

DATA ANALYTIC COURSE



MASTERPATH



+91 9620 903 778



Prabhath Arcade , No. 862 21st C Main
2nd Floor, 8th block Koramangala
Bangalore-560095

Table Of Contents

- | 01 HIGHLIGHTS OF A DATA ANALYST PROGRAM
WITH SNOWFLAKE FOCUS
- | 02 TOOLS FOR ORACLE TO SNOWFLAKE
MIGRATION USING DBT AND AWS
- | 03 CAREER BENEFITS FOR STUDENTS
- | 04 STEP-BY-STEP GUIDE: ORACLE → SNOWFLAKE
MIGRATION
(WITH DBT & AWS)
- | 05 SAMPLE ARCHITECTURE DIAGRAM
DESCRIPITON
- | 06 TOOLS SUMMARY

HIGHLIGHTS OF A DATA ANALYST PROGRAM WITH SNOWFLAKE FOCUS

SNOWFLAKE DATA WAREHOUSE:

- Cloud-based architecture (multi-cluster shared data architecture)
- Virtual warehouses, databases, schemas, stages
- Data storage, compute, and services layers
- Time Travel, Cloning, and Zero-Copy Cloning features



SQL FOR SNOWFLAKE:

Writing advanced SQL queries in Snowflake

- Using Common Table Expressions (CTEs), window functions, etc.
- Query optimization and performance tuning
- Data Integration & ETL/ELT:
- Loading structured and semi-structured data (JSON, Avro, Parquet)
- Working with tools like dbt (Data build tool)
- Automating data pipelines and transformations in Snowflake
- Data Modeling & Warehousing Concepts:
- Star and Snowflake schemas



DIMENSIONAL MODELING:

- Handling slowly changing dimensions (SCDs)
- Data Governance and Security:
- Roles, access control, and masking policies

DATA SHARING AND SECURE DATA EXCHANGE IN SNOWFLAKE

BUSINESS INTELLIGENCE TOOLS INTEGRATION:

- Connecting Snowflake to Power BI
- Building dashboards using live or cached data from Snowflake

CAPSTONE PROJECTS:

- Real-world use cases (e.g., sales analysis, customer segmentation)
- Data pipeline creation from raw to report-ready in Snowflake



DATA WAREHOUSE

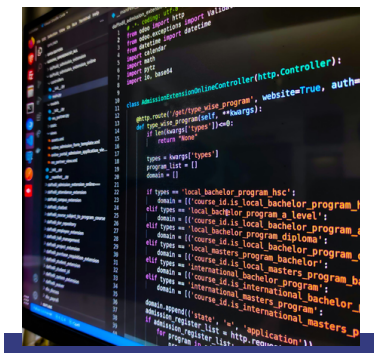
Deliver analytics at scale with
a modern data warehouse



Best Suitable Candidates:

Bachelor's degree in:

- Computer Science / IT
- Statistics / Mathematics
- Engineering
- Finance / Business Analytics



Ideal Candidate Traits:

- Comfortable with SQL and relational database concepts
- Familiarity with cloud platforms (AWS, Azure, GCP) is a plus
- Basic understanding of data pipelines / ETL processes
- Interest in scalable cloud data systems
- Willingness to learn about modern data stack tools (e.g., dbt, Snowpipe)

Who Should Consider This Program:

- Data Analysts looking to upgrade from Excel/Power BI to cloud-scale analytics
- Business Intelligence Developers integrating with cloud data warehouses
- Junior Data Engineers wanting to specialize in Snowflake-based solutions
- IT Professionals transitioning into analytics or data engineering
- Companies migrating to Snowflake needing upskilled internal talent



Migrating data from **Oracle to Snowflake** using **dbt and AWS** involves multiple tools across the **data extraction, loading, transformation, and orchestration stages**. Here's a breakdown of the common tools used in such a migration pipeline:

TOOLS FOR ORACLE TO SNOWFLAKE MIGRATION USING DBT AND AWS

1. Best Suitable Candidates

Tools:

- **AWS Data Migration Service (DMS):**

1. AWS-native tool to extract data from Oracle (on-premise or RDS) and load it into Snowflake.
2. Supports full loads and ongoing replication (CDC).

- **Oracle SQL Developer / SQL*Plus:**

1. Useful for exporting schemas or data as SQL scripts or flat files (CSV, Parquet).

- **Apache Sqoop** (if Hadoop ecosystem is involved)
- **ODI** (Oracle Data Integrator)(for enterprise setups)



2. Data Loading (into Snowflake)

Tools:

- **AWS S3:**
 1. Intermediate staging layer; Oracle data is usually dumped to S3 before Snowflake loads it.
- **Snowflake COPY INTO command:**
 1. Loads data from S3 into Snowflake tables.
- **Snowpipe** (optional):
 1. For automated and near-real-time data loading from S3 into Snowflake.





3. Data Transformation (in Snowflake with DBT)

Tools:

- **DBT** (Data Build Tool):
 1. Core transformation logic: cleans, models, and structures the raw data after it's loaded into Snowflake.
 2. Uses version-controlled SQL models and Jinja templating.
 3. Great for modular, testable, and documented transformation pipelines.

4. Orchestration & Workflow Automation

Tools:

- **DBT Cloud or dbt Core + Scheduler** (e.g., Airflow, dbt-run scheduled via cron/AWS Step Functions)
- **Apache Airflow:**
 1. Commonly used for orchestrating extract-load-transform (ELT) jobs involving AWS, Snowflake, and dbt.
- **AWS Step Functions or AWS Glue Workflows**(optional)

5. Security, Monitoring, and Governance

Tools:

- **IAM roles** (AWS security best practices)
- **Snowflake Access Roles & Policies** (for data governance)
- **CloudWatch / dbt artifacts / Snowflake QUERY_HISTORY** (monitoring and logging)



Sample Architecture Flow:

- **Extract: Oracle** → AWS DMS → S3
- **Load: S3** → Snowflake (via COPY INTO or Snowpipe)
- **Transform** → dbt runs transformations inside Snowflake
- **Orchestrate** → Airflow or dbt Cloud schedules and monitors pipeline



Instructor Profiles:

- Overall, 16 years of work experience, mainly on the database and data warehouse related technologies like Oracle, PostgreSQL, Snowflake, Hadoop, ETL tools like DBT, Informatica & Power BI as a reporting tool.
- Worked on various projects involving different domains and technologies.
- Currently working as a Project Manager in Accenture.

CAREER BENEFITS FOR STUDENTS



1. High-Demand, Low-Supply Skillset

- **Cloud Data Warehousing** (especially **Snowflake**) is one of the most in-demand skills in modern data teams.
- Combining **legacy systems (Oracle)** with **modern data stacks (Snowflake, dbt, AWS)** makes you highly valuable for companies **migrating to the cloud**.
- **Real-world project experience** (migrating and transforming data) is exactly what hiring managers look for.

2. Increased Job Opportunities

Students with this skillset can target roles in:

- Modern tech companies (SaaS, fintech, e-commerce)
- Consulting firms (Accenture, Deloitte, Infosys)
- Startups migrating from legacy systems
- Large enterprises undergoing digital transformation

3. Practical, Portfolio-Ready Skills

- Demonstrating your ability to **move data from Oracle to Snowflake**, build **data models with dbt**, and automate with **AWS/Airflow** proves hands-on readiness.
- DBT + Snowflake + cloud tools is a **modern stack** expected in 2025 and beyond.

Expected Job Roles / Designations

Level	Job Title	Description
Entry-Level	Data Analyst (Cloud/Snowflake)	SQL, dashboards, querying Snowflake, basic dbt
Junior-Mid	Data Engineer (Snowflake/AWS)	ETL, Snowflake setup, dbt models, pipeline automation
Junior-Mid	Analytics Engineer	Bridges analytics & engineer using dbt and BI tools
Mid-Level	BI Developer (Snowflake/Tableau)	Snowflake data modeling, reporting, BI dashboards
Senior	Cloud Data Engineer Migration Engineer	Cloud data warehouse migrations (Oracle-Snowflake)
Senior	Data Platform Engineer / Architect	Design entire data platforms using Snowflake, dbt, & AWS

Expected Standard CTC in India (2025)

Experience	Job Role	CTC Range (INR)
0-2 Years	Data Analyst (Snowflake)	₹6 – ₹10 LPA
2-3 Years	Analytics Engineer	₹10 – ₹16 LPA
3-4 Years	Data Engineer (Snowflake, dbt)	₹12 – ₹20 LPA
5+ Years	Sr. Cloud Data Engineer / Architect	₹20 – ₹40+ LPA

Step-by-Step Guide: Oracle → Snowflake Migration (with dbt & AWS)



STEP 1: ASSESS & PLAN

- Identify Oracle schemas, tables, and dependencies to be migrated.
- Classify data (static vs. dynamic).
- Plan for schema conversion, data type mapping, and dependencies (e.g., constraints, sequences).

STEP 2: SET UP AWS SERVICES

- **S3 Bucket:** Create a secure bucket to store extracted Oracle data.
- **AWS DMS (Database Migration Service):**
 1. Source: Oracle DB
 2. Target: Snowflake (via S3 or directly)
 3. Choose full load, CDC, or both.

Alternative: Export Oracle data to CSV or Parquet, upload to S3 manually or via script.



STEP 3: PREPARE SNOWFLAKE

- Create database, schemas, and roles in Snowflake.
- Create target tables with schema matching Oracle (or use tools like SnowConvert).
- Configure **external stages** to read from AWS S3.
- Grant appropriate **IAM roles** to Snowflake for reading from S3

STEP 4: LOAD DATA INTO SNOWFLAKE

- Use **COPY INTO** from Snowflake to load data from S3:

sql

CopyEdit

```
COPY INTO my_table
```

```
FROM @my_s3_stage/my_data/
```

```
FILE_FORMAT = (TYPE = CSV);
```

- Optional: Use **Snowpipe** for near-real-time automated loading.

STEP 5: SET UP DBT FOR TRANSFORMATION

- Initialize a dbt project connected to Snowflake.
- Create transformation models using modular SQL in models/.
- Define **sources** to reference raw Oracle tables.
- Build **staging, intermediate, and final models:**

pgsql

CopyEdit

```
models/
```

```
staging/
```

```
stg_customers.sql
```

```
marts/
```

```
sales/
```

```
final_sales_report.sql
```

- Run and test:

bash

CopyEdit

dbt run

dbt test

STEP 6: ORCHESTRATION & AUTOMATION

Choose one:

- **Option A: dbt Cloud**

1. Set up jobs, triggers, and alerts in a browser-based UI.
2. Easy integration with GitHub and Slack.

- **Option B: Apache Airflow**

- Create DAGs that orchestrate:
 3. Oracle to S3 (via DMS or Python script)
 4. COPY INTO Snowflake
 5. dbt run/test

python

CopyEdit

BashOperator(task_id='run_dbt', bash_command='dbt run')

- **Option C: AWS Step Functions or Lambda**

6. Automate data ingestion and trigger dbt via command line or API.

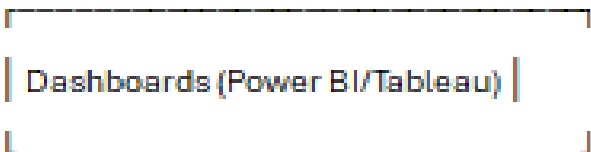
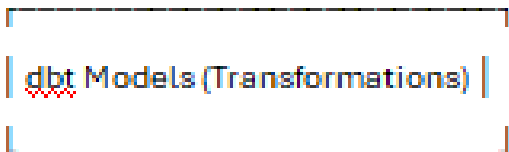
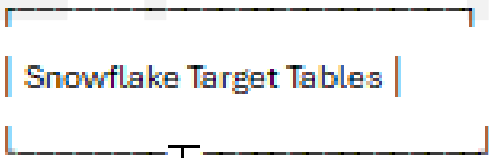
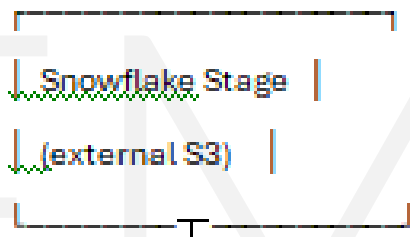
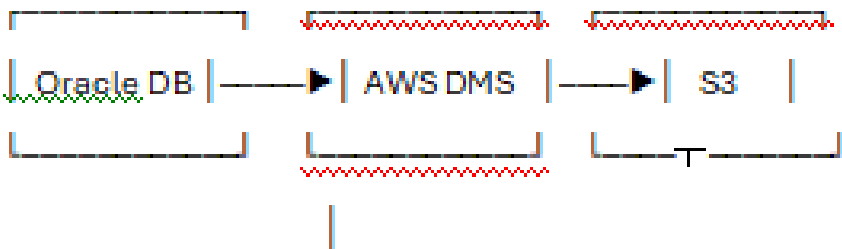
STEP 7: MONITORING & MAINTENANCE

- Use **Snowflake QUERY_HISTORY** to monitor queries.
- Use **dbt artifacts** and metadata to track model performance and changes.
- Set alerts for job failures in Airflow/dbt Cloud.
- Regularly audit IAM policies and access in AWS and Snowflake.

SAMPLE ARCHITECTURE DIAGRAM DESCRIPITON

SQL

CopyEdit



Tools Summary

Stage	Tool
Extraction	AWS DMS, SQL Developer, Sqoop
Loading	AWS S3, Snowpipe, COPY INTO
Transformation	dbt (Core or Cloud)
Orchestration	Airflow, dbt Cloud, AWS Lambda
Monitoring	Snowflake Query Logs, dbt tests
Visualization	Tableau, Power BI, Looker



MASTERPATH

THANK YOU!



Prabhath Arcade , No. 862 21st C Main
2nd Floor, 8th block Koramangala
Bangalore-560095



+91 9620 903 778