

SQL Case Study 2

Human Resources

Data In Motion, LLC



Agenda

What we'll discuss today

- Introduction

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- Datasets

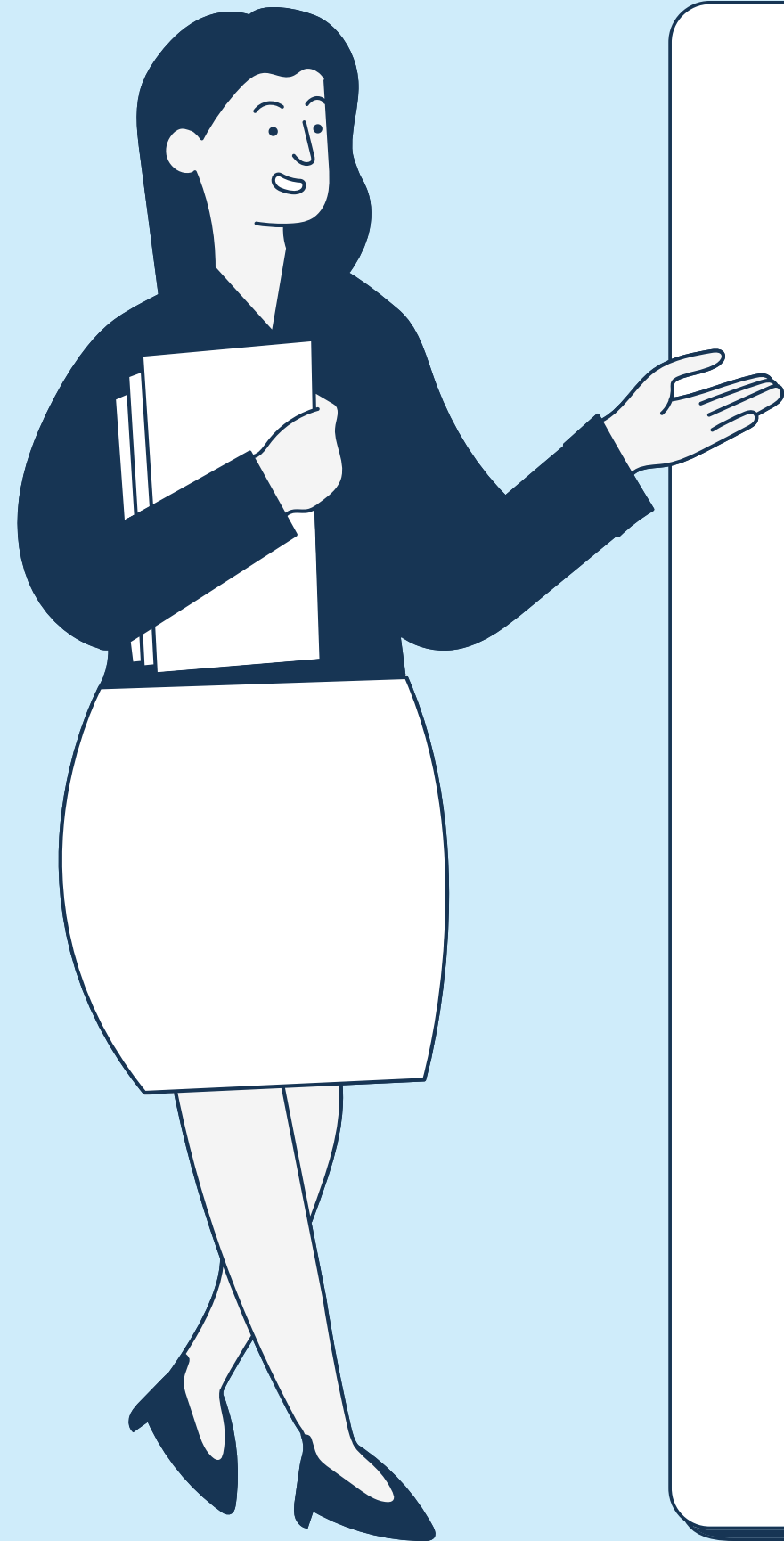
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- Finding Insights

.....

- Conclusion

.....



Introduction

In this case study, we will explore the realm of SQL queries to examine employee information and derive valuable insights to support the human resources department.

.The challenge has been presented by Data In Motion, LLC and the datasets can be accessed through the following link: <https://d-i-motion.com/lessons/kedeishas-banking-services/>

Datasets

Employees

	id	name	hire_date	job_title	department_id
▶	1	John Doe	2018-06-20	HR Manager	1
	2	Jane Smith	2019-07-15	IT Manager	2
	3	Alice Johnson	2020-01-10	Sales Manager	3
	4	Bob Miller	2021-04-30	HR Associate	1
	5	Charlie Brown	2022-10-01	IT Associate	2
	6	Dave Davis	2023-03-15	Sales Associate	3



Departments

id	name	manager_id
1	HR	1
2	IT	2
3	Sales	3
NULL	NULL	NULL

Projects

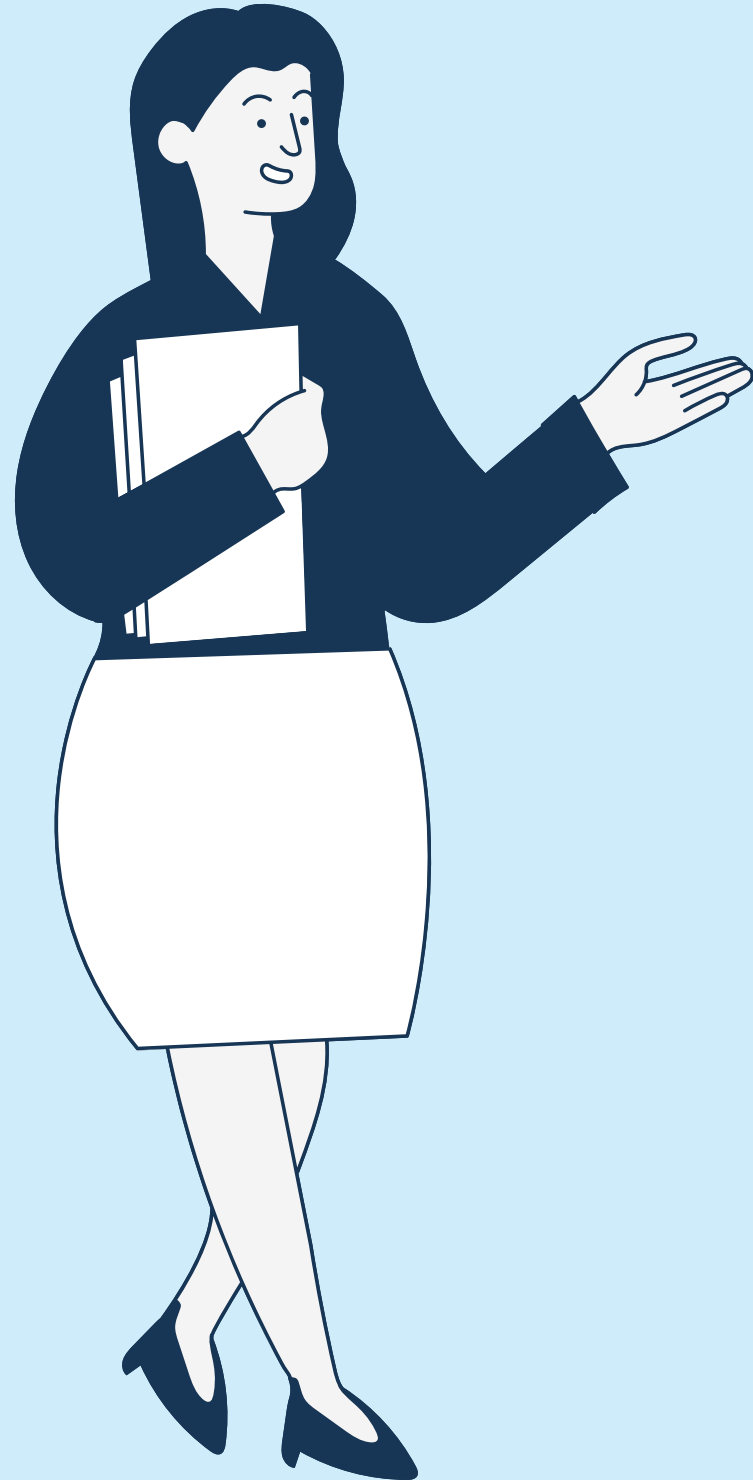
	id	name	start_date	end_date	department_id
▶	1	HR Project 1	2023-01-01	2023-06-30	1
	2	IT Project 1	2023-02-01	2023-07-31	2
	3	Sales Project 1	2023-03-01	2023-08-31	3
⊙	NULL	NULL	NULL	NULL	NULL

Finding Insights

Using MySQL Database Server



Finding the longest ongoing project for each department



```
60
61  -- 1. Find the longest ongoing project for each department.
62 • select d.name as department_name,
63        p.name as project_name,
64        timestampdiff(day, p.start_date, p.end_date) as duration
65  from projects p join departments d
66  on p.department_id=d.id
67  -- order by timestampdiff(day, p.start_date, p.end_date) desc
68  order by 3;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
department_name	project_name	duration	
HR	HR Project 1	180	
IT	IT Project 1	180	
Sales	Sales Project 1	183	

Find all employees who are not managers



```
71 • select * from employees
72   where job_title not like '%Manager';
73
```

Result Grid					
	id	name	hire_date	job_title	department_id
▶	4	Bob Miller	2021-04-30	HR Associate	1
	5	Charlie Brown	2022-10-01	IT Associate	2
	6	Dave Davis	2023-03-15	Sales Associate	3
✱	NULL	NULL	NULL	NULL	NULL

Find all employees who are hired after the start of a project in their department



```
75 • select e.name as employee_name
76    from employees e join projects p
77    on e.department_id=p.department_id
78    where e.hire_date>p.start_date;
79
```

Result Grid



Filter Rows:

Export:



Wrap Cell Content:



	employee_name
▶	Dave Davis

Rank all employees in each department based on their hire date (earliest hire gets the highest rank)



```
81 • select department_id, name, hire_date,  
82    rank() over(partition by department_id order by hire_date) as emp_rank  
83    from employees;
```

Result Grid Filter Rows: <input type="text"/> Export: Wrap Cell Content:				
	department_id	name	hire_date	emp_rank
▶	1	John Doe	2018-06-20	1
	1	Bob Miller	2021-04-30	2
	2	Jane Smith	2019-07-15	1
	2	Charlie Brown	2022-10-01	2
	3	Alice Johnson	2020-01-10	1
	3	Dave Davis	2023-03-15	2

Find the duration between hire date of each employee and the hire date of the next employee hired in the same department.



```
86 • with new_hire_date as
87   (select department_id, name, hire_date as prev_hire_date,
88    lag(hire_date) over(partition by department_id) as curr_hire_date
89    from employees)
90   select department_id, datediff(prev_hire_date, curr_hire_date) as diff_days
91   from new_hire_date
92   where datediff(prev_hire_date, curr_hire_date) is not null
93   order by datediff(prev_hire_date, curr_hire_date) desc;
94
```

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

	department_id	diff_days
▶	2	1174
	3	1160
	1	1045

Conclusion



Sales Project 1 in the Sales department is the longest ongoing project in the company.

Bob Miller, Charlie Brown and Dave Davis are the employees who do not hold any managerial position in the company.

Out of the three departments, only **Dave Davis** is the employee who has been hired after the start of the project in the **Sales department**.