1. Register the OData service

- Go to /IWFND/MAINT_SERVICE
- Click Add Service
- Choose System Alias → Get Services
- Select your service → Add Selected Services

👉 This step makes the service available in SAP Gateway.

2. Assign a package (VERY IMPORTANT)

When SAP asks for a package:

- Do NOT use $TMP (local) → local means cannot be transported
- Choose a transportable package
- Then it will ask for a Workbench Transport Request
  → choose an existing one or create a new one.

👉 This step puts the service into a transport request.

3. Transport the System Alias (sometimes required)

System alias is NOT always included automatically.

To include it:

- Go to SE01
- Create a Workbench Request
- Manually add the table entry from
  /IWFND/C_MGDEAM (this table stores alias setup)

👉 Without this, service may not work in Q or P systems.

4. Move the transport

After adding:

- OData service
- System alias (if needed)

Move the transport request using your normal landscape path:

DEV → QA → PROD

2. How do you improve performance in an ABAP report?

Perfect Answer:
Performance is mainly improved by reducing database hits and loop processing.

Techniques:

- Use SELECT with WHERE, never SELECT *.
- Use proper indexes (secondary index).
- Prefer Joins or CDS views instead of nested SELECT.
- Use FOR ALL ENTRIES instead of SELECT inside a loop.
- Use HASHED or SORTED tables when appropriate.
- Use Field-Symbols & References instead of copying data.
- Use Parallel Cursor technique in nested loops.
- Minimize string operations inside loops.

Extra point:

Use SAT, ST05, ST12 for performance trace.

3. Difference between SCP, BTP, and SAP Gateway

Simple:

- SCP → Old name
- BTP → New SAP Cloud Platform (Integration + Database + Development)
- SAP Gateway → Component to expose OData services from SAP.

  SAP Gateway is a technology that bridges SAP systems with external applications, devices, and platforms by providing access to SAP data and processes through open standards like REST and Odata

Professional answer:

“SCP is the former name of the cloud platform. BTP is the new unified platform that includes database, analytics, integration, and development tools. Gateway is only for OData communication between UI and SAP backend.”

4. Types of JOINs used in CDS

- INNER JOIN: Returns only the rows where there is a match in both tables based on the join condition.

- LEFT OUTER JOIN (or LEFT JOIN): Returns all rows from the left table and the matching rows from the right table. If there is no match, the columns from the right table will have null values.

- RIGHT OUTER JOIN (or RIGHT JOIN): Returns all rows from the right table and the matching rows from the left table. If there is no match, the columns from the left table will have null values.

- FULL OUTER JOIN: Returns all rows from both the left and right tables. If there is no match, the columns from the non-matching side will have null values.

- CROSS JOIN: Creates a Cartesian product of the two tables, returning all possible combinations of rows from both tables. It does not require an ON condition.

5. Explain SBatch operation in OData

- OData batch operations allow you to send multiple OData requests (like GET, POST, PUT, DELETE)
- as a single HTTP request to an OData service
- reducing network overhead
- Improving performance

6. Difference between GetEntity and GetEntitySet

- GetEntity → Fetch one record (Key-Based)
- GetEntitySet → Fetch multiple records (List)

Example:

- GetEntity → /MaterialSet('1001')
- GetEntitySet → /MaterialSet?$filter=MATNR gt '1000'

7. Use of $metadata in OData

Use of $metadata in OData:

- $metadata provides the complete structure of the OData service.

- It shows entity types, properties, keys, associations, navigation properties.

- Used by developers to understand the data model.

- Helps tools (like SAP Gateway Client, Fiori apps) auto-generate UI or proxy classes.

- Ensures consumers know what fields and types exist before calling the service.

8. How to call an OData service from SAP ABAP (SCP/On-Prem)?

Use:

```
cl_http_client=>create_by_url( ).
cl_rest_http_client=>get_http_client( ).
```

Steps:

1. Create HTTP client
2. Set headers (Content-Type, Accept)
3. Send GET/POST request
4. Receive response with RESPONSE->GET_STRING( )

Extra point:

“In ABAP Cloud, we use HTTP Client API with OUTBOUND service bindings.”

9. What is a Secondary Index?

Answer:
A secondary index is an additional index created on a table to improve SELECT performance for non-primary key fields.

When used?

- Frequent queries on non-key fields
- Large tables
- WHERE clause not using primary key

10. How do you create a CDS view with parameters?

```
@AbapCatalog.sqlViewName: 'ZTESTPARAM'

define view ZCDS_Param

with parameters p_matnr: matnr

as select from mara

{

  matnr,

  ersda

}

where matnr = :p_matnr;
```

11. What is SAP RAP and how related to OData?

SAP RAP is SAP's modern ABAP programming model to build Fiori apps and OData services using CDS views and behavior definitions. It exposes business objects mainly through OData V4. It replaces the old SEGW approach and provides faster, standardized OData service creation.

12. PAI and PBO in Module Pool

- PBO (Process Before Output):
  Prepare screen fields before display

- PAI (Process After Input):
  Triggered after user action → validations & logic

13. Types of Internal Tables (Explained)

1. Standard Table

- Slow linear search
- Fast append
- Default type

2. Sorted Table

- Always sorted
- Fast binary search
- Used for reading sorted data

3. Hashed Table

- No duplicates
- Fastest lookup (O(1))
- Used when searching frequently

14. SmartForms vs Adobe Forms

SmartForms:

- Old technology
- Good for simple printouts
- No complex design
- No interactive fields

Adobe Forms:

- Modern
- Uses PDF-based layout
- Rich UI
- Interactive fields
- Better alignment control

Use Adobe Forms for:

- Invoices
- Purchase Orders
- HR forms

15. REUSE_ALV_GRID_DISPLAY

This is a Function Module used to display ALV reports.

Features:

- Sorting
- Filtering
- Totals
- Layout variants
- User friendly grid

Used before:

- OOPS ALV
- CL_SALV Table

17. How to debug an OData Service

1. Find the DPC Class

- Go to /IWFND/MAINT_SERVICE
- Select your service → Click Service Implementation
- Note the DPC_EXT class (this is where your logic is).

2. Set Breakpoints

- Open the DPC_EXT class in SE24

- Go to the method you want to debug:
    - GET_ENTITY
    - GET_ENTITYSET
    - CREATE_ENTITY
    - etc.
- Put an External Breakpoint (important, because call comes from browser/Postman).

3. Trigger the OData Call

You can trigger the call using:

- Browser / Fiori App
- /IWFND/GW_CLIENT (best for testing)
- Postman

9. Types of Enhancements in SAP (Fully explained)

1. User Exit

Old technique, mainly function modules.

2. Customer Exit

Predefined enhancement points.

3. BADI

Object-oriented enhancements.
Supports multiple implementations.

4. Enhancement Spots

Modern framework:

- Explicit enhancements
- Implicit enhancements

Q.Different types of BAPIs (Explained)

1. Creation BAPIs

Used to create objects
Example:

- BAPI_MATERIAL_SAVEDATA
- BAPI_PO_CREATE1

2. Update BAPIs

Used to modify objects
Example:

- BAPI_CUSTOMER_CHANGEFROMDATA1

3. Display BAPIs

Used to read details
Example:

- BAPI_MATERIAL_GETLIST

4. Transactional BAPIs

Used with COMMIT
Example:

- BAPI_TRANSACTION_COMMIT

5. Check BAPIs

Used for validation
Example:

- BAPI_SALESORDER_CHECK

Q.Difference between User Exit, BADI, Enhancement Spot

User Exit:

- Old
- Limited

- Based on Function Modules

BADI:

- Object Oriented
- Can have multiple implementations
- More flexible

Enhancement Spot:

- Most modern
- Implicit & Explicit
- Works anywhere in ABAP code
- Recommended for S/4HANA

Q.What is an OData Service?

REST-based service used to connect SAP backend to:

- Fiori
- UI5
- Mobile apps
- External systems

Supports:

- GET
- POST
- PUT
- DELETE

Q.LSMW vs BDC – Simple Difference

1. What is LSMW?

LSMW (Legacy System Migration Workbench)

- A tool used for data migration from *non-SAP (legacy)* systems to SAP.
- Mostly used by functional consultants (no coding needed).
- Uses methods like Direct Input, Batch Input, BAPI, IDoc.
- Provides a step-by-step wizard → very easy to use.

2. What is BDC?

BDC (Batch Data Communication)

- A programming technique in SAP used to upload large volumes of data.
- Mostly used by technical/ABAP consultants.
- Requires ABAP code to record screens and automate data entry.
- Two types:
    - BDC Session Method
    - BDC Call Transaction Method

✅ LSMW vs BDC – Key Differences (Simple Table)

Feature	LSMW	BDC
Used by	Functional consultants	Technical/ABAP consultants
Coding	No coding required	Coding required (ABAP)
Purpose	Data migration from legacy → SAP	Mass data upload inside SAP
Ease of Use	Simple wizard steps	Requires development effort
Methods Available	Batch Input, Direct Input, BAPI, IDoc	Session Method, Call Transaction
Reusability	Easy to reuse	Must rewrite/modify code
Supports Non-SAP Input?	Yes	No (SAP screens only)

Error Handling	Good logs + automatic mapping	Manual error handling in code

LSMW stands for Legacy System Migration Workbench. It is an SAP tool used for data migration, allowing for the transfer of data from non-SAP systems (legacy systems) into SAP systems. This is achieved by reading, converting, and importing data through various methods, such as direct input, batch input, BAPIs, and IDocs.