**Section 1 — Conceptual Understanding**

Answer briefly (2-3 sentences each):

1. In your own words, describe each SDLC phase.  
   How do these phases connect in a real project like the one you worked on?

Sdlc phases – initiate, plan, design, develop, test, deploy, maintain

Initiate is where we brain storm the ps and try to solve it, find solutions and how to build the application

Plan – this is where business is analysed, use cases/stories are written the SRS(software requirement specification), BRD(buss req doc), FRD, documentations are written to be clear of what the stakeholders want, and this is passed down to other phases to check and validate

Design, - design the project, system arch is designed | UI/UX of the project is done, prototyping is done

Develop, project is developed using sde, they write code

Test – check if there are any bugs, If all features are working with various modes such as functional testing, Blackbox testing, unit testing, regression and more

Deploy – project is deployed so that it can be reached to users

Maintain- keep checking for any discrepancies and updating the application

1. What’s the purpose of using Git branches and pull requests instead of committing directly to main?

So different people can work on different functions (isolation) and not disrupt each other with errors

1. Why is documentation (README, CONTRIBUTING) important even in small projects?

It helps us to understand the project quicker with a readme, we can get a brief gist about what the project is, how it was built or what tools, libraries and technologies they’ve used.

1. What is the advantage of using virtual environments in Python?

So that we can keep each projects isolated, install only the libraries that are required for that project.

1. How does your data ingestion script ensure that only clean, valid data reaches the database?
2. When writing SQL queries, how do you decide whether to use WHERE or HAVING?

Where – for filtering before any group by

Having – for filtering after group by

1. What’s the purpose of indexing in a database, and when could it slow queries down instead?

**Section 2 — Hands-On Confidence**

Rate yourself from 1 (low) to 5 (high) on each area:

| **Skill Area** | **1** | **2** | **3** | **4** | **5** |
| --- | --- | --- | --- | --- | --- |
| Understanding SDLC phases and Agile flow 4  I know about it theoretically but I need to work on it practically |  |  |  |  |  |
| Git workflow: branching, commits, merges 3  Still new getting used to commands |  |  |  |  |  |
| Python setup & environment management 3  I can do but need to get used to commands |  |  |  |  |  |
| Data ingestion using pandas + SQLAlchemy 2  Not so confident yet in python |  |  |  |  |  |
| SQL queries – SELECT, JOIN, GROUP BY, CTE 5  I can perform the queries but I need to practice more problem solving |  |  |  |  |  |
| Translating business questions into SQL 3  I need to work on it more |  |  |  |  |  |

Add one sentence below each rating explaining *why* you chose that number.

**Section 3 — Mini Review Challenge**

To check your practical readiness, attempt the following small tasks.  
Do them in your own repo or a scratch workspace — the goal is understanding, not perfection.

1. **Git:**
   * Create a new branch, make a small change in the README, and open a pull request.
   * Merge it cleanly into main.
   * Note anything that confused you during the process.
2. **Python:**
   * Write a quick script to load a new CSV (returns.csv) into a new table in Postgres.
   * Include validation (e.g., no negative values or missing IDs).
3. **SQL:**
   * Write queries for:  
     a. Top 5 products by total revenue.  
     b. Customers who haven’t ordered in the last 30 days.  
     c. Average order value per region.

Save your answers and code in a folder named week1\_review\_challenge/.

**Section 4 — Personal Reflection**

Write short paragraphs for each prompt:

* **Top 3 things I learned this week:**  
  (Be specific — e.g., *how indexing changed query speed*.)

Git commands

Connecting sql, learning about postgresql commands

Creating venv

* **The hardest concept for me was:**  
  (Explain what made it hard — syntax, logic, or theory.)

Trying to remember the syntaxes so far

* **How I applied the SDLC mindset to my project:**  
  (Which stage are you strongest in, and which needs work?)

I don’t know yet

* **If I repeated this week, I’d improve by:**  
  (Think of a workflow, coding habit, or tool you’d use better.)

I’d get better at creating venv, translating business queries properly in sql,