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-- 1. For each department, calculate the average project cost of its AI projects.
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```
1 SELECT d.department_name, AVG(p.project_cost) AS avg_project_cost
2 FROM dept_performance d
3 LEFT JOIN AI_Project_Master p
4 ON d.department_name = p.department
5 GROUP BY d.department_name;
```

department_name	avg_project_cost
Marketing	214325.22999999999
Sales	987728.8272727273
Finance	101187.17055555556
Operations	100640.22999999999
Supply Chain	96326.2296153852
Customer Success	879315.42
Legal	179236.9056666679
Product	1079826.9964285711
HR	840376.1719447038
R&D	1079837.8211111111

```
-- 2. Show project_name, total revenue generated, and total cost savings.
```

```
1 SELECT p.project_name,
2 SUM(i.revenue_generated) AS total_revenue_generated,
3 SUM(i.cost_savings) AS total_cost_savings
4 FROM AI_Project_Master p
5 LEFT JOIN AI_Revenue_Impact i
6 ON p.project_id = i.project_id
7 GROUP BY p.project_name;
```

project_name	total_revenue_generated	total_cost_savings
Customer Churn Predictor	568260.92999999999	367715.2
Sales Forecasting Engine	1038702.65	764002.6700000001
AI Inventory Optimizer	692121.19	436637.55
Fraud Risk Classifier	371326.88	671405.02
Document Automation AI	680935.26	568935.13
Marketing Lead Scoring Model	1305283.12	953179.98
AI Chat Support Assistant	626277.85	554755.6200000001
Quality Inspection Vision Model	320435.57	484108.79
Energy Consumption Optimizer	0	164967.12
Financial Risk Detection System	791994.74	672125.61
Customer Sentiment Analyzer	207835.63999999998	369161.79
Smart Pricing Recommendation...	499694.48	333923.81
Voice-to-Text Automation Tool	1027927.49	480075.09
AI Contract Review System	1012366.63	400372.33000000006
Image Recognition Safety Che...	564927.45	468142.93000000007
Loan Default Risk Scoring	369457.41000000003	343815.15
Predictive Supply Planner	942372.9199999999	879523.31

```
-- 3 Show department_name and number of employees who completed training.
```

```
1 SELECT d.department_name, COUNT(DISTINCT t.employee_id) AS trained_employees
2 FROM dept_performance d
3 LEFT JOIN AI_Skills_Training t
4 ON d.department_name = t.department
5 WHERE t.completion_status = 'Completed'
6 GROUP BY d.department_name;
```

department_name	trained_employees
Customer Success	74
Finance	98
HR	83
Legal	76
Marketing	75
Operations	83
Product	75
R&D	95
Sales	86
Supply Chain	83

```
-- 4 List employees, their department, and course_name for those who haven't completed training and their department has active AI projects.
```

```
1 SELECT t.employee_id, t.department, t.course_name, p.project_name
2 FROM AI_Skills_Training t
3 INNER JOIN AI_Project_Master p
4 ON t.department = p.department
5 WHERE t.completion_status != 'Completed'
6 AND p.project_status = 'Active';
```

employee_id	department	course_name	project_name
E02787	HR	Generative AI Fundamentals	Work Order Prioritization Engine
E02787	HR	Generative AI Fundamentals	Stock Out Prevention Engine
E02787	HR	Generative AI Fundamentals	Patient No-Show Prediction
E02787	HR	Generative AI Fundamentals	Loan Approval Recommendation Engine
E02787	HR	Generative AI Fundamentals	Data Access Governance System
E02787	HR	Generative AI Fundamentals	Invoice Fraud Detection Engine
E02787	HR	Generative AI Fundamentals	Customer Feedback Classifier
E02787	HR	Generative AI Fundamentals	Network Latency Analyzer
E01262	Legal	AI-Driven Decision Making	Raw Material Cost Predictor
E01262	Legal	AI-Driven Decision Making	Customer Grievance Categorizer
E01262	Legal	AI-Driven Decision Making	Customer Loyalty Score Predictor
E01262	Legal	AI-Driven Decision Making	Warehouse Capacity Forecaster
E01262	Legal	AI-Driven Decision Making	Merchant Risk Scoring
E01262	Legal	AI-Driven Decision Making	Customer Lifetime Value Predictor
E01262	Legal	AI-Driven Decision Making	Real-Time Anomaly Detector
E01262	Legal	AI-Driven Decision Making	Loan Default Risk Scoring
E01968	Customer	Speech Recognition with De...	Inventory Pick-Time Optimization

```

52
53 -- 5. Show project_name, project_cost, revenue_generated, cost_savings.
54
55 * SELECT p.project_name, p.project_cost, SUM(l.revenue_generated) AS total_revenue_generated, SUM(l.cost_savings) AS total_cost_savings
56 FROM AI_Project_Master p
57 LEFT JOIN AI_Revenue_Impact l
58 ON p.project_id = l.project_id
59 GROUP BY p.project_name, p.project_cost;
60
61
62 -- 6. For each project, show project_name and total usage_count.
63

```

project_name	project_cost	total_revenue_generated	total_cost_savings
Customer Churn Predictor	50485.87	568265.9299999999	36773.2
Sales Forecasting Engine	82025.71	1038702.65	794052.9700000001
AI Inventory Optimizer	413688.55	692121.19	436627.55
Fraud Risk Classifier	1791224.64	27126.98	671455.52
Document Automation AI	1511281.88	68955.26	58885.13
Marketing Lead Scoring Model	793032.33	1305283.12	953179.98
AI Chat Support Assistant	284644.84	623277.85	57475.6200000001
Quality Inspection Vision Model	157728.19	320435.57	48408.79
Energy Consumption Optimizer	772849.93	0	184987.12
Financial Risk Detection System	438232.92	791994.74	672225.61
Customer Sentiment Analyzer	1077996.96	207833.6399999998	369181.79
Smart Pricing Recommendation...	1287299.52	499694.48	333923.81
Voice-to-Text Automation Tool	1387673.14	107927.49	480775.09
AI Contract Review System	383809.53	1012968.63	400372.31000000006
Image Recognition Safety Che...	80335.16	964927.48	483452.90000000007
Loan Default Risk Scoring	3897175.03	369467.4000000003	340815.15
Predictive Supply Planner	1994705.04	942372.9199999999	879523.31

```

61
62 -- 6. For each project, show project_name and total usage_count.
63
64 * SELECT p.project_name, SUM(u.usage_count) AS total_usage
65 FROM AI_Project_Master p
66 LEFT JOIN AI_usage_Telemetry u
67 ON p.project_id = u.project_id
68 GROUP BY p.project_name;
69

```

project_name	total_usage
Customer Churn Predictor	98387
Sales Forecasting Engine	79942
AI Inventory Optimizer	87656
Fraud Risk Classifier	61944
Document Automation AI	82286
Marketing Lead Scoring Model	105953
AI Chat Support Assistant	129646
Quality Inspection Vision Model	83121
Energy Consumption Optimizer	81199
Financial Risk Detection System	65214
Customer Sentiment Analyzer	132716
Smart Pricing Recommendation...	85698
Voice-to-Text Automation Tool	64142
AI Contract Review System	85724
Image Recognition Safety Che...	109827
Loan Default Risk Scoring	86635
Predictive Supply Planner	57010

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71 -- 7. Identify the top 3 AI projects by total revenue_generated.
72
73 * SELECT p.project_name, SUM(l.revenue_generated) AS total_revenue
74 FROM AI_Project_Master p
75 LEFT JOIN AI_Revenue_Impact l
76 ON p.project_id = l.project_id
77 GROUP BY p.project_name
78 ORDER BY total_revenue DESC
79 LIMIT 3;
80
81 -- 8. Show employees who trained the projects in their department.

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project_name	total_revenue
Inventory Replenishment Predictor	246226.2
Cloud Migration Initiative	1932884.36
Data Quality Monitoring System	1796441.82

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81
82 -- 8. Show employees who trained the projects in their department.
83
84 * SELECT t.employee_id, t.department, t.course_name, p.project_name
85 FROM AI_Skills_Training t
86 LEFT JOIN AI_Project_Master p
87 ON t.department = p.department;
88

```

employee_id	department	course_name	project_name
E02787	HR	Generative AI Fundamentals	Predictive SLA Breach Detection
E02787	HR	Generative AI Fundamentals	Predictive Inventory Shrinkage
E02787	HR	Generative AI Fundamentals	Work Order Prioritization Engine
E02787	HR	Generative AI Fundamentals	Stock-Out Prevention Engine
E02787	HR	Generative AI Fundamentals	Patent Ho-Show Prediction
E02787	HR	Generative AI Fundamentals	Predictive Ticket Volume Engine
E02787	HR	Generative AI Fundamentals	AI Translation Support Engine
E02787	HR	Generative AI Fundamentals	Loan Approval Recommendation Engine
E02787	HR	Generative AI Fundamentals	Data Access Governance System
E02787	HR	Generative AI Fundamentals	Digital Twin Simulation Project
E02787	HR	Generative AI Fundamentals	AI Knowledge Base Assistant
E02787	HR	Generative AI Fundamentals	Invoice Fraud Detection Engine
E02787	HR	Generative AI Fundamentals	Customer Feedback Classifier
E02787	HR	Generative AI Fundamentals	AI Email Classification Engine
E02787	HR	Generative AI Fundamentals	Website UX Behavior Analyzer
E02787	HR	Generative AI Fundamentals	Automated Expense Verification
E02787	HR	Generative AI Fundamentals	Network Latency Analyzer

Result 28 x

Output

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97
98 -- 9 . Show revenue generated per region with project name.
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100
101 • SELECT i.region, p.project_name, SUM(i.revenue_generated) AS total_revenue
102 FROM AI_Revenue_Impact i
103 LEFT JOIN AI_Project_Master p
104 ON i.project_id = p.project_id
105 GROUP BY i.region, p.project_name;
106
107
108

```

region	project_name	total_revenue
APAC	IoT Fleet Monitoring	0
AMER	Digital Invoice Processing System	96081.5
APAC	AI Product Recommendation Engine	213223.40000000002
LATAM	Automated Onboarding Assistant	90524.44
APAC	AI Voice Analytics Engine	85845.40999999999
LATAM	Invoice Fraud Detection Engine	166036.13999999998
AMER	AI-Based Hiring Screener	214323.66999999998
LATAM	Network Latency Analyzer	549405.99
APAC	Employee Productivity Tracker	824289.81
LATAM	Operational Efficiency Analyzer	313328.31999999995
EMEA	Data Quality Monitoring System	444388.31
APAC	Smart Inventory Reconciliation	193865.35
AMER	Stock-Out Prevention Engine	245862.9
LATAM	Predictive SLA Breach Detection	448199.60000000003
APAC	AI-Based Hiring Screener	73918.17
AMER	Customer Creditworthiness Estimator	104958.12
APAC	Customer Repeat Purchase Predictor	21239.26

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110
111
112 --
113
114 -- 10. Show total usage_count per month across all projects.
115
116
117 • SELECT DATE_FORMAT(u.usage_date, '%Y-%m') AS month, SUM(u.usage_count) AS total_usage
118 FROM AI_Usage_Telemetry u
119 GROUP BY month
120 ORDER BY month;
121
122
123

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month	total_usage
2020-01	258892
2020-02	238160
2020-03	270139
2020-04	221693
2020-05	292409
2020-06	268394
2020-07	281142
2020-08	260675
2020-09	238405
2020-10	261381
2020-11	235240
2020-12	286895
2021-01	232905
2021-02	253602
2021-03	300106
2021-04	227287
2021-05	320282