Zero-to-Cloud Roadmap for Freshers: Stand Out as Data Analyst and Pivot to Data Engineering

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Phase 0: Setup (1–2 days)

- Create free-tier AWS account (or GCP)
- Install Power BI Desktop
- Install Python (if not installed)

Week 1: Cloud Basics

Goal: Understand cloud concepts **Topics:** - Cloud computing: IaaS, PaaS, SaaS - Public cloud providers: AWS, GCP, Azure - Regions, availability zones, data centers - Cloud vs on-premise storage **Hands-on:** Explore AWS/GCP console **Resources:** - AWS Cloud Practitioner Essentials - YouTube: "Cloud Computing for Beginners"

Weeks 2–3: Cloud Storage & Databases

Goal: Learn data storage and basic DB **Topics:** - Cloud storage: S3 / GCS / Blob - Relational databases: RDS / Cloud SQL - Connecting BI tools to cloud DB **Hands-on Projects:** - Upload CSV to S3 - Connect to cloud database - Query data using SQL **Resources:** - AWS S3 tutorials, SQL for cloud

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Weeks 4–5: Cloud Data Warehousing

Goal: Build DW knowledge & cloud DW experience **Topics:** - Star & snowflake schemas, fact & dimension tables - Cloud DW: Redshift / BigQuery / Snowflake - Loading data from storage to DW - Queries & connecting DW to Power BI **Hands-on Project:** - Load sales/customer data into Redshift/BigQuery - Run SQL queries & create Power BI dashboard **Resources:** - AWS Redshift tutorials, BigQuery Quickstart

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Weeks 6–7: ETL / Pipelines Basics

Goal: Learn simple ETL pipelines and automation **Topics:** - ETL vs ELT concepts - Cloud ETL tools: AWS Glue / Dataflow / dbt basics - Automating workflow: storage → DW → BI dashboard **Hands-on Project:** - Take CSV dataset → S3 → Redshift → Power BI dashboard - Schedule workflow with Glue / Airflow **Resources:** - AWS Glue tutorials, dbt documentation

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Week 8: Portfolio Integration & Resume Update

Goal: Make your projects stand out - Major project: Raw data → Cloud storage → DW → Power BI dashboard → Insights - Update portfolio & GitHub - Resume example: - "Built end-to-end analytics pipeline on AWS S3 + Redshift, creating interactive Power BI dashboards to track sales KPIs."

Optional Extensions (After Week 8)

- Learn Spark basics for big data pipelines
- Python + Airflow for advanced workflows
- SQL optimization & partitioning in DW

Outcome in ~8 Weeks

- Cloud basics + storage + DW + simple ETL
- End-to-end cloud + BI project in portfolio
- Stand out as Data Analyst and ready to pivot to Data Engineering

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Tips to Stand Out

- Highlight projects that **combine BI + cloud**
- Show **end-to-end workflow** in portfolio
- Tailor resume points per role (Analyst vs DE)

Data Analyst → Data Engineer Roadmap

This roadmap is designed for freshers who want to start as a Data Analyst and later grow into Data Engineering roles. It explains what to learn, in what sequence, and why. Following this plan step by step will give you strong portfolio projects, a resume that stands out, and the flexibility to apply to Data Analyst, BI, and Junior Data Engineer roles.

Step 1: Python Automation (Start Here)

- Automate Excel/CSV cleaning and reporting using Python (pandas, openpyxl).
- Create scripts that refresh reports automatically instead of manual work.
- Mini project idea: Automate daily sales Excel file cleanup and summary report.

Step 2: Cloud Basics

- Learn a cloud platform (AWS recommended, but GCP/Azure also good).
- Focus first on: Storage (S3/GCS), Compute basics (EC2/VMs), IAM (permissions).
- Practice uploading cleaned data from Python to cloud storage.
- Mini project idea: Upload cleaned CSV files to AWS S3 via Python.

Step 3: Data Warehousing

- Learn concepts: OLTP vs OLAP, star schema, fact vs dimension tables.
- Pick one DW: AWS Redshift, GCP BigQuery, or Snowflake.
- Load cloud data into DW, query it with SQL.
- Mini project idea: CSV → S3 → Redshift → Power BI dashboard.

Step 4: Workflow Automation

- Learn Apache Airflow or dbt for scheduling pipelines.
- Automate end-to-end flow: data ingestion → transformation → dashboard refresh.
- Mini project idea: Airflow DAG that pulls raw CSV → uploads to S3 → loads into Redshift → refreshes Power BI.

Portfolio & Resume

- Show 4 main projects (1 from each step) on GitHub with clear READMEs + screenshots.
- Resume bullets should highlight automation, cloud, and end-to-end pipeline experience.
- Apply to Data Analyst, BI Analyst, Junior Data Engineer, and Analytics Engineer roles.

■ Recommended Sequence: Python Automation → Cloud Basics → Data Warehousing → Workflow Automation. This order ensures early results, strong portfolio projects, and a resume that stands out in off-campus hiring.