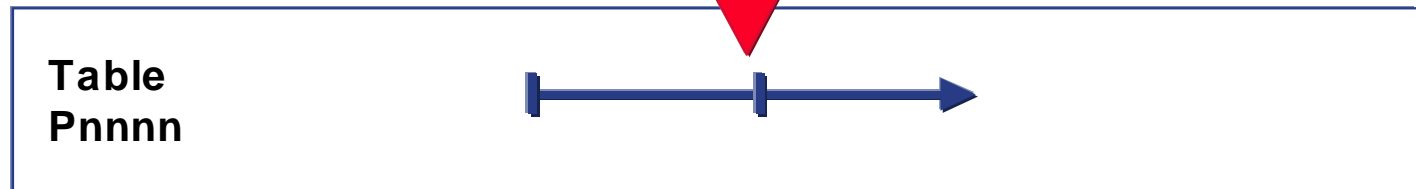


```
GET PERNR.  
RP_PROVIDE_FROM_LAST <Pnnnn> SPACE PN-BEGDA PN-ENDDA.  
IF PNP-SW-FOUND = 1.  
    WRITE...  
ENDIF.
```

Importing Specific Infotype Records



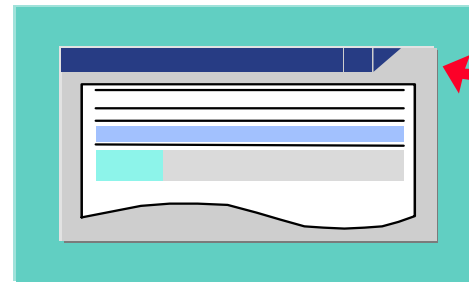
```
START-OF-SELECTION.  
RP_SET_DATA_INTERVAL 'PAnnnn>' PN-BEGDA PN-ENDDA.  
  
GET PERNR.
```



Reading Infotypes Without Logical DB (1)



```
INFOTYPES: <nnnn>.  
...  
CALL FUNCTION  
'HR_READ_INFOTYPE!...
```



Reading Infotypes Without Logical DB (2)

```
INFOTYPES: 0002.
DATA: return LIKE SY-SUBRC.

CALL FUNCTION 'HR_READ_INFOTYPE'
  EXPORTING
    . . .
    PERNR           = <person>
    INFTY           = '0002'
    BEGDA           = <begdat>
    ENDDA           = <enddat>

  IMPORTING
    SUBRC           = return

  TABLES
    INFTY_TAB       = P0002

  EXCEPTIONS
    INFTY_NOT_FOUND = 1
    OTHERS          = 2.
```

HR Macro – Summary

- Many HR reports use macros. Their program codes are stored in a table or defined locally using the DEFINE keyword.
- The PR_PROVIDE_FROM_LAST macro writes the last valid record in the data selection period to the header line of the internal info type table.
- You can use the function module HR_READ_INFOTYPE to read the personnel data in reports which do not use an HR logical database.

Use of PROVIDE Statement

- PROVIDE – ENDPROVIDE is a loop to process *Pnnnn* tables, within the validity period.
- Two or more infotypes can be processed in a single PROVIDE – ENDPROVIDE loop.
- Combines JOIN and PROJECTION.
- Reads time-dependent table entries.

Functions of Logical Database PNP

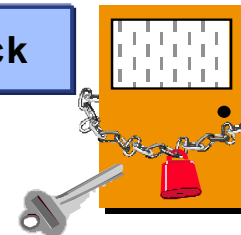
1. Data retrieval



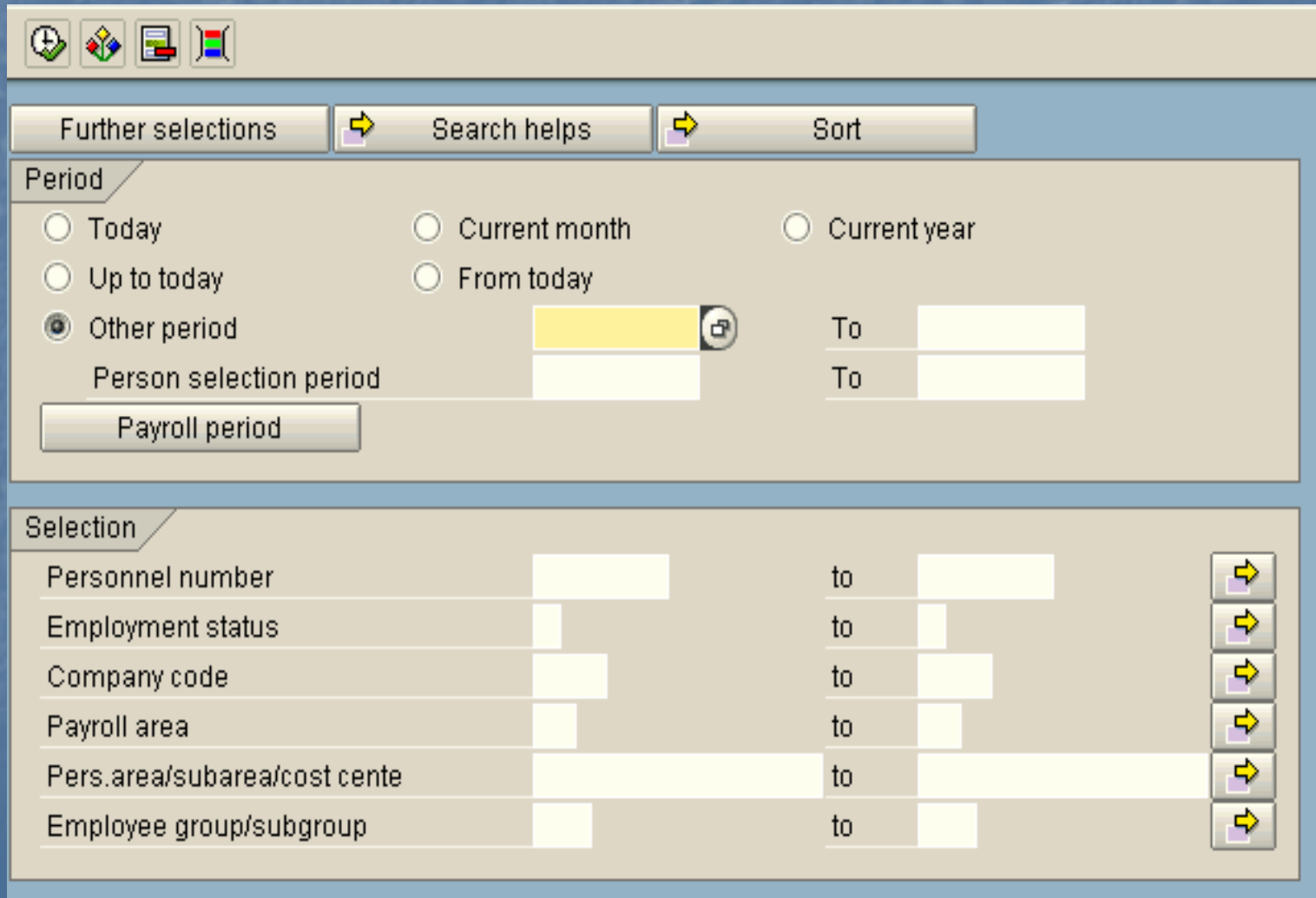
2. Screening



3. Authorization check



Logical database PNP - Screening



The screenshot shows the SAP Logical database PNP - Screening interface. At the top, there are four icons: a clock, a search icon, a document icon, and a list icon. Below these are three buttons: "Further selections", "Search helps", and "Sort".

The "Period" section contains the following options:

- Today
- Up to today
- Other period
- Current month
- From today
- Current year

Under "Other period", there are two date input fields. The first is labeled "Person selection period" and has a yellow highlight. The second is labeled "Payroll period". To the right of these fields are two "To" labels with corresponding input fields.

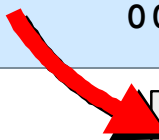
The "Selection" section contains a table with the following rows:

| Field | From | To | Action |
|------------------------------|----------------------|-------------------------|--------|
| Personnel number | <input type="text"/> | to <input type="text"/> | |
| Employment status | <input type="text"/> | to <input type="text"/> | |
| Company code | <input type="text"/> | to <input type="text"/> | |
| Payroll area | <input type="text"/> | to <input type="text"/> | |
| Pers.area/subarea/cost cente | <input type="text"/> | to <input type="text"/> | |
| Employee group/subgroup | <input type="text"/> | to <input type="text"/> | |

Data Retrieval

1. Create data structures for infotypes

```
INFOTYPES: 0001,  
           0002,  
           0007.
```



"Organizational Assignment "
"Personal Data"
"Planned Working Time"

2. Fill the data structures with the infotype records

```
GET PERNR.
```

Processing Master Data

```
TABLES: PERNR.  
INFOTYPES:0001,      "Actions  
           0002,      "Personal Data  
           0006,      "Addresses  
           ....  
  
GET PERNR.  
  PROVIDE * FROM P0002 BETWEEN PN-BEGDA AND PN-ENDDA.  
  WRITE...  
  
ENDPROVIDE.
```


Loop Nesting

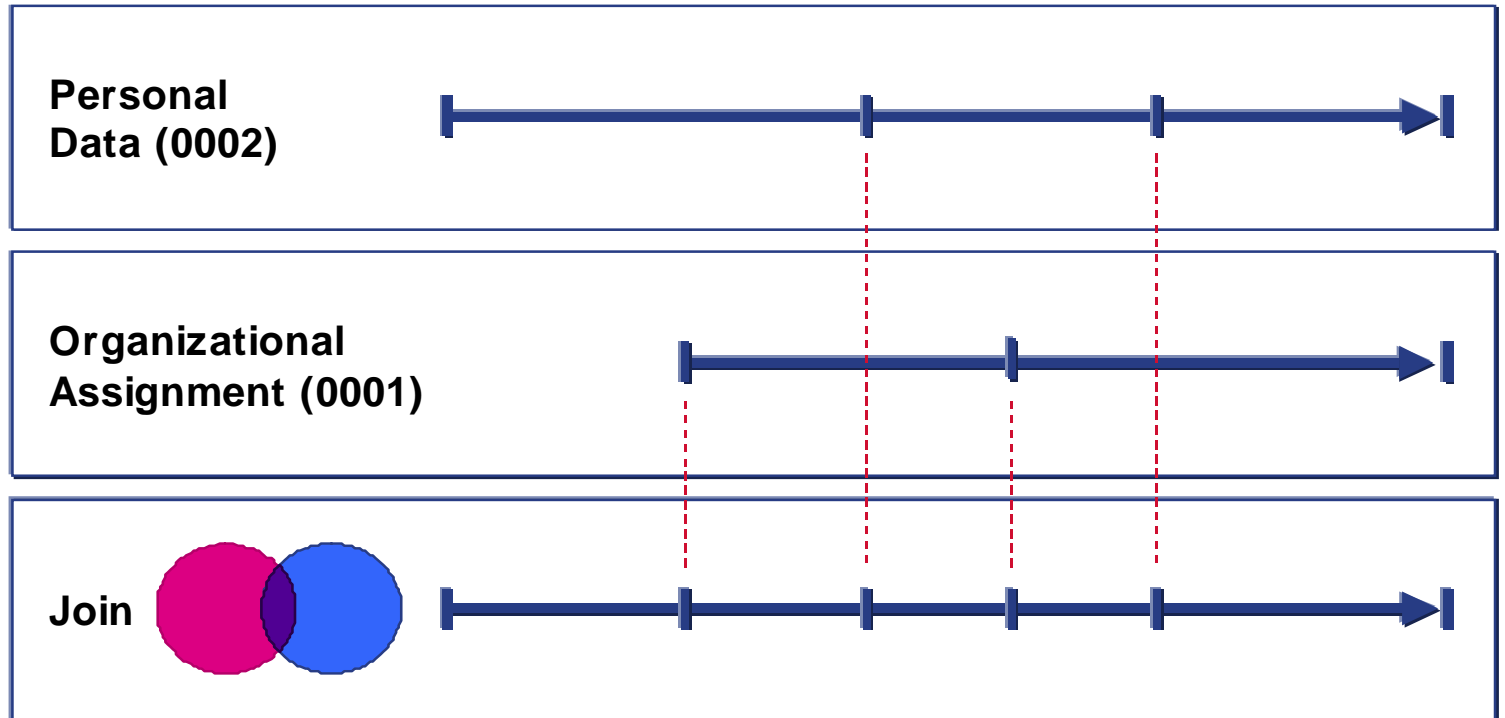
```
GET PERNR.  
  PROVIDE * FROM P0002  
    BETWEEN PN-BEGDA AND PN-ENDDA.  
    WRITE...  
  ENDPROVIDE.  
  
  PROVIDE * FROM P0006  
    BETWEEN PN-BEGDA AND PN-ENDDA.  
    WRITE...  
  ENDPROVIDE.  
  
END-OF-SELECTION.
```

Infotype
loop

Infotype
loop

Employee
loop

Join / Creating Intervals



Join / Coding

```
TABLES: PERNR.  
INFOTYPES:0001,      "Organizational Assignment  
           0002,      "Personal Data  
           0006,      "Addresses  
           ....  
  
GET PERNR.  
  PROVIDE * FROM P0001  
          * FROM P0002  
          BETWEEN PN-BEGDA AND PN-ENDDA.  
  WRITE...  
  
ENDPROVIDE.
```

Join and Projection / Coding

```
TABLES: PERNR.  
INFOTYPES:0001,      "Organizational Assignment  
           0002,      "Personal Data  
  
           ....  
  
GET PERNR.  
  PROVIDE  STELL  
           ENAME FROM P0001  
           GBDAT FROM P0002  
           BETWEEN PN-BEGDA AND PN-ENDDA.  
  
  WRITE...  
  
ENDPROVIDE.
```

Business Needs:

A letter is to be generated after the following action in the prescribed format:

1. Hiring / Appointment Letter
2. Confirmation Letter
3. Promotion Letter
4. Transfer Letter
5. Relieving Letter on Resignation
6. Retirement Letter

The generated letter should be modifiable and same is to be stored along with each employee and action.

Sample format of Appointment Letter

LETTER NO. REC.01

APPOINTMENT LETTER

Mr./Miss [*Full name of Employee*]

[*Position*] [*Grade*]

[*Location*]

The management is pleased to appoint you as the [*POSITION*] in [*GRADE*] with effect from [*DATE*]. You will report to [*POSITION*].

Your salary & other benefits are stated in the attached compensation package sheet.

You will be on probation for a period of six months. On satisfactory completion of probation you will be confirmed in service.

You shall be governed by the Services rules of the Company, a copy of which is enclosed. A summary of Benefits & Leave Rules as applicable to you is also enclosed.

Please confirm your acceptance by signing the duplicate copy of this letter & intimate the date of joining.

This offer is valid for two months from the date of receipt of this letter.

Faithfully

[*Signatory*] / SECRETARY

[*Designation*]

Structure for PA letter Infotype

| Structure: PS9011 | | | | | |
|-------------------|----------------|-----------|-----|-----|-----------------------|
| Component | Component Type | Data Type | Len | Dec | Short Text |
| LDATE | ZLDATE | DATS | 8 | 0 | Letter Date |
| LTYPE | ZLTYPE1 | CHAR | 50 | 0 | Letter Type |
| SIGN1 | ZSIGN1 | CHAR | 40 | 0 | Signatory |
| DESGN | ZDESGN | CHAR | 40 | 0 | Designation |
| MASSN | ZMASSN | CHAR | 2 | 0 | Action Type |
| EFFDT | BEGDA | DATS | 8 | 0 | Start Date |
| SUPER | ZSUPER | CHAR | 40 | 0 | SBU / Functional Head |
| SBUNM | ZSBUNM | CHAR | 40 | 0 | SBU Name |
| APDAT | ZAPDAT | DATS | 8 | 0 | Appointment Date |
| RLDAT | ZRLDAT | DATS | 8 | 0 | Relieving Date |
| LETTERID | TDOBNAME | CHAR | 70 | 0 | Name |

ZHR_LTYPE

Table ZHR_LTYPE created for help drop down of field LTYPE of structure PS9011.

| Table: ZHR_LTYPE | | | | | |
|------------------|------------|-----------|-----|-----|-------------|
| Fields | Field Type | Data Type | Len | Dec | Short Text |
| INFTY | INFTY | CHAR | 4 | 0 | Infotype |
| SUBTY | SUBTY_591A | CHAR | 4 | 0 | Subtype |
| LTYPE | ZLTYPE1 | CHAR | 50 | 0 | Letter Type |
| ACTION | MASSN | CHAR | 2 | 0 | Action Type |
| FRMNM | ZFRMNM | CHAR | 30 | 0 | Form Name |

Screen Layout for PA Letters Infotype

Infotype Edit Goto Extras System Help

100 abpcal INS

Create Employee Letters Infotype

Letter

| | | | |
|--------------|-------------------|-------------|-----------------|
| Personnel no | 13 | Name | Testing Again |
| EE group | 1 Active employee | Pers.area | AB10 KOLKATA |
| EE subgroup | F4 Factory - F4 | Cost center | CRP_HRD CRP_HRD |
| Start | 01.12.2001 bis | | 31.12.9999 |

Employee Letters Infotype

| | |
|----------------------|-------------------------------------|
| Subtype | 9001 Appointment Letter |
| Letter Date | 10.11.2001 |
| Letter Type | <input checked="" type="checkbox"/> |
| Signatory | |
| Designation | |
| Action Type | <input checked="" type="checkbox"/> |
| SBU / Functional Hea | |
| SBU Name | |
| Appointment Date | |
| Relieving Date | |

STD Text for Appointmnet Letter – SO10

*
* Ref No. &itab-ref_no&
*
* &cldate&
*
* &itab-ename&
* &itab-zdesgn&
* &itab-orgtx&
* &itab-name1&
*
* &itab-first_line&
*
B The Management is pleased to appoint you as the &itab-zdesgn& in grade
&itab-pktx& with effect from &itab-effdt&. You will report to

*
B Your salary & other benefits are stated in the attached compensation
package sheet.
*

STD Text for Appointment Letter – SO10

B You will be on probation for a period of six months. On satisfactory completion of probation you will be confirmed in service.

*

B You shall be governed by the Services rules of the Company, a copy of which is enclosed. A summary of Benefits & Leave Rules as applicable to you is also enclosed.

B Please confirm your acceptance by signing the duplicate copy of this letter & intimate the date of joining.

*

B This offer is valid for two months from the date of receipt of this letter.

*

* Faithfully

*

* &pp9011-sign1&

*

P2 CC:.,Chief Personnel Officer

P2 .,Chief Manager, Management Systems and Information

P2 .,

Definition

Each database object, for example, PCL1 or PCL2, with the type *Import/Export file* consists of related areas. These areas are known as *clusters*, for example. RX, RD.

Display of Cluster data – Payroll Result

The screenshot displays the SAP Easy Access interface. At the top, there is a menu bar with 'Menu', 'Edit', 'Favorites', 'Extras', 'System', and 'Help'. Below the menu bar is a toolbar with various icons for navigation and actions. The main area is titled 'SAP Easy Access' and contains a navigation tree on the left and a main content area on the right. The navigation tree is expanded to show the 'Payroll result' folder, which is highlighted in yellow. Below the 'Payroll result' folder, there is a 'Display' button, also highlighted in yellow. The status bar at the bottom right shows 'S01 (1) (700)', 'bomsun01', and 'OVR'.

- Human Resources
 - Manager's Desktop
 - Personnel Management
 - Time Management
 - Payroll
 - Europe
 - America
 - Asia/Pacific
 - Australia
 - Hong Kong
 - India
 - Payroll Accounting
 - Off-Cycle
 - Subsequent Activities
 - Environment
 - Info system
 - Tools
 - Flow control
 - Set modifiers
 - Payroll calendar
 - Control record
 - Payroll result
 - Display

Display of Cluster data – Payroll Result

The screenshot shows the SAP Cluster Display IN (Payroll Results, India) interface. The window title is "Cluster Display IN (Payroll Results, India)". The interface includes a menu bar (Program, Edit, Goto, System, Help) and a toolbar with various icons. Below the title bar, there are several input fields and checkboxes:

- Selections from**: A button with a right-pointing arrow.
- Search helps**: A button with a right-pointing arrow.
- Selection**: A section containing a "Personnel number" input field, a "to" field, and a right-pointing arrow button.
- Additional data**: A section containing a "Period for for-periods" input field, a "to" field, and an "Update indicator" input field.
- Checkboxes**: Two checked checkboxes: "List" and "Choose individual tables".

The Windows taskbar at the bottom shows the Start button and several open applications: Liv..., Su..., Mic..., SA..., SA..., Mai..., Do..., and Clu... The system clock shows 2:14 PM.

Display of Cluster data – Payroll Result

Cluster Display IN (Payroll Results, India)

Choose Deactivate tab.sel.

| PerNo | SeqNo | UI | ForPer | PerMo | ForPer | ForPerBeg | ForPerEnd | PayType | PayID | OC | Rsn |
|----------|------------------|----|------------|-----------|------------|------------|------------|----------|----------|------|-----|
| | ST | SI | InPer | PerMo | InPer | InPerEnd | InPerEnd | PayType | PayID | OC | Rsn |
| | invalid pay date | | LPer | BonusDate | PayrDate | PayTime | ReversDat | ReversTm | ReversRs | | |
| 00000034 | 00001 | | 29.01.2002 | 01 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | A | | NK | 01 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | | | 28.01.2002 | | | 24.09.2002 | 16:46:45 | | | | |
| 00000034 | 00002 | | NK | 01 | 00.0000 | 15.02.2002 | 15.02.2002 | A | | 0003 | 03 |
| | A | | NK | 01 | 00.0000 | 15.02.2002 | 15.02.2002 | A | | 0003 | 03 |
| | | | 15.02.2002 | | 15.02.2002 | 25.09.2002 | 12:09:26 | | | | |
| 00000034 | 00003 | | NK | 01 | 11.2001 | 01.02.2002 | 28.02.2002 | | | | |
| | A | | NK | 01 | 11.2001 | 28.02.2002 | 28.02.2002 | | | | |
| | | | 28.02.2002 | | | 25.09.2002 | 16:44:43 | | | | |
| 00000035 | 00001 | | AK | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | A | | AK | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | | | 29.01.2002 | | | 24.09.2002 | 16:33:47 | | | | |
| 00000037 | 00001 | | ON | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | A | | ON | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | | | 29.01.2002 | | | 27.09.2002 | 09:56:15 | | | | |
| 00000053 | 00001 | | ON | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | A | | ON | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | | | 29.01.2002 | | | 05.12.2002 | 15:29:03 | | | | |
| 00000060 | 00001 | | ON | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | A | | ON | 67 | 10.2001 | 01.01.2002 | 31.01.2002 | | | | |
| | | | 29.01.2002 | | | 05.12.2002 | 15:51:35 | | | | |

S01 (1) (700) | bomsun01 | OVR

Display of Cluster data – Payroll Result

The screenshot shows the SAP Cluster Display IN (Payroll Results, India) window. The window title is "Cluster Display IN (Payroll Results, India)". The main content area displays a list of tables and their details for employee Sweety Mishra (PerNo: 00000060, SeqNo: 1). The table details are as follows:

| Table | Name | Number of lines |
|---------------------------------|--|-----------------|
| <input type="checkbox"/> VERSC | Status data for payroll accounting | Field string |
| <input type="checkbox"/> PCALAC | Status information for subs.program | 1 |
| <input type="checkbox"/> PCL2 | Update information PCL2 | Field string |
| <input type="checkbox"/> WPBP | Work center/basic pay | 1 |
| <input type="checkbox"/> RT | Results table | 50 |
| <input type="checkbox"/> RT | Results table (condensed display) | 50 |
| <input type="checkbox"/> GRT | Gross results table | 0 |
| <input type="checkbox"/> CRT | Cumulated results table | 24 |
| <input type="checkbox"/> BT | Bank transactions | 0 |
| <input type="checkbox"/> ABC | Cumulate absence classes | 1 |
| <input type="checkbox"/> C0 | Cost distribution | 1 |
| <input type="checkbox"/> C1 | Cost distribution from various infotypes | 0 |
| <input type="checkbox"/> V0 | Variable assignment | 1 |
| <input type="checkbox"/> DFT | Differences for split gross/net accounting | 0 |
| <input type="checkbox"/> VCP | Leave in period | 0 |
| <input type="checkbox"/> ALP | Alternative payment | 0 |
| <input type="checkbox"/> TT | Subsequent time tickets | 0 |
| <input type="checkbox"/> STATUS | Status indicator | 0 |
| <input type="checkbox"/> FUND | Funding | 0 |
| <input type="checkbox"/> ARRRS | Arrears | 0 |

The window also shows the SAP logo in the top right corner and the system status bar at the bottom, which includes the user name "bomsun01" and the role "OVR". The system clock shows the time as 2:09 PM.

Display of Cluster data – Payroll Result

List Edit System Help

SAP

Cluster Display IN (Payroll Results, India)

| PerNo | SeqNo | Name | ForPer | InPer | AS |
|----------|-------|---------------|---------|---------|----|
| 00000060 | 1 | Sweety Mishra | 10.2001 | 10.2001 | A |

WPBP Work center/basic pay

| No | From | To | Action | Reas. | Status | 1-3 | act. |
|------|------------|------------|---------------|--------|----------|-------|--------------------|
| 01 | 01.01.2002 | 31.01.2002 | 01 Hiring | 01 | 3 | 1 | X |
| MRBC | MRBC | 0003 | 1 E5 | 3 | 50000017 | MRBC | |
| | | 50000079 | 0 GEN | 100.00 | 31.00 | 21.00 | 189.00 31.00 21.00 |
| | | 189.00 | 160.00 100.00 | MU | 10 E5 | X | 8.00 5.00 |

S01 (1) (700) bomsun01 OVR

Display of Cluster data – Payroll Result

List Edit System Help

Cluster Display IN (Payroll Results, India)

| PerNo | SeqNo | Name | ForPer | InPer | AS |
|----------|-------|---------------|---------|---------|----|
| 00000060 | 1 | Sweety Mishra | 10.2001 | 10.2001 | A |

RT Results table

| PCR1Gr | Wage type | WC | C1 | C2 | C3 | Assign: AltPay | CA | BT | Abs. |
|-----------|-------------------------------|-------------|----|----|----|----------------|---------------|----|------|
| VarAssign | Unit | Rate in INR | | | | Number | Amount in INR | | |
| 3 | /001 Valuation basis 1 | 01 | | | | | | | |
| | | 62.50 | | | | | | | |
| 3 | /002 Valuation basis 2 | 01 | | | | | | | |
| | | 62.50 | | | | | | | |
| 3 | /118 PTax Basis | 01 | | | | | | | |
| | | | | | | | 10,000.00 | | |
| 3 | /119 PTax Basis Nominal | 01 | | | | | | | |
| | | 600,000.00 | | | | | 10,000.00 | | |
| 3 | 1BPY Basic Pay | 01 | | | | | | | |
| | | | | | | | 1,000.00 | | |
| 3 | 1PPY Personal Pay(B.) | 01 | | | | | | | |
| | | | | | | | 5,000.00 | | |
| 3 | 1SPF SPL Pay FP | 01 | | | | | | | |
| | | | | | | | 1,000.00 | | |
| 3 | 1SPP SPL Personal Pay | 01 | | | | | | | |
| | | | | | | | 1,000.00 | | |
| 3 | 1SPQ SPL Pay HQ | 01 | | | | | | | |
| | | | | | | | 1,000.00 | | |
| 3 | 1SPY Special Pay (Pay Rev 97) | 01 | | | | | | | |
| | | | | | | | 1,000.00 | | |

S01 (1) (700) bomsun01 OVR

Reading Cluster Directory

Reading the Cluster Directory

```
*Table containing directory of payroll results
DATA: BEGIN OF RGDIR OCCURS 100.
      INCLUDE STRUCTURE PC261.
DATA: END OF RGDIR.
DATA: COUNTRY LIKE T001P-MOLGA.
...
CALL FUNCTION 'CU_READ_RGDIR'
  EXPORTING
    PERSNR           = PERNR-PERNR
  IMPORTING
    MOLGA           = country
  TABLES
    IN_RGDIR        = RGDIR
  EXCEPTIONS
    NO_RECORD_FOUND = 1
    OTHERS          = 2.
```

Determining Current Payroll Result (1)

```
DATA: number LIKE PC261-SEQNR.
. . .
GET PERNR.
. . .
CALL FUNCTION 'CU_READ_RGDIR'
. . .

CALL FUNCTION 'CD_READ_LAST'
EXPORTING
    BEGIN_DATE      = PN-BEGDA
    END_DATE        = PN-ENDDA
IMPORTING
    OUT_SEQNR       = number
TABLES
    RGDIR           = RGDIR
EXCEPTIONS
    NO_RECORD_FOUND = 1
    OTHERS          = 2.
```

Determining Current Payroll Result (2)

```
DATA: result TYPE PAY99_RESULT.
DATA:  rt_header TYPE LINE OF HRPAY99_RT.
. . .
  CALL FUNCTION 'PYXX_READ_PAYROLL_RESULT'
    EXPORTING
      CLUSTERID           ='RX'
      EMPLOYEENUMBER      =p0001-pernr
      SEQUENCENUMBER      =number
*   READ_ONLY_BUFFER      = ' '
*   READ_ONLY_INTERNATIONAL = ' '
*   CHECK_READ_AUTHORITY  = 'X'
      . . .
    CHANGING
      PAYROLL_RESULT      =result
    EXCEPTIONS . .
LOOP AT result-INTER-RT INTO rt_header.
  WRITE: / rt_header-LGART, ...
ENDLOOP.
```

Structure for Payroll Results

Structure: PAY99_RESULT

EVP

Structure PC261

INTER Structure PAY99_INTERNATIONAL

VERSC

Type PC202

RT

Type HRPAY99_RT

CRT

Type HRPAY99_CRT

BT

NAT

Dummy
for national
part

```
DATA: result TYPE PAY99_RESULT.  
DATA: rt_header TYPE LINE OF HRPAY99_RT.  
. . .  
  
* Access to payroll result data  
WRITE: result-INTER-VERSC-FPPER,  
. . .  
LOOP AT result-INTER-RT INTO rt_header.  
    WRITE: / rt_header-LGART, . . .  
ENDLOOP.
```

EXERCISE (1)

1. Whenever an employee is hired, it is mandatory to provide certain documents, which will form a checklist on joining the organization.

The joining checklist are as follows:

- a. Relieving letter from last employer
- b. Salary Slip of last employer
- c. Graduation certificate
- d. Copy of latest qualification certificate, specify
- e. Income Tax certificate of last employer
- f. Others specify – (3 lines)

Create a customer defined infotype where above details are maintained.

EXERCISE (2)

2. Eligibility for LTA allowance is one basic for a financial year. If last year it is not claimed, it can be claimed in the current year.

LTA is one time payment and maintained in IT 0015, i.e. Additional payments & deductions.

- Provide an additional field to maintain year for LTA claim. (Infotype Enhancement to IT 0015)
- If LTA claim is not of current year, then LTA reduces to 80% of the current basic. Built a validation for the same.

EXERCISE (3)

3. Generate a report to list employee with the latest action in the given date range.

Display following fields:

- a. Employee Number
- b. Employee Name
- c. Action Type
- d. Action Text
- e. Action Start Date

Tips: Make use of HR macros

EXERCISE (4)

4. Generate a report to list an employment history in a given date range.

Display following fields:

- a. Employee Number
- b. Employee Name
- c. Action Start Date
- d. Action Type
- e. Action Text

Tips: Make use of provide – endprovide loop

EXERCISE (5)

5. Generate a Salary register which will list following fields in matrix format.

| Emp.No. | Basic | HRA | Conv | Spl.Pay |
|---------|-------|-----|------|---------|
| 00001 | | | | |
| 00002 | | | | |
| 00100 | | | | |

Read data from Payroll Cluster and display it in the above format.

Tips: Refer to SAP standard programs in T.Code

PC00_M99_CLGA09 and PC_M99_CLGV09