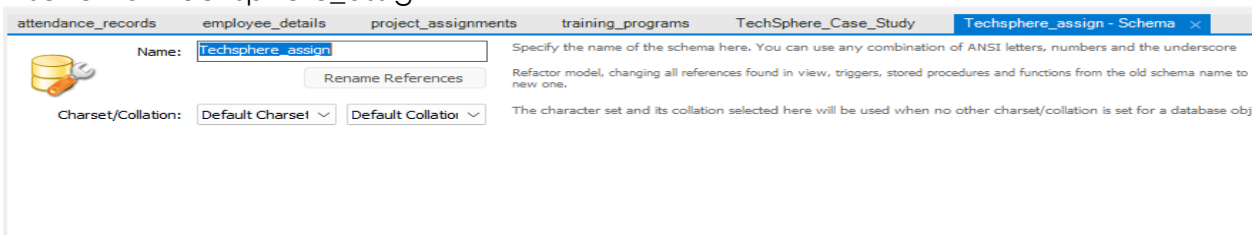
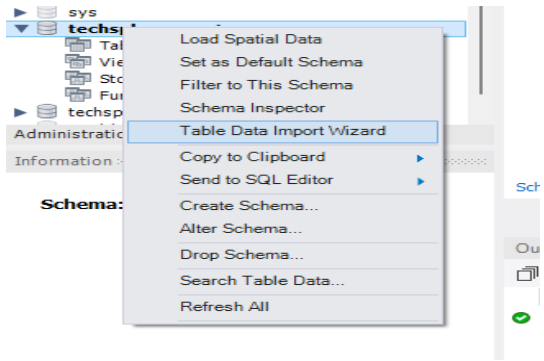
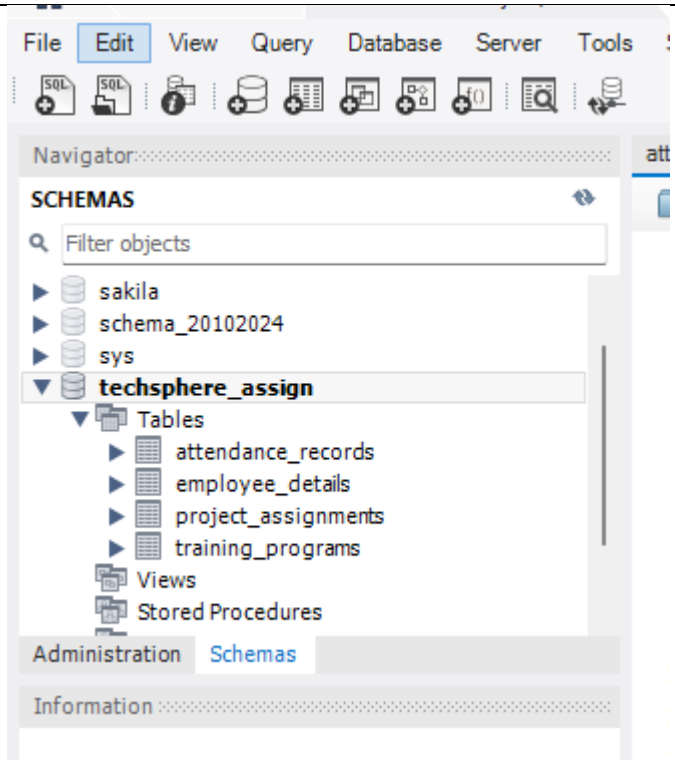
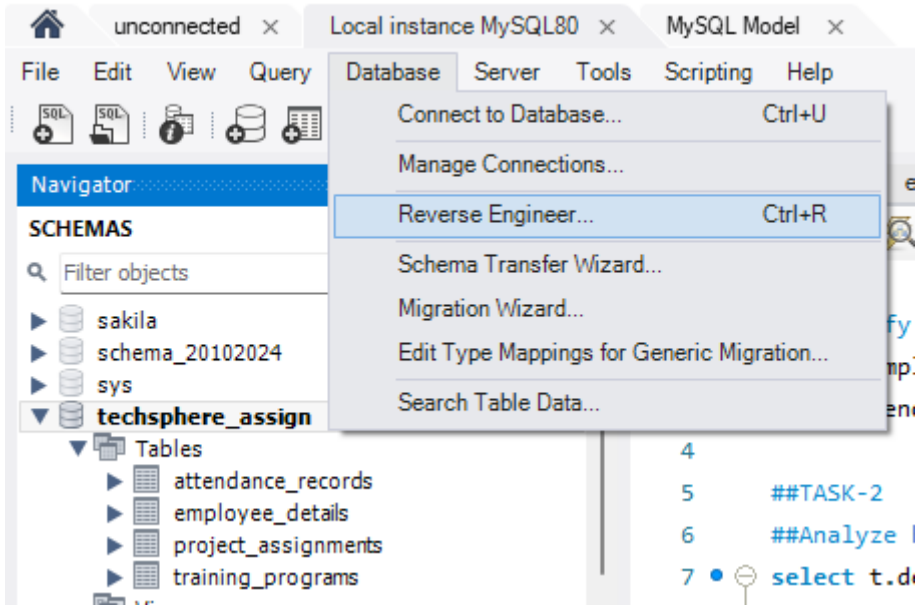
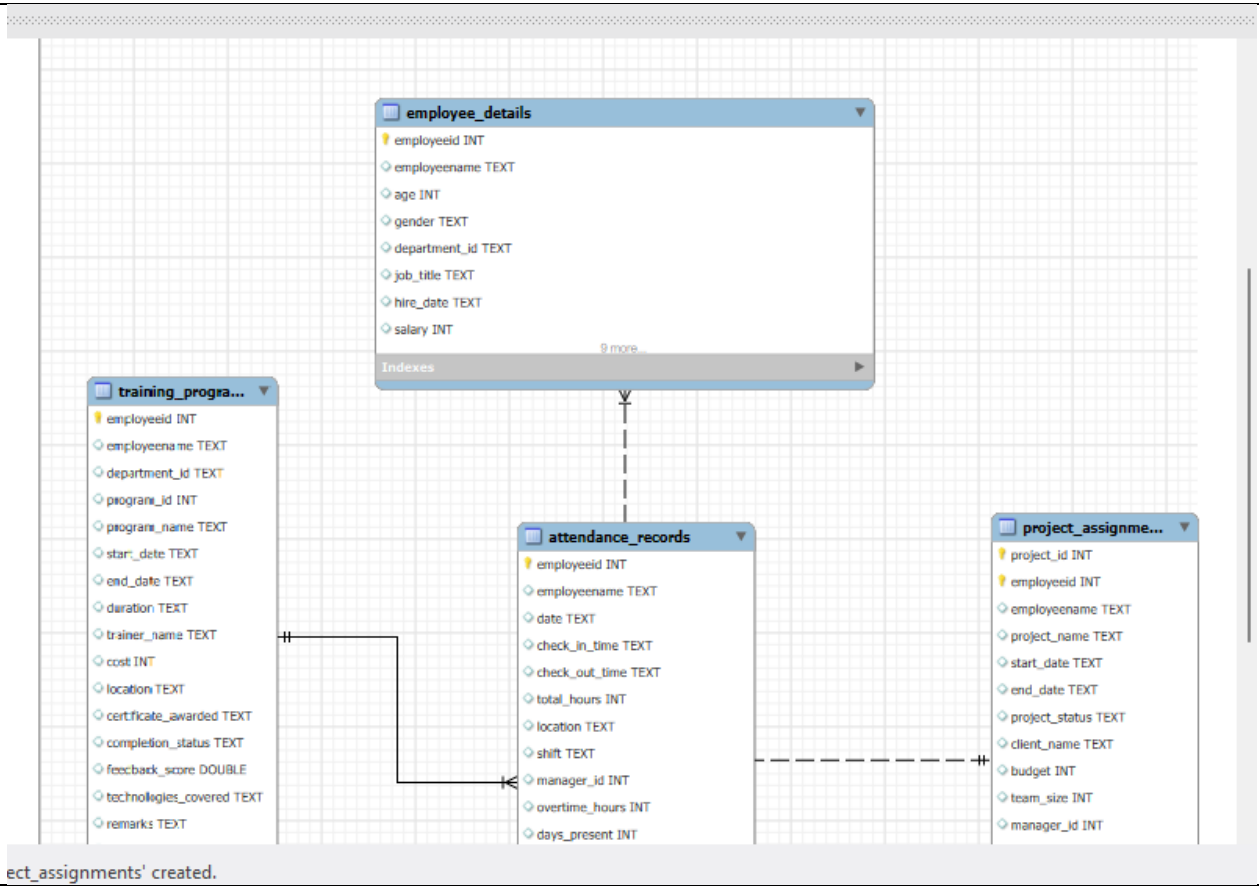
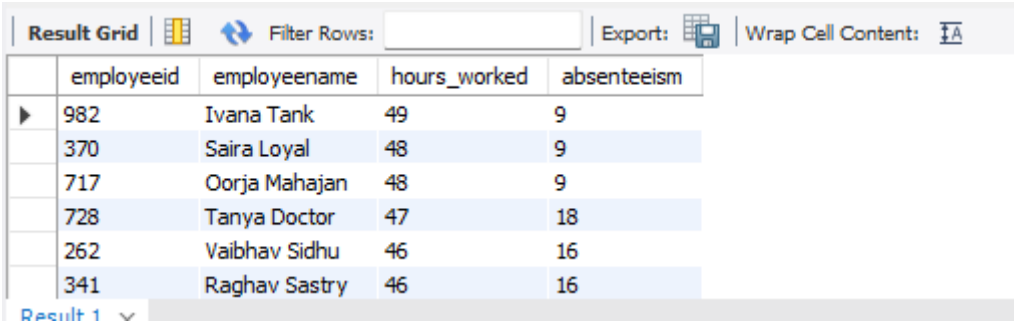
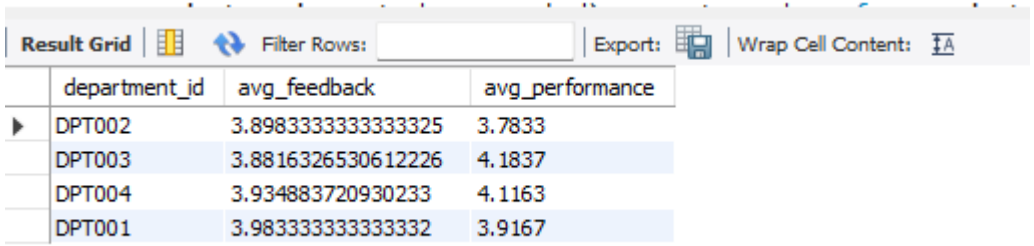
Name	**SHANTANU KAUSHIK [ABADS BATCH 16]**
Email	**shankshk@gmail.com**
Phone	**9887779477**
Project Overview:	TechSphere Solutions is a mid-tier IT services provider specializing in software development, cloud solutions, and infrastructure management. With over 500 employees across multiple locations in India, the company emphasizes employee development and operational efficiency. The management at TechSphere Solutions seeks data-driven insights to optimize employee performance, project execution, and the impact of training programs.
Task 1	**Consolidate Datasets:** **Combine the four datasets (Employee Details, Project Assignments, Attendance Records, and Training Programs) into a centralized MySQL database.**
Solution Task 1	Created new schema "Techsphere_assign"  Import Data Tables 

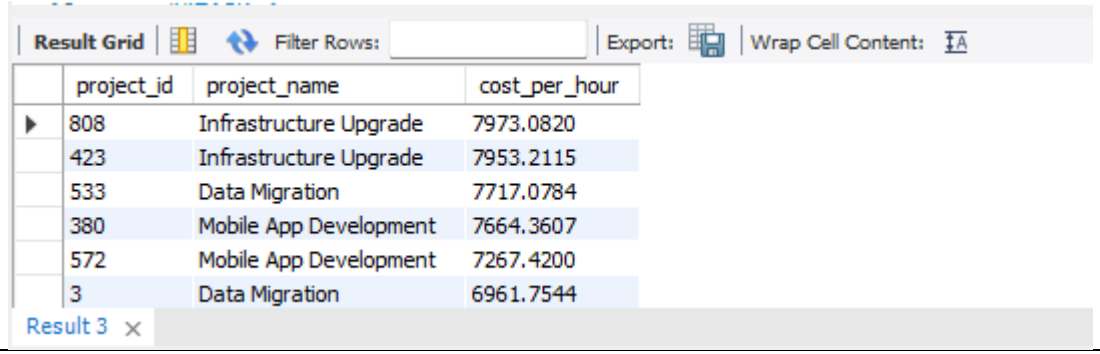
	
Task 2	**Add Mapping for Training Programs:** **Use logical mapping to add employee_id to the Training Programs dataset by matching department_id and employee_name from the Employee Details dataset.** **Schema Design:** **Create a relational schema with the following tables:** **Employee_Details: Contains core employee information.** **Project_Assignments: Tracks projects and employee contributions.** **Attendance_Records: Logs employee attendance data.** **Training_Programs: Details training sessions and feedback scores.**

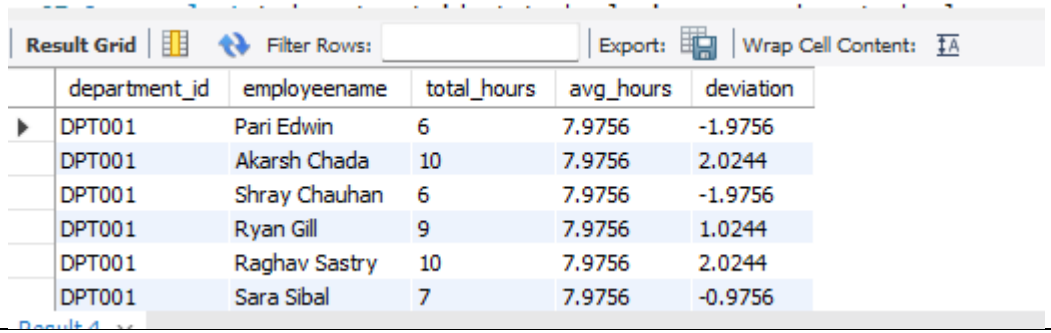
Solution Task 2	Reverse Engineering Process

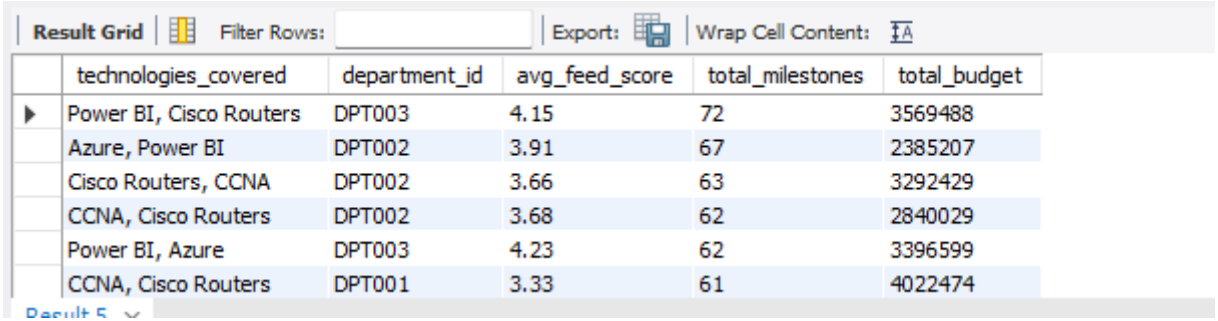


	
Task 3	**Employee Productivity Analysis:** **Identify employees with the highest total hours worked and least absenteeism.**
Solution Task 3	My SQL Query : select employeeid, employeename , sum(total_hours)+sum(overtime_hours) as hours_worked ,sum(days_absent) as absenteeism from attendance_records group by employeeid, employeename order by hours_worked desc , absenteeism asc;

	Output :  Result Grid | Filter Rows: | Export: | Wrap Cell Content: employeeid / employeename / hours_worked / absenteeism 982 Ivana Tank 49 9 370 Saira Loyal 48 9 717 Oorja Mahajan 48 9 728 Tanya Doctor 47 18 262 Vaibhav Sidhu 46 16 341 Raghav Sastry 46 16 Result 1
Task 4	**Departmental Training Impact:** **- Analyze how training programs improve departmental performance.**
Solution Task 4	My SQL Query : select t.department_id, avg(feedback_score) as avg_feedback, avg(case when e.performance_score = 'Good' then 4 when e.performance_score = 'Excellent' then 5 when e.performance_score = 'Average' then 3 else null end) as avg_performance from training_programs t join employee_details e on t.employeeid=e.employeeid group by t.department_id; Output :  Result Grid | Filter Rows: | Export: | Wrap Cell Content: department_id / avg_feedback / avg_performance DPT002 3.8983333333333325 3.7833 DPT003 3.8816326530612226 4.1837 DPT004 3.934883720930233 4.1163 DPT001 3.983333333333332 3.9167

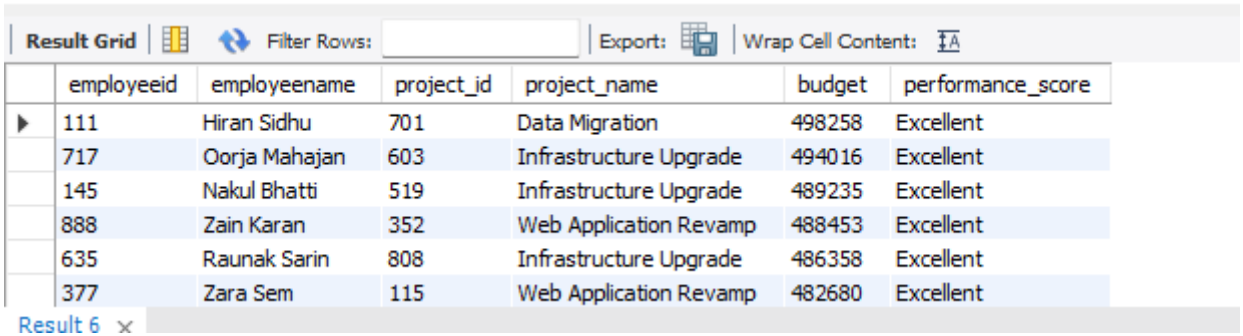
Task 5	**Project Budget Efficiency:** **- Evaluate the efficiency of project budgets by calculating costs per hour worked.**
Solution Task 5	My SQL Query : select project_assignments.project_id, project_assignments.project_name, sum(project_assignments.budget)/sum(project_assignments.hours_worked) as cost_per_hour from project_assignments group by project_assignments.project_name, project_assignments.project_id order by cost_per_hour desc; Output : 
Task 6	**Attendance Consistency:** **- Measure attendance trends and identify departments with significant deviations.**
Solution Task 6	My SQL Query : Select e.department_id, e.employeename , a.total_hours as total_hours , avg(a.total_hours) over(partition by e.department_id) as avg_hours, total_hours-avg(a.total_hours) over(partition by e.department_id) as deviation from employee_details e join attendance_records a on e.employeeid=a.employeeid;

	Output :  Result Grid | Filter Rows: | Export: | Wrap Cell Content: department_id | employeename | total_hours | avg_hours | deviation DPT001 | Pari Edwin | 6 | 7.9756 | -1.9756 DPT001 | Akarsh Chada | 10 | 7.9756 | 2.0244 DPT001 | Shray Chauhan | 6 | 7.9756 | -1.9756 DPT001 | Ryan Gill | 9 | 7.9756 | 1.0244 DPT001 | Raghav Sastry | 10 | 7.9756 | 2.0244 DPT001 | Sara Sibal | 7 | 7.9756 | -0.9756
Task 7	**Training and Project Success Correlation:** **- Link training technologies with project milestones to assess the real-world impact of training.**
Solution Task 7	My SQL Query : select t.department_id, t.technologies_covered as technology, round(avg(t.feedback_score),2) as avg_feedback_score, avg(p.milestones_achieved) as avg_milestone, count(p.project_id) as project_no from training_programs t join project_assignments p on t.employeeid=p.employeeid group by t.department_id , t.technologies_covered; With Training_Technologies as (select e.employeeid, e.department_id, t.program_id, t.technologies_covered, t.feedback_score from training_programs as t join employee_details as e on t.employeeid=e.employeeid), Project_performance as (select p.project_id,

	p.employeeid, p.milestones_achieved, p.budget from project_assignments as p) select tt.technologies_covered, tt.department_id, round(avg(tt.feedback_score),2) as avg_feed_score, sum(pp.milestones_achieved) as total_milestones, sum(pp.budget) as total_budget from Training_Technologies as tt join Project_performance as pp on tt.employeeid=pp.employeeid group by tt.technologies_covered, tt.department_id order by total_milestones desc; Output : 
Task 8	**High-Impact Employees:** **- Identify employees who significantly contribute to high-budget projects while maintaining excellent performance scores.**
Solution Task 8	My SQL Query : select p.employeeid, p.employeename,p.project_id, p.project_name, p.budget , e.performance_score from project_assignments as p join employee_details as e on p.employeeid=e.employeeid where

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

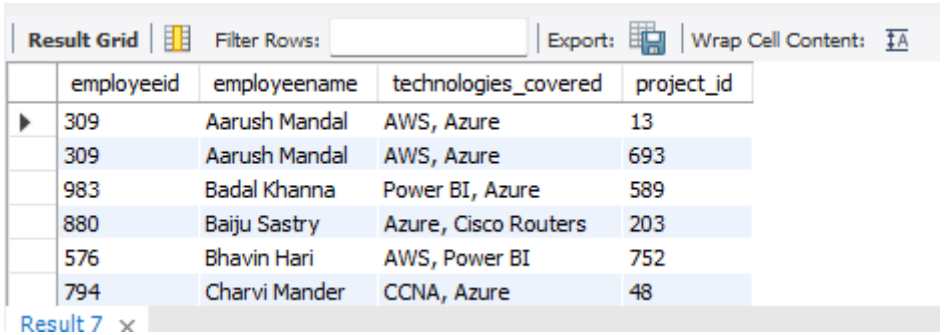
technologies_covered	department_id	avg_feed_score	total_milestones	total_budget
Power BI, Cisco Routers	DPT003	4.15	72	3569488
Azure, Power BI	DPT002	3.91	67	2385207
Cisco Routers, CCNA	DPT002	3.66	63	3292429
CCNA, Cisco Routers	DPT002	3.68	62	2840029
Power BI, Azure	DPT003	4.23	62	3396599
CCNA, Cisco Routers	DPT001	3.33	61	4022474

	e.performance_score='Excellent' and p.budget > (select avg(budget) from project_assignments) order by p.budget desc; Output : 
Task 9	**Cross-Analysis of Training and Project Success** **- Identify employees who have undergone training in specific technologies and contributed to high-performing projects using those technologies.**

Solution Task 9	**My SQL Query :**
	
	WITH TrainedEmployees AS (
	  SELECT
	  e.employeeid,
	  e.employeename,
	  t.technologies_covered
	  FROM
	  employee_details e
	  JOIN
	  training_programs t ON e.employeeid = t.employeeid
	),
	
	HighPerformingEmployees AS (

```
    SELECT
        p.employeeid,
        p.project_id,
        e.performance_score
    FROM
        project_assignments p
    JOIN
        employee_details e ON e.employeeid = p.employeeid
    WHERE
        e.performance_score = 'Excellent'
)


SELECT DISTINCT
    te.employeeid,
    te.employeename,
    te.technologies_covered,
    hpe.project_id
FROM
    TrainedEmployees te
JOIN
    HighPerformingEmployees hpe ON te.employeeid = hpe.employeeid
ORDER BY
    te.employeename, hpe.project_id;
```

	Output :  Result Grid | Filter Rows: | Export: | Wrap Cell Content: employeeid | employeename | technologies_covered | project_id 309 | Aarush Mandal | AWS, Azure | 13 309 | Aarush Mandal | AWS, Azure | 693 983 | Badal Khanna | Power BI, Azure | 589 880 | Baiju Sastry | Azure, Cisco Routers | 203 576 | Bhavin Hari | AWS, Power BI | 752 794 | Charvi Mander | CCNA, Azure | 48 Result 7
	Project Submission Guidelines: GitHub repository - https://github.com/Shantanuneo/gradedtechsphere.git