



Smart Farming Sensor Data for Yield Prediction

By Nikita Shirdhankar



Dataset Overview

Purpose & Context:

The dataset simulates real-world smart farming operations. It integrates data collected from **IoT sensors** and **satellite imagery** to provide insights into the variables that influence crop yield. The simulation is designed to support understanding how both environmental factors and operational practices impact agricultural outcomes.

Geographical Scope:

The data spans **500 farms** located in diverse regions, including notable agricultural areas in **India**, the **USA**, and **Africa**.

Rows: 500

Columns: 22

File Size: ~130 KB

Missing Values: None

Duplicates: None

Author of Data:

The dataset was created by **Atharva Soundankar**

MySQL Workbench

Local instance MySQL80

FileEditViewQueryDatabaseServerToolsScriptingHelp

Filter objects

farming

Tables

smart_farming_crop_yield

Views

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heart_attack

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myprojects

mywork

newdata

newdemo database

Tables

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sys

walmartrials

SQL Project On Heart Attack RL

SQL File 3"

Limit to 1000 rows

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irrigation_type VARCHAR(50),

fertilizer_type VARCHAR(50),

pesticide_usage_ml DECIMAL(6,2),

sowing_date DATE,

harvest_date DATE,

total_days INT,

yield_kg_per_hectare DECIMAL(8,2),

sensor_id VARCHAR(20),

timestamp DATETIME,

latitude DECIMAL(9,6),

longitude DECIMAL(9,6),

NDVI_index DECIMAL(4,2),

crop_disease_status VARCHAR(20)

);

select * from smart_farming_crop_yield;

Result Grid

Filter Rows:

Export:

Wrap Cell Contents:

	farm_id	region	crop_type	soil_moisture_percent	soil_ph	temperature_c	rainfall_mm	humidity_percent	sunlight_hours	irrigation_type	fertilizer_type	pesticide_usage_ml	sowing_date
▶	FARM0001	North India	Wheat	35.95	5.99	17.79	75.62	77.03	7.27	None	Organic	6.34	2024
	FARM0002	South USA	Soybean	19.74	7.24	30.18	89.91	61.13	5.67	Sprinkler	Inorganic	9.60	2024
	FARM0003	South USA	Wheat	29.32	7.16	27.37	265.43	68.87	8.23	Drip	Mixed	15.26	2024
	FARM0004	Central USA	Maize	17.33	6.03	33.73	212.01	70.46	5.03	Sprinkler	Organic	25.80	2024
	FARM0005	Central USA	Cotton	19.37	5.92	33.86	269.09	55.73	7.93	None	Mixed	25.65	2024

Table:

smart_farming_crop_yield

Columns:

farm_id

region

crop_type

soil_moisture_percent

soil_ph

temperature_c

rainfall_mm

humidity_percent

sunlight_hours

irrigation_type

fertilizer_type

g_crop_yield 1

Output

Action Output

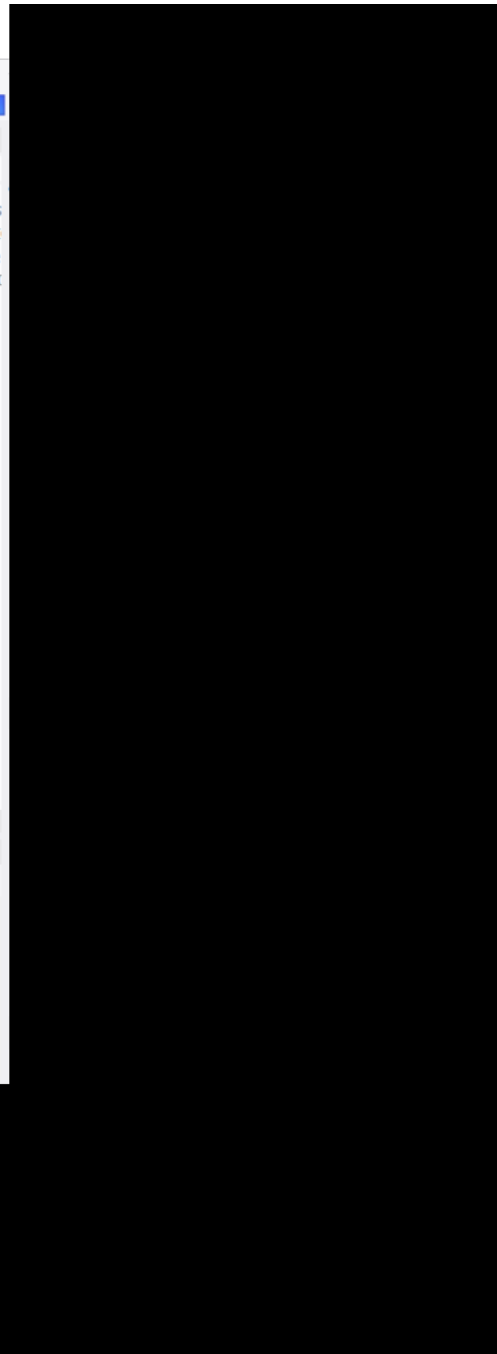
#	Time	Action	Message	Duration / Fetch	
✓	5	01:04:19	SHOW DATABASES	OK	0.000 sec
✓	6	01:04:22	SHOW SESSION VARIABLES LIKE 'lower_case_table_names'	OK	0.000 sec
✓	7	01:04:22	SHOW COLUMNS FROM 'farming'. 'smart_farming_crop_yield'	OK	0.000 sec
✓	8	01:04:36	PREPARE stmt FROM 'INSERT INTO 'farming'. 'smart_farming_crop_yield' ('farm_id','region','crop_type','soil_...	OK	0.000 sec
✓	9	01:04:44	DEALLOCATE PREPARE stmt	OK	0.000 sec
✓	10	01:05:42	select * from smart_farming_crop_yield LIMIT 0, 1000	500 row(s) returned	0.016 sec / 0.000 sec

Read Only

Context Help

Snippets

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.



MySQL Workbench

Local instance MySQL80

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SQL File 3"

Limit to 1000 rows

SCHEMAS

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SQL Project On Heart Attack Ri...

SQL File 3"

Limit to 1000 rows

SQL Editor

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Q.2 What is the average crop yield across all farms?

• SELECT AVG(yield_kg_per_hectare) AS average_crop_yield

FROM Smart_Farming_Crop_Yield;

Q.3 Which regions have the highest and lowest average yields?

• SELECT

region,

AVG(yield_kg_per_hectare) AS average_yield

FROM

Smart_Farming_Crop_Yield

GROUP BY

region

ORDER BY

average_yield DESC;

Result Grid

Filter Rows

Export

Wrap Cell Contents

	region	average_yield
▶	South India	4122.884615
	East Africa	4053.184486
	Central USA	4013.083486
	North India	3996.221616
	South USA	3984.448830

Administration

Schemas

Information

Table:

smart_farming_crop_yield

Columns:

farm_id

region

crop_type

soil_moisture_percent

soil_ph

temperature_c

rainfall_mm

humidity_percent

sunlight_hours

irrigation_type

fertilizer_type

Object Info

Session

SQLAdditions

Jump to

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result 4

Read Only

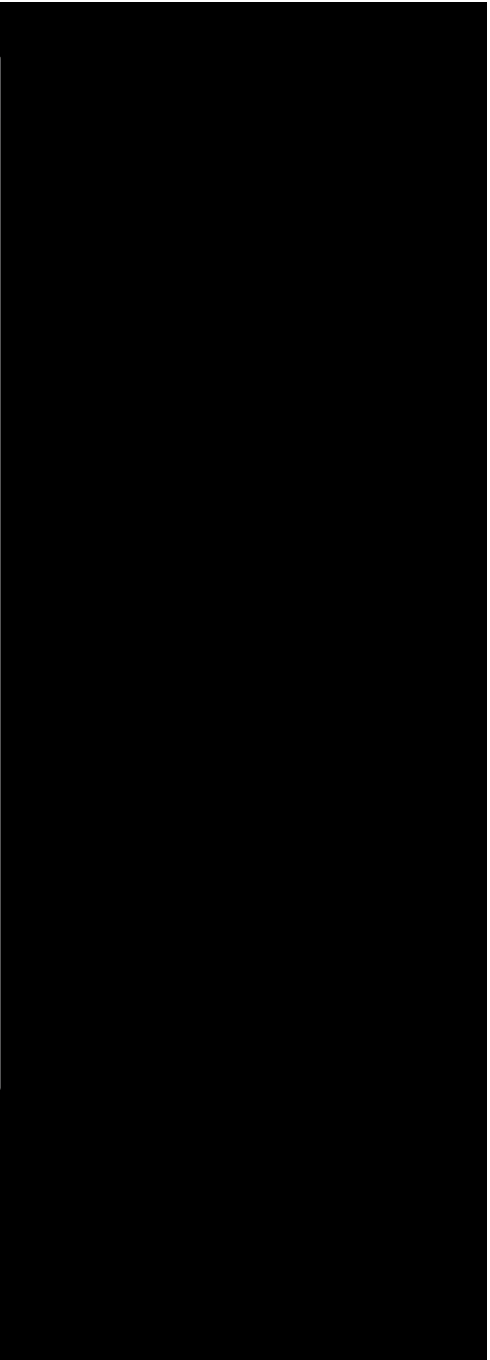
Context Help

Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 8	01:04:36	PREPARE stmt FROM 'INSERT INTO 'farming'.smart_farming_crop_yield' (farm_id', 'region', 'crop_type', 'soil_...	OK	0.000 sec
✓ 9	01:04:44	DEALLOCATE PREPARE stmt	OK	0.000 sec
✓ 10	01:05:42	select * from smart_farming_crop_yield LIMIT 0, 1000	500 row(s) returned	0.016 sec / 0.000 sec
✓ 11	01:07:40	SELECT crop_type, COUNT(*) AS crop_count FROM smart_farming_crop_yield GROUP BY crop...	5 row(s) returned	0.000 sec / 0.000 sec
✓ 12	01:11:05	SELECT AVG(yield_kg_per_hectare) AS average_crop_yield FROM Smart_Farming_Crop_Yield LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
✓ 13	01:12:53	SELECT region, AVG(yield_kg_per_hectare) AS average_yield FROM Smart_Farming_Crop_Yield G...	5 row(s) returned	0.016 sec / 0.000 sec



The screenshot displays the MySQL Workbench environment. On the left, the 'SCHEMAS' pane shows a tree view of databases, including 'farming', 'heart_attack', 'india_election_result', 'myprojects', 'mywork', 'newdata', 'newdemodatabase', 'sys', and 'walmartsales'. The 'farming' database is selected, showing tables like 'smart_farming_crop_yield'. The main editor window shows a SQL query with line numbers 59 to 75. The query calculates average temperature, rainfall, and humidity, and then counts the number of farms using different irrigation methods. Below the editor, the 'Result Grid' shows the output of the query, with columns 'irrigation_type' and 'number_of_farms'. The results are: None (150), Sprinkler (121), Drip (111), and Manual (118). On the right, the 'SQLAdditions' pane displays a message about automatic context help being disabled. At the bottom, the 'Output' pane shows a list of actions and their messages, including '5 row(s) returned' and 'Error Code: 1054, Unknown column 'humidity_humidity_percent' in 'field list''.

SQL Query:

```

59     AVG(temperature_c) AS average_temperature,
60     AVG(rainfall_mm) AS average_rainfall,
61     AVG(humidity_percent) AS average_humidity
62 FROM
63     smart_farming_crop_yield;
64
65 # Q.5 How many farms use each type of irrigation method?
66 • SELECT
67     irrigation_type,
68     COUNT(farm_id) AS number_of_farms
69 FROM
70     smart_farming_crop_yield
71 GROUP BY
72     irrigation_type;
73
74
75

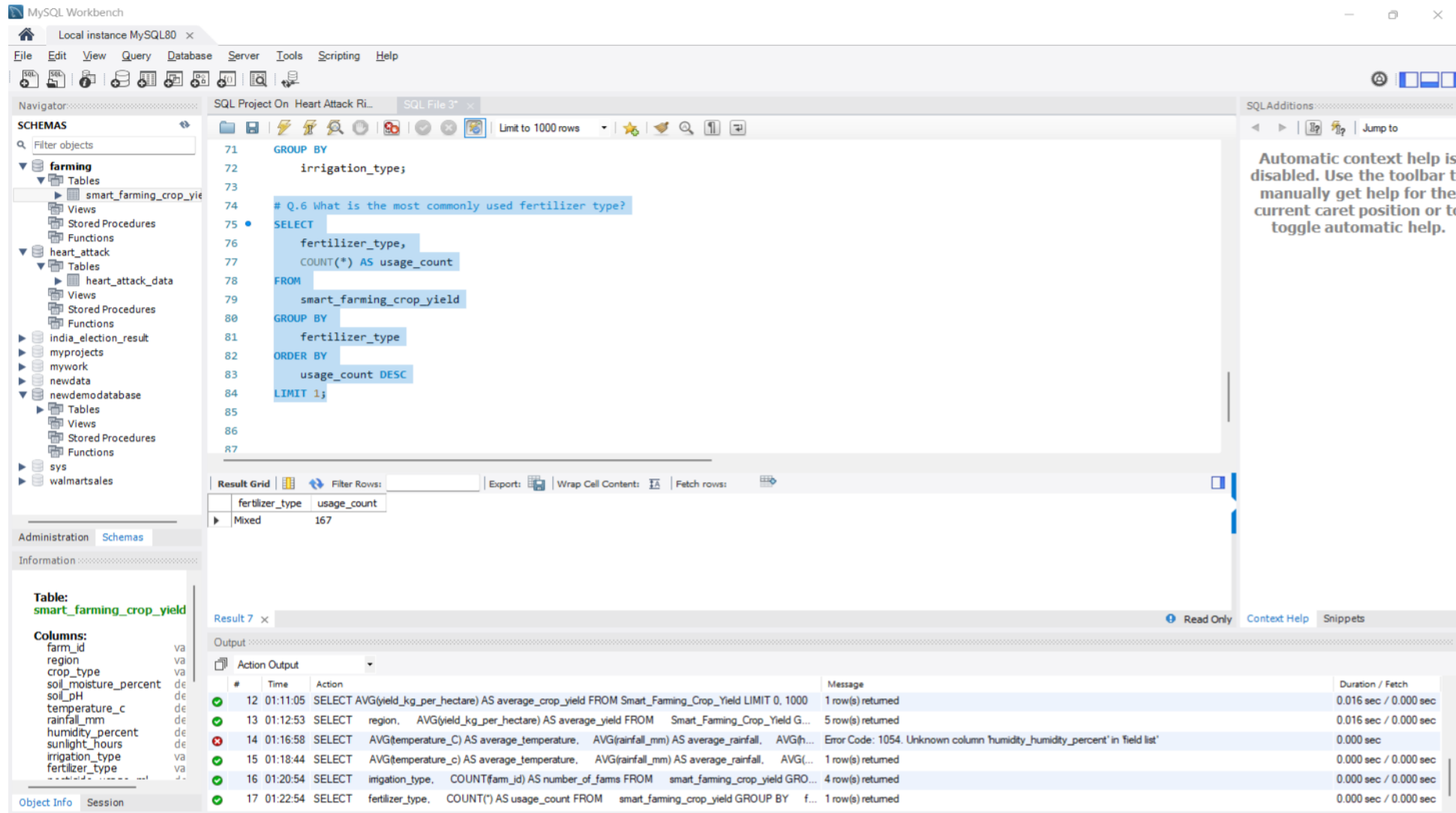
```

Result Grid:

irrigation_type	number_of_farms
None	150
Sprinkler	121
Drip	111
Manual	118

Output:

#	Time	Action	Message	Duration / Fetch
✓ 11	01:07:40	SELECT crop_type, COUNT(*) AS crop_count FROM smart_farming_crop_yield GROUP BY crop...	5 row(s) returned	0.000 sec / 0.000 sec
✓ 12	01:11:05	SELECT AVG(yield_kg_per_hectare) AS average_crop_yield FROM Smart_Farming_Crop_Yield LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
✓ 13	01:12:53	SELECT region, AVG(yield_kg_per_hectare) AS average_yield FROM Smart_Farming_Crop_Yield G...	5 row(s) returned	0.016 sec / 0.000 sec
✗ 14	01:16:58	SELECT AVG(temperature_C) AS average_temperature, AVG(rainfall_mm) AS average_rainfall, AVG(h...	Error Code: 1054, Unknown column 'humidity_humidity_percent' in 'field list'	0.000 sec
✓ 15	01:18:44	SELECT AVG(temperature_c) AS average_temperature, AVG(rainfall_mm) AS average_rainfall, AVG(...	1 row(s) returned	0.000 sec / 0.000 sec
✓ 16	01:20:54	SELECT irrigation_type, COUNT(farm_id) AS number_of_farms FROM smart_farming_crop_yield GRO...	4 row(s) returned	0.000 sec / 0.000 sec



MySQL Workbench

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FileEditViewQueryDatabaseServerToolsScriptingHelp

SQL File 3"

Limit to 1000 rows

SCHEMAS

Filter objects

farming

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smart_farming_crop_yie

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india_election_result

myprojects

mywork

newdata

newdemodatabase

Tables

Views

Stored Procedures

Functions

sys

walmarthsales

Administration

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Information

Table:

smart_farming_crop_yield

Columns:

farm_id

region

crop_type

soil_moisture_percent

soil_ph

temperature_c

rainfall_mm

humidity_percent

sunlight_hours

irrigation_type

fertilizer_type

Object Info

Session

SQL Project On Heart Attack Ri...

SQL File 3"

77COUNT(*) AS usage_count

78FROM

79smart_farming_crop_yield

80GROUP BY

81fertilizer_type

82ORDER BY

83usage_count DESC

84LIMIT 1;

85

86# Q.7 What is the average number of days between sowing and harvest?

87SELECT

88AVG(total_days) AS average_days_between_sowing_and_harvest

89FROM

90smart_farming_crop_yield;

91

92

93

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

average_days_between_sowing_and_harvest

119.4960

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result 8

Read OnlyContext HelpSnippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
13	01:12:53	SELECT region, AVG(yield_kg_per_hectare) AS average_yield FROM Smart_Farming_Crop_Yield G...	5 row(s) returned	0.016 sec / 0.000 sec
14	01:16:58	SELECT AVG(temperature_c) AS average_temperature, AVG(rainfall_mm) AS average_rainfall, AVG(h...	Error Code: 1054. Unknown column 'humidity_percent' in 'field list'	0.000 sec
15	01:18:44	SELECT AVG(temperature_c) AS average_temperature, AVG(rainfall_mm) AS average_rainfall, AVG(...	1 row(s) returned	0.000 sec / 0.000 sec
16	01:20:54	SELECT irrigation_type, COUNT(farm_id) AS number_of_farms FROM smart_farming_crop_yield GRO...	4 row(s) returned	0.000 sec / 0.000 sec
17	01:22:54	SELECT fertilizer_type, COUNT(*) AS usage_count FROM smart_farming_crop_yield GROUP BY f...	1 row(s) returned	0.000 sec / 0.000 sec
18	01:25:07	SELECT AVG(total_days) AS average_days_between_sowing_and_harvest FROM smart_farming_crop...	1 row(s) returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL80

FileEditViewQueryDatabaseServerToolsScriptingHelp

SQL Project On Heart Attack Ri...

SQL File 3*

Limit to 1000 rows

SCHEMAS

Filter objects

farming

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smart_farming_crop_yie

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heart_attack

Tables

heart_attack_data

Views

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india_election_result

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Tables

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Information

Table:

smart_farming_crop_yield

Columns:

farm_id

region

crop_type

soil_moisture_percent

soil_ph

temperature_c

rainfall_mm

humidity_percent

sunlight_hours

irrigation_type

fertilizer_type

Object Info

Session

87

SELECT

88

AVG(total_days) AS average_days_between_sowing_and_harvest

89

FROM

90

smart_farming_crop_yield;

91

92

Q.8 How many crops are affected by disease (None, Mild, Severe)?

93

SELECT

94

crop_disease_status,

95

COUNT(*) AS count_of_crops

96

FROM

97

smart_farming_crop_yield

98

GROUP BY

99

crop_disease_status;

100

101

102

103

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	crop_disease_status	count_of_crops
▶	Mild	125
	None	130
	Severe	133
	Moderate	112

Result 9

Read Only

Context Help

Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch	
✖	14	01:16:58	SELECT AVG(temperature_c) AS average_temperature, AVG(rainfall_mm) AS average_rainfall, AVG(h...	Error Code: 1054. Unknown column 'humidity_humidity_percent' in 'field list'	0.000 sec
✔	15	01:18:44	SELECT AVG(temperature_c) AS average_temperature, AVG(rainfall_mm) AS average_rainfall, AVG(...	1 row(s) returned	0.000 sec / 0.000 sec
✔	16	01:20:54	SELECT irrigation_type, COUNT(fam_id) AS number_of_farms FROM smart_farming_crop_yield GRO...	4 row(s) returned	0.000 sec / 0.000 sec
✔	17	01:22:54	SELECT fertilizer_type, COUNT(*) AS usage_count FROM smart_farming_crop_yield GROUP BY f...	1 row(s) returned	0.000 sec / 0.000 sec
✔	18	01:25:07	SELECT AVG(total_days) AS average_days_between_sowing_and_harvest FROM smart_farming_crop...	1 row(s) returned	0.000 sec / 0.000 sec
✔	19	01:27:06	SELECT crop_disease_status, COUNT(*) AS count_of_crops FROM smart_farming_crop_yield GRO...	4 row(s) returned	0.016 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Upcoming Earnings

Search

ENG IN

01:27

30-04-2025

MySQL Workbench

Local instance MySQL80 x

FileEditViewQueryDatabaseServerToolsScriptingHelp

Navigator

SCHEMAS

Filter objects

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Information

Table:
smart_farming_crop_yield

Columns:
farm_id
region
crop_type
soil_moisture_percent
soil_ph
temperature_c
rainfall_mm
humidity_percent
sunlight_hours
irrigation_type
fertilizer_type

SQL Project On Heart Attack Ri...

SQL File 3*

Limit to 1000 rows

SQL Editor

```
102 • SELECT
103     AVG(NDVI_index) AS average_ndvi_index
104 FROM
105     smart_farming_crop_yield;
106
107 # Q.10 Which crop type has the highest average yield?
108 • SELECT
109     crop_type,
110     AVG(yield_kg_per_hectare) AS average_yield
111 FROM
112     smart_farming_crop_yield
113 GROUP BY
114     crop_type
115 ORDER BY
116     average_yield DESC
117 LIMIT 1;
118
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Fetch rows:

crop_type	average_yield
Soybean	4256.814074

Read Only

Context Help

Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 16	01:20:54	SELECT irrigation_type, COUNT(farm_id) AS number_of_farms FROM smart_farming_crop_yield GRO...	4 row(s) returned	0.000 sec / 0.000 sec
✓ 17	01:22:54	SELECT fertilizer_type, COUNT(*) AS usage_count FROM smart_farming_crop_yield GROUP BY f...	1 row(s) returned	0.000 sec / 0.000 sec
✓ 18	01:25:07	SELECT AVG(total_days) AS average_days_between_sowing_and_harvest FROM smart_farming_crop...	1 row(s) returned	0.000 sec / 0.000 sec
✓ 19	01:27:06	SELECT crop_disease_status, COUNT(*) AS count_of_crops FROM smart_farming_crop_yield GRO...	4 row(s) returned	0.016 sec / 0.000 sec
✓ 20	01:34:42	SELECT AVG(NDVI_index) AS average_ndvi_index FROM smart_farming_crop_yield LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
✓ 21	01:36:31	SELECT crop_type, AVG(yield_kg_per_hectare) AS average_yield FROM smart_farming_crop_yield ...	1 row(s) returned	0.000 sec / 0.000 sec

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