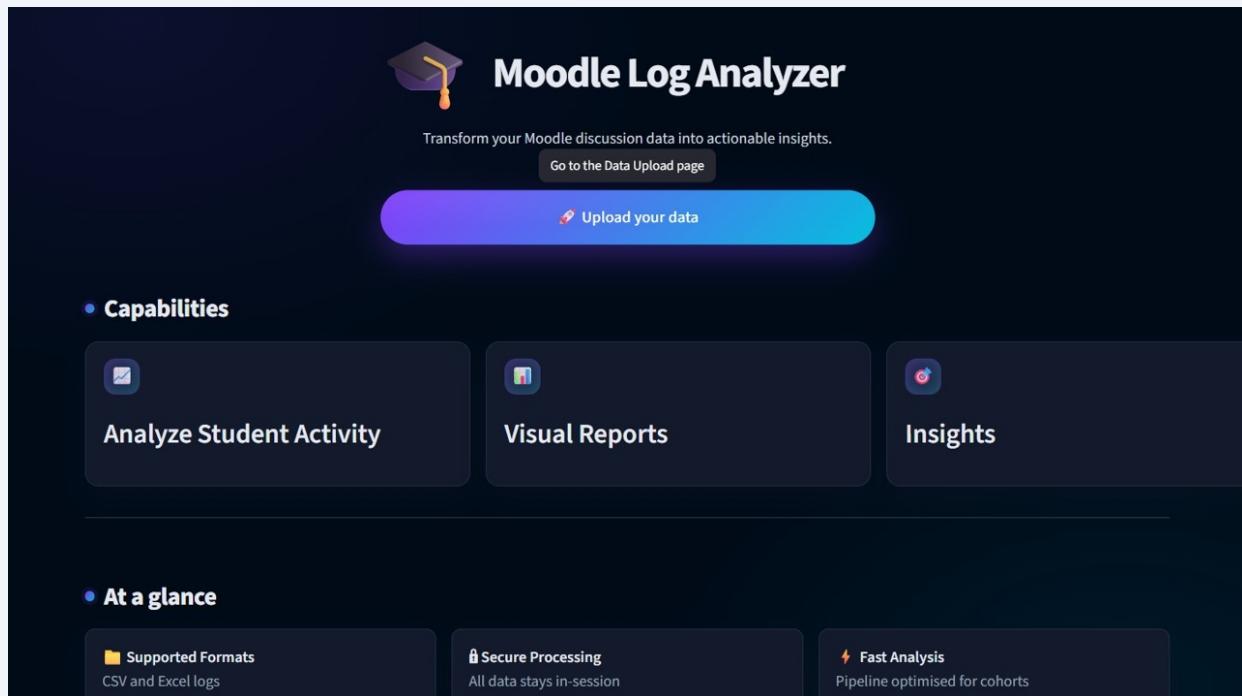


# How to Perform Comprehensive Moodle Log Analysis

Scribe 

1

Navigate to <https://moodleloganalysisdemo-2025.streamlit.app/>



- 2 Click “Upload your data” to open the Data Upload page.

The screenshot shows the Moodle Log Analyzer homepage. At the top center is a graduation cap icon and the title "Moodle Log Analyzer". Below the title is a subtitle: "Transform your Moodle discussion data into actionable insights." A button labeled "Go to the Data Upload page" is visible. A prominent blue button in the center is labeled "Upload your data", which is circled in orange. Below this, there are three main sections: "Analyze Student Activity", "Visual Reports", and "Insights". Each section has an icon and a brief description. At the bottom left, there is a section titled "At a glance".

- 3 On this page, you can download sample anonymized data (CSV or XLSX) for demonstration.

The screenshot shows the "Upload Discussion Data" page. At the top center is a cloud icon with an upward arrow and the title "Upload Discussion Data". Below the title is a subtitle: "Bring in your Moodle discussion logs to kick off analysis and downstream insights." A file upload area is present, with instructions: "Drop your file here or click to browse" and "Drag and drop file here Limit 200MB per file • CSV, XLSX". A "Browse files" button is also shown. Below the upload area, there is a section titled "Supported formats: CSV, XLSX" with a note: "Expected columns: userid, userfullname, message, optional created, modified". At the bottom, there is a section titled "Download sample data for demonstration" with two buttons: "Download Demo CSV" and "Download Demo XLSX".

- 4 Drag and drop your file into the field, or click to browse and select it.

The screenshot shows a dark-themed web application interface. At the top, there are three circular buttons labeled '1 Analyze', '2 Visualize', and '3 Interpret'. Below them is a large blue icon of a document with a red arrow pointing upwards, followed by the text 'Upload Discussion Data'. A subtitle reads 'Bring in your Moodle discussion logs to kick off analysis and downstream insights.' A central input area has a placeholder 'Drop your file here or click to browse' and a 'Drag and drop file here' button with a cloud icon. A 'Browse files' button is highlighted with a yellow circle. Below this, a message box states 'Supported formats: CSV, XLSX' and 'Expected columns: userid, userfullname, message, optional created, modified'. A bullet point '• Download sample data for demonstration' is listed, with a 'Download Demo CSV' button next to it. The bottom right corner shows a McAfee WebAdvisor status bar.

- 5 After upload, a processed data preview and basic stats will appear.

The screenshot shows the results of the data upload. At the top, under 'Dataset overview', it displays 'Total rows: 576', 'Total columns: 20', and 'Unique users: 26'. A 'Data preview' section is expanded, showing the first 10 rows of the dataset. The table has columns: id, discussion, parent, userid, userfullname, created, modified, mailed, subject, and message. The data rows show various entries related to Moodle discussions, such as professor messages to students and student responses.

	id	discussion	parent	userid	userfullname	created	modified	mailed	subject	message
0	162970	62876	0	34004	professor_1	2024-10-17 12:13:00	2024-10-20 11:09:00	1	Praxis-oriented education	System planning and §
1	163025	62876	162970	44100	professor_1	2024-10-20 11:29:00	2024-10-20 11:29:00	1	Tárgy: Praxis-oriented education	Dear Students, if you h
2	163026	62876	163025	34004	professor_1	2024-10-20 11:32:00	2024-10-20 11:32:00	1	Tárgy: Praxis-oriented education	or via email (pitlik.lasz
3	163027	62876	162970	34004	professor_1	2024-10-20 11:42:00	2024-10-20 11:48:00	1	Tárgy: Praxis-oriented education	In case of each proble
4	163028	62876	163027	44100	professor_1	2024-10-20 11:48:00	2024-10-20 11:48:00	1	Tárgy: Praxis-oriented education	Useful information at :
5	163065	62876	163028	47139	student_6	2024-10-21 21:27:00	2024-10-21 21:27:00	1	Tárgy: Praxis-oriented education	<a href="https://chatgpt.com/">https://chatgpt.com/</a>
6	163128	62876	163027	45304	student_24	2024-10-24 12:35:00	2024-10-24 12:35:00	1	Tárgy: Praxis-oriented education	How we can imagine C
7	163129	62876	162970	45297	student_11	2024-10-24 12:47:00	2024-10-24 15:31:00	1	Tárgy: Praxis-oriented education	How would the collabor
8	163131	62876	162970	45297	student_11	2024-10-24 13:00:00	2024-10-24 13:00:00	1	Tárgy: Praxis-oriented education	Some students and us
9	163139	62876	163128	34004	professor_1	2024-10-24 15:30:00	2024-10-24 15:30:00	1	Re: Tárgy: Praxis-oriented education	Assumption: The ques

**6** Click "⚙️ Go to Configuration"

2024-10-20 11:29:00	2024-10-20 11:29:00	1	Tárgy: Praxis-oriented education	Dear Students, if you h
2024-10-20 11:32:00	2024-10-20 11:32:00	1	Tárgy: Praxis-oriented education	or via email (pitlik.lasz
2024-10-20 11:42:00	2024-10-20 11:48:00	1	Tárgy: Praxis-oriented education	In case of each proble
2024-10-20 11:48:00	2024-10-20 11:48:00	1	Tárgy: Praxis-oriented education	Useful information at a
2024-10-21 21:27:00	2024-10-21 21:27:00	1	Tárgy: Praxis-oriented education	<a href="https://chatgpt.com/">https://chatgpt.com/</a>
2024-10-24 12:35:00	2024-10-24 12:35:00	1	Tárgy: Praxis-oriented education	How we can imagine C
2024-10-24 12:47:00	2024-10-24 15:31:00	1	Tárgy: Praxis-oriented education	How would the collabor
2024-10-24 13:00:00	2024-10-24 13:00:00	1	Tárgy: Praxis-oriented education	Some students and us
2024-10-24 15:30:00	2024-10-24 15:30:00	1	Re: Tárgy: Praxis-oriented education	Assumption: The ques

⚙️ Go to Configuration

**7** On the Configuration page, enter professor names (one per line) or add from detected users. Add new exams and set their deadlines (posts after the deadline are flagged).

Quick Summary

Quick Summary (current settings)

Professors & Exams Analysis Settings Export / Import

Professor Settings

Professor names (one per line)

professor\_1  
professor\_2

Add from data — select —

Exam Deadline Settings

Add exam (custom name)

e.g., Quasi Exam IV

Add from detected subjects

— select —

- 8** In Analysis Settings, set the Y reference value for the COCO Y0 engine and the Parent IDs used for pattern matching.

The screenshot shows the 'Analysis Settings' tab selected in the navigation bar. The 'Quick summary' section is active, displaying a list of professor names ('professor\_1', 'professor\_2') and a dropdown menu for 'Quick insert from detected users' containing various email subjects like 'Re: Quasi Exam I.' and 'Tárgy: Re: Quasi Exam I.'

- 9** In Export / Import, you can download the current config as JSON or import a saved config; when ready, click "➡ Go to Attribute Analysis" to create the OAM.

The screenshot shows the 'Export / Import' tab selected. It features sections for 'Save / Export' (with a 'Export Configuration (JSON)' button) and 'Import / Reset' (with a 'Drag and drop file here' input field and a 'Browse files' button). A 'Reset to Defaults' button is also present. At the bottom, there's a note about settings being applied immediately and a large orange button labeled '➡ Go to Attribute Analysis'.

10

On the Attribute Analysis page, select the attributes you want to include in the OAM.

The screenshot shows the Attribute Analysis interface. At the top, there's a section titled "Dataset snapshot" with a folder icon. It displays "Posts considered: 346" and a list of "Professors: professor\_1, professor\_2". Below this, a section titled "Select attributes" has a "Attribute Descriptions" button, which is highlighted with a large orange circle. A prominent heading "Selected attributes: 0" is centered below the descriptions. At the bottom, four categories are listed: "Activity Metrics", "Content Analysis", "Engagement Metrics", and "Exam Performance", each with a corresponding icon and a right-pointing arrow.

11

Use Attribute Descriptions to understand what each metric measures.

This screenshot shows the expanded "Attribute Descriptions" panel. It contains four entries: "Activity Metrics: Posting frequency, consistency, and engagement patterns", "Engagement Metrics: Interaction quality and response patterns", "Content Analysis: Content quality, length, and relevance", and "Exam Performance: Exam-related posting behavior and deadline compliance". Below this panel, the "Selected attributes: 0" summary is shown again, along with the same four category buttons. At the bottom, there are three buttons: "Select All" with a checked checkbox icon, "Clear All" with a red X icon, and "Compute Attributes" with a rocket ship icon.

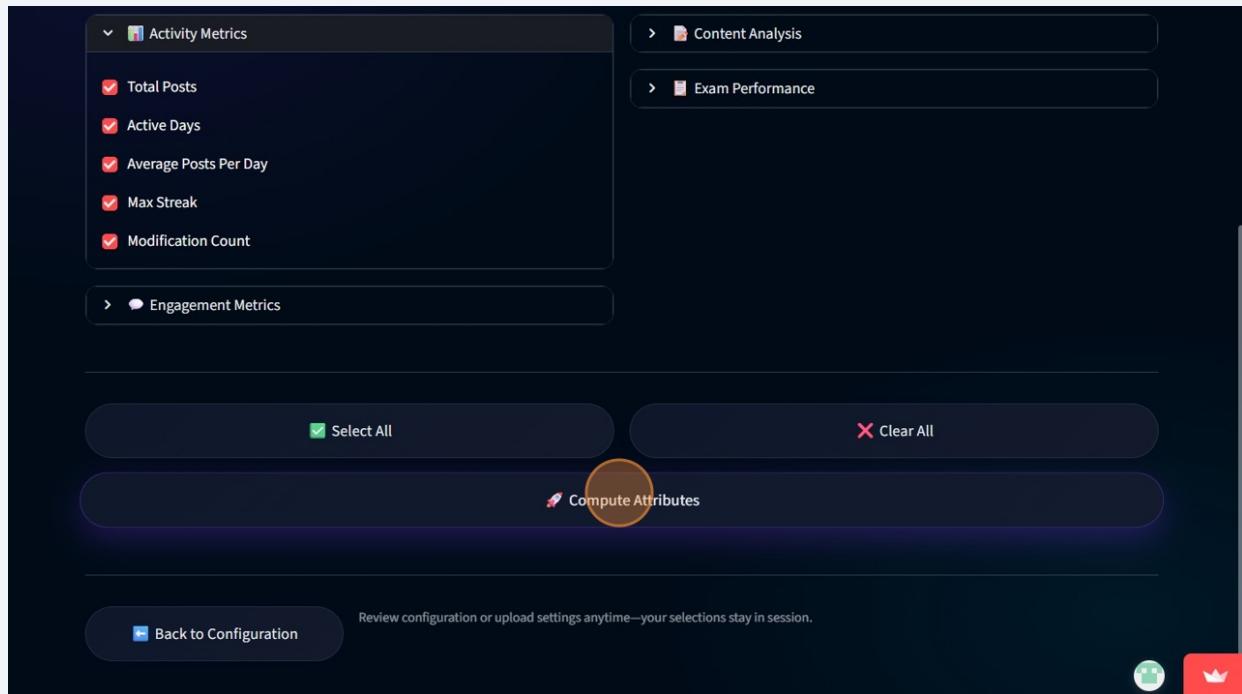
**12** Expand the Activity / Engagement / Content / Exam sections to pick attributes.

The screenshot shows the 'Selected attributes: 0' section of the Scribe interface. On the left, there's a tree view with 'Activity Metrics' expanded, showing 'Total Posts' (which has a red circle around its checkbox), 'Active Days', 'Average Posts Per Day', 'Max Streak', and 'Modification Count'. Below this is a collapsed 'Engagement Metrics' section. To the right are sections for 'Content Analysis' and 'Exam Performance'. At the bottom are three buttons: 'Select All' (with a checked checkbox), 'Clear All' (with a red X), and 'Compute Attributes' (with a rocket icon).

**13** Or click “ Select All” to include all available attributes.

The screenshot shows the same interface after clicking 'Select All'. Now, 'Total Posts' has a checked checkbox, and the other metrics are unselected. A red circle highlights the 'Select All' button, which now has a checked checkbox. The other buttons ('Clear All' and 'Compute Attributes') remain unchanged.

**14** Click “Compute Selected Attributes” to generate the OAM.



**15** After creation, explore the Overview / Activity / Engagement / Content / Exams tabs to view different category tables.

The screenshot shows the 'Analysis Overview' page. At the top, there's a green success message: 'All attributes have been computed successfully!' Below this, there are five tabs: 'Overview' (selected), 'Activity' (circled in orange), 'Engagement', 'Content', and 'Exams'. The 'Activity' tab shows 'Total Students: 24' and 'Total Attributes: 20'. Below this is a section titled 'Attribute Summary by Category' with a table:

Category	Attributes
Activity	5
Engagement	6
Content	5
Exam	4

16

For the full matrix, expand “Combined Object Attribute Matrix (For COCO Analysis)” to view or download the OAM.

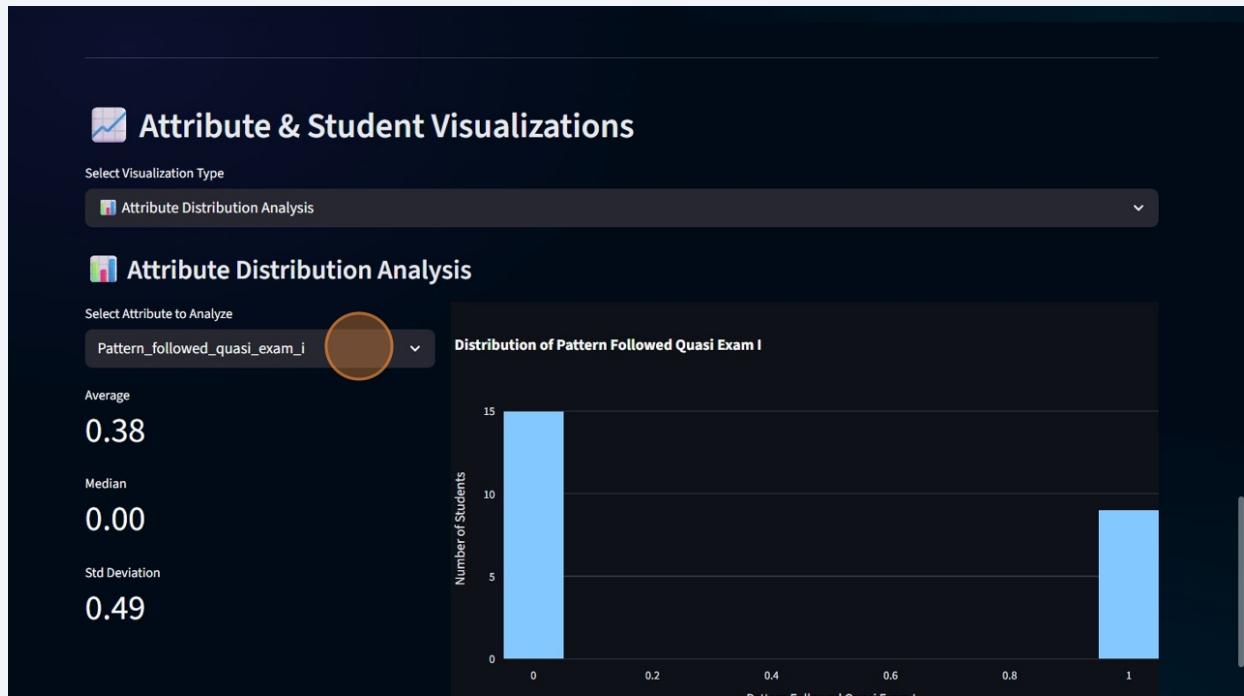
The screenshot shows a Jupyter Notebook cell with a dark theme. At the top, there is a table with columns labeled 'id', 'userid', 'studentname', 'active\_days', 'average\_posts\_per\_day', 'avg\_AI\_involvedMsg\_score', 'avg\_reply\_time', 'citation\_count', and 'deadline'. Below the table is a button labeled "Download Activity Metrics (CSV)". Below the button is a link labeled "Combined Object Attribute Matrix (For COCO Analysis)" which is circled in orange. The main title of the notebook is "Attribute & Student Visualizations". A dropdown menu shows "Attribute Distribution Analysis" selected. A sub-section titled "Attribute Distribution Analysis" is visible, along with a dropdown menu for "Select Attribute to Analyze".

17

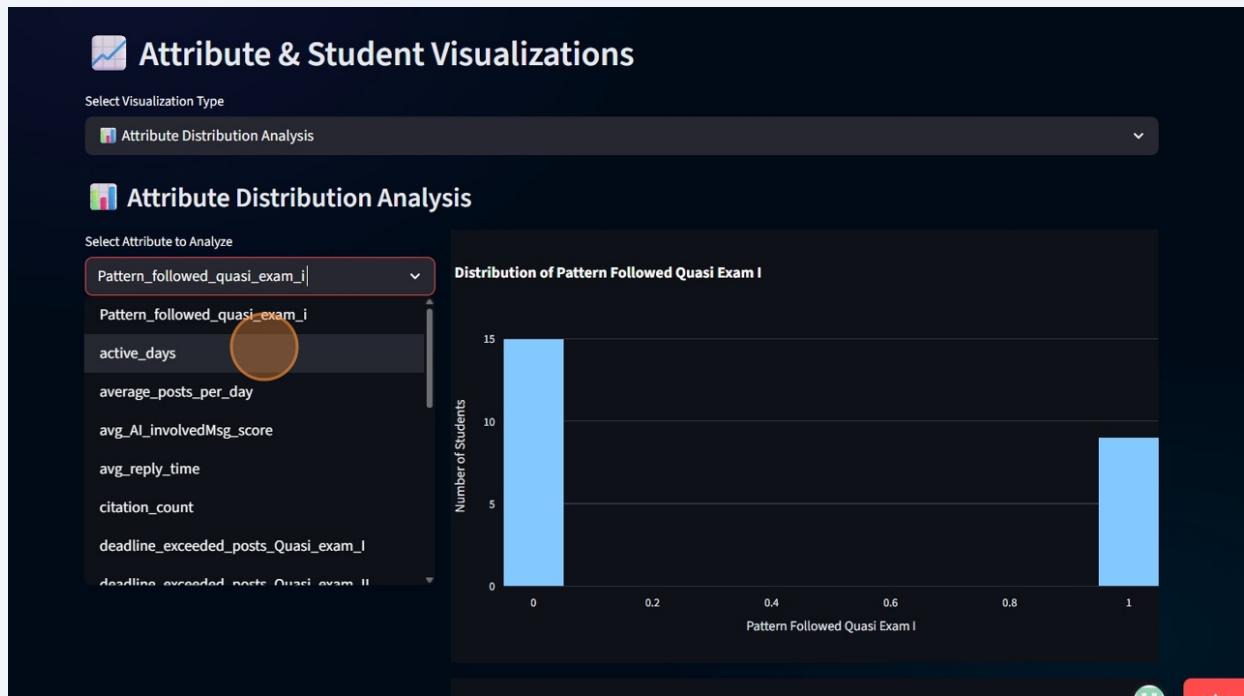
OAM output.

The screenshot shows a Jupyter Notebook cell with a dark theme. At the top, there is a table with columns labeled 'userid', 'userfullname', 'Pattern\_followed\_quasi\_exam\_i', 'active\_days', 'average\_posts\_per\_day', 'avg\_AI\_involvedMsg\_score', 'avg\_reply\_time', 'citation\_count', and 'deadline'. Below the table is a button labeled "Download Full OAM (CSV)". The main title of the notebook is "Attribute & Student Visualizations". There are also icons for a globe and a crown in the bottom right corner.

- 18 In the visualization section, choose a chart type from Select Visualization Type.

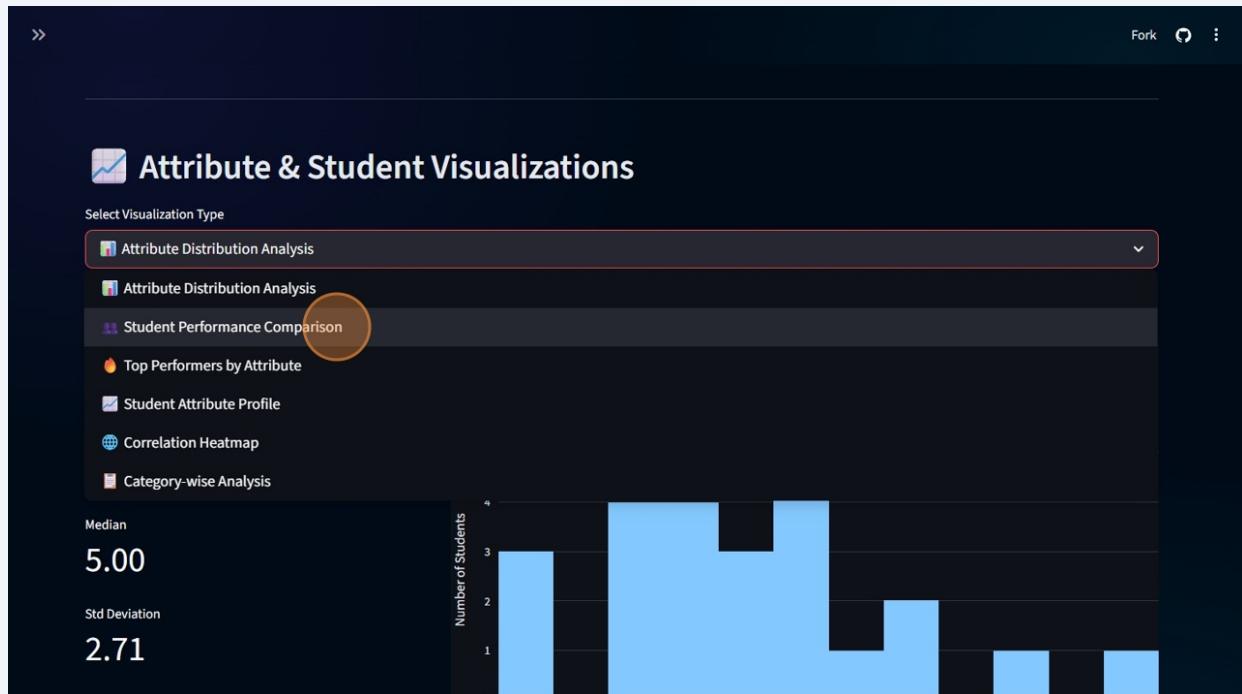


- 19 Attribute Distribution Analysis lets you inspect distributions for individual attributes.



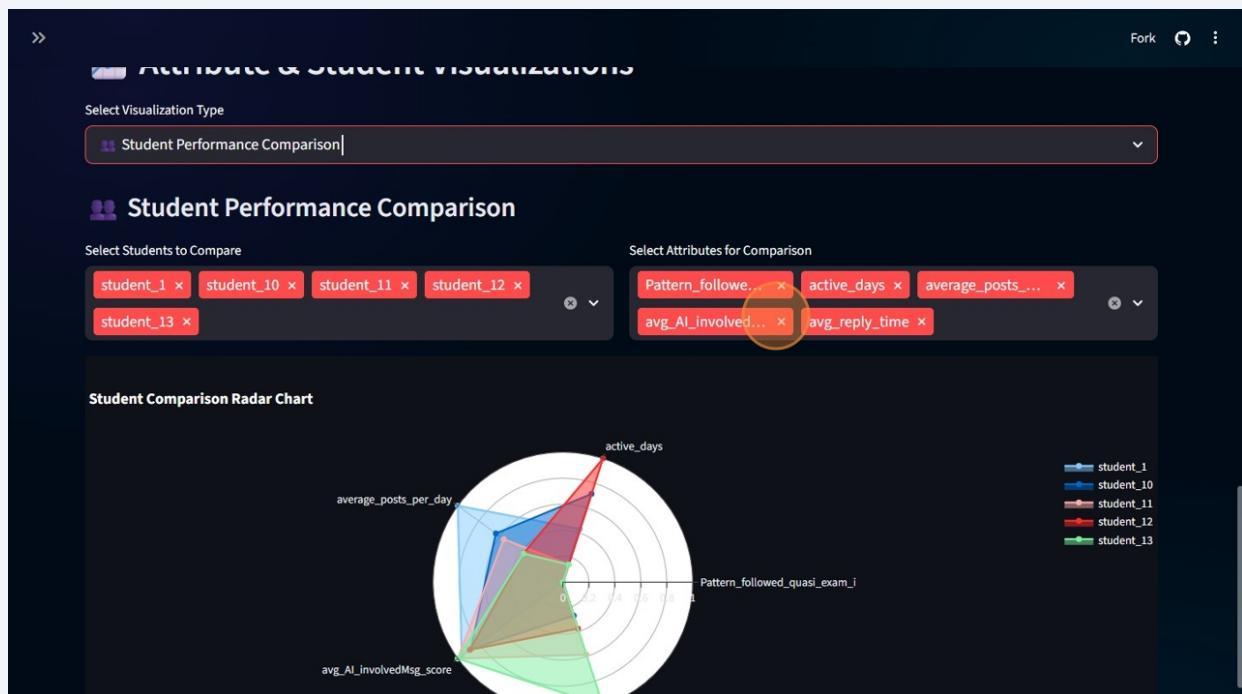
20

Student Performance Comparison compares selected students across selected attributes.



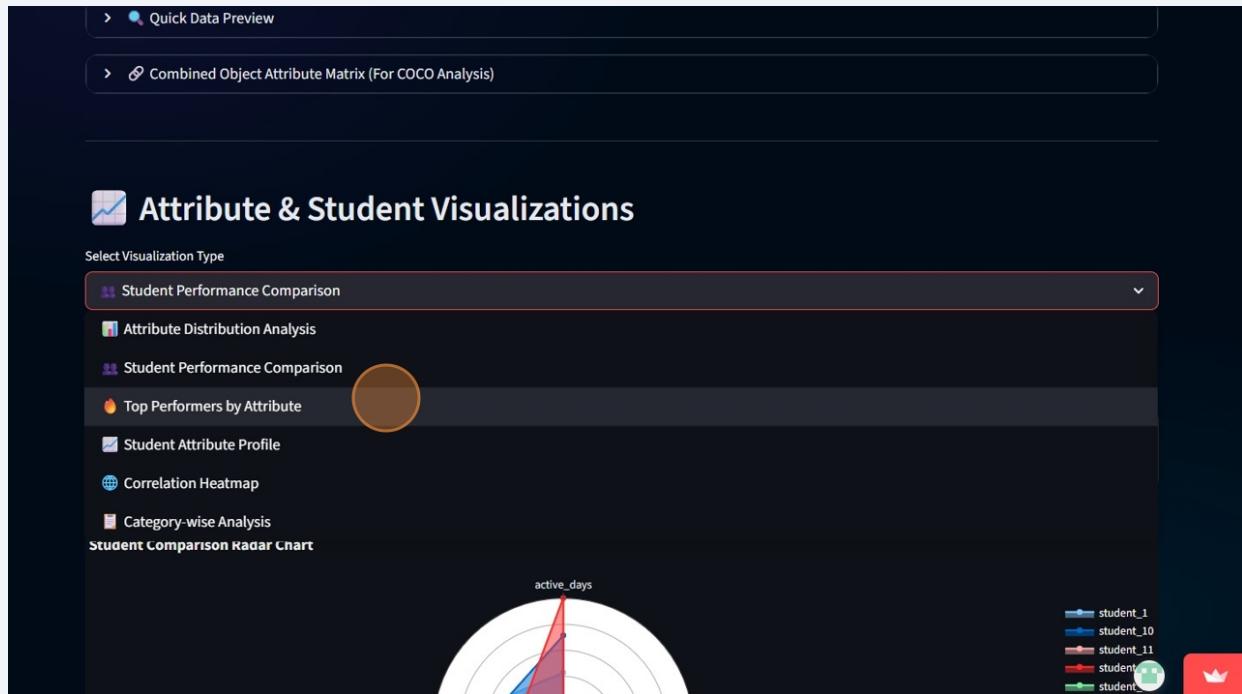
21

On student performance comparison, pick multiple students and attributes to see side-by-side differences.



22

Top Performers by Attribute highlights the highest-scoring students per attribute.



23

Use it to see which student leads on a specific attribute.



24

Student Attribute Profile shows a detailed metric profile for one student.

The screenshot shows a dark-themed dashboard titled "Attribute & Student Visualizations". At the top, there are two navigation items: "Quick Data Preview" and "Combined Object Attribute Matrix (For COCO Analysis)". Below this is a dropdown menu titled "Select Visualization Type" with the option "Top Performers by Attribute" highlighted. Other options include "Attribute Distribution Analysis", "Student Performance Comparison", "Top Performers by Attribute", "Student Attribute Profile", "Correlation Heatmap", and "Category-wise Analysis". A large orange circle highlights the "Top Performers by Attribute" option. Below the dropdown, a section titled "Top 10 Students - Avg Ai Involvedmsg Score" displays a horizontal bar chart. The chart has two bars: "student\_16" (purple) and "student\_1" (dark purple). To the right of the bars is a small icon of a person with a crown and the text "avg\_Ai\_involvedMsg\_score". A red circle highlights the "avg\_Ai\_involvedMsg\_score" text. At the bottom right of the chart area is a small orange circle.

25

It also compares each metric to the class average (above/below).

The screenshot shows a dark-themed dashboard titled "Student Profile". At the top, there is a "Select Student" dropdown with "student\_1" selected. A large orange circle highlights the "student\_1" text. Below this is a section titled "Profile for: student\_1" with a bar chart icon. A table follows, comparing various student metrics to their class averages. The table has columns for Attribute, Score, Class Average, and Status. The status column uses icons to indicate whether the score is above or below average. An orange circle highlights the "Status" column header.

	Attribute	Score	Class Average	Status
3	Avg Ai Involvedmsg Score	9.62	9.44	<span style="color: green;">✓ Above Avg</span>
4	Avg Reply Time	0.00	92.12	<span style="color: red;">✗ Below Avg</span>
5	Citation Count	0.00	0.92	<span style="color: red;">✗ Below Avg</span>
6	Deadline Exceeded Posts Quasi Exam I	0.00	0.00	<span style="color: red;">✗ Below Avg</span>
7	Deadline Exceeded Posts Quasi Exam II	0.00	0.00	<span style="color: red;">✗ Below Avg</span>
8	Deadline Exceeded Posts Quasi Exam III	0.00	0.00	<span style="color: red;">✗ Below Avg</span>
9	Engagement Rate	0.00	0.05	<span style="color: red;">✗ Below Avg</span>
10	Max Streak	2.00	1.88	<span style="color: green;">✓ Above Avg</span>
11	Modification Count	0.00	1.71	<span style="color: red;">✗ Below Avg</span>
12	Topic Relevance Score	0.00	0.31	<span style="color: red;">✗ Below Avg</span>
13	Total Characters	8697.00	6661.71	<span style="color: green;">✓ Above Avg</span>
14	Total Posts	16.00	14.42	<span style="color: green;">✓ Above Avg</span>
15	Total Replies To Professor	0.00	10.21	<span style="color: red;">✗ Below Avg</span>

## 26 Correlation Heatmap visualizes relationships among attributes.

The screenshot shows a dark-themed dashboard interface. At the top, there's a header with the title "Attribute & Student Visualizations". Below it is a dropdown menu titled "Select Visualization Type" with the option "Student Attribute Profile" selected. A circular highlight is placed over the "Correlation Heatmap" option in the list. The main area contains a table with columns for "ATTRIBUTE", "SCORE", "CLASS AVERAGE", and "STATUS". The rows represent various student attributes. The status column includes icons indicating whether each attribute is above or below average. At the bottom right of the table are two small circular icons: a green one with a person icon and a red one with a crown icon.

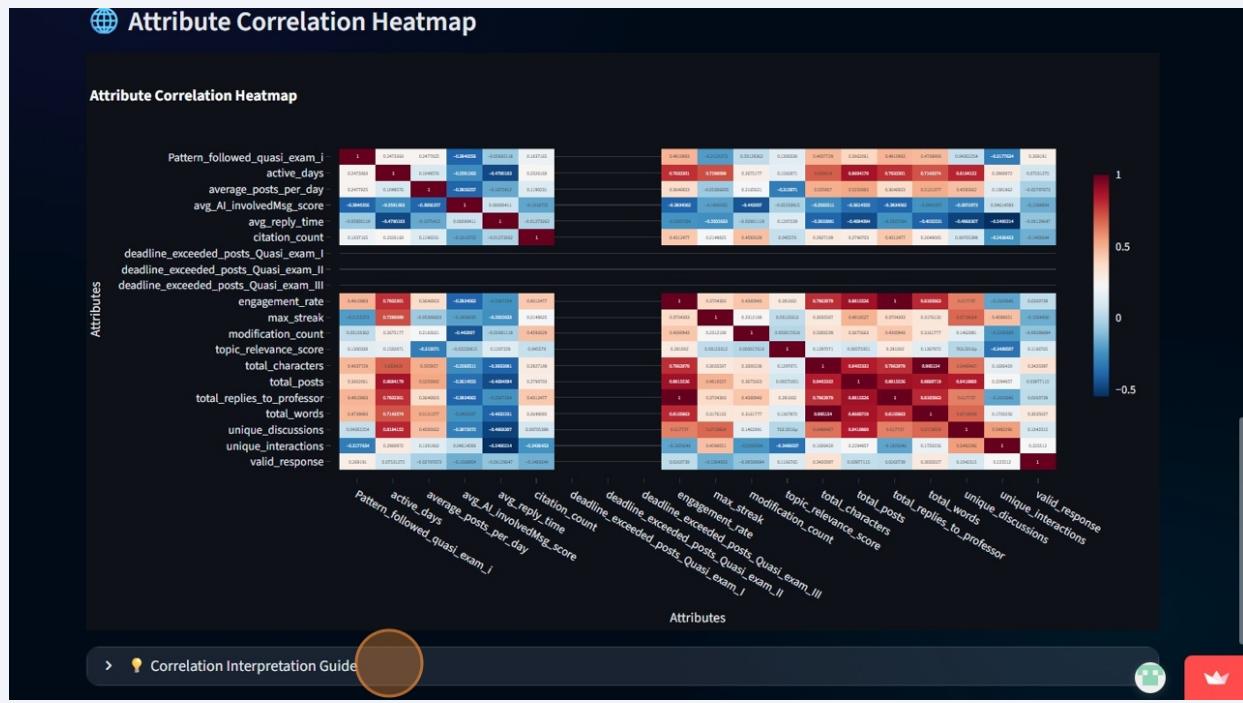
ATTRIBUTE	SCORE	CLASS AVERAGE	STATUS
3 Avg Ai Involvedmsg Score	10.00	9.44	<span style="color: green;">Above Avg</span>
4 Avg Reply Time	287.61	92.12	<span style="color: green;">Above Avg</span>
5 Citation Count	0.00	0.92	<span style="color: orange;">Below Avg</span>
6 Deadline Exceeded Posts Quasi Exam I	0.00	0.00	<span style="color: orange;">Below Avg</span>
7 Deadline Exceeded Posts Quasi Exam II	0.00	0.00	<span style="color: orange;">Below Avg</span>
8 Deadline Exceeded Posts Quasi Exam III	0.00	0.00	<span style="color: orange;">Below Avg</span>
9 Engagement Rate	0.01	0.05	<span style="color: orange;">Below Avg</span>
10 Max Streak	1.00	1.88	<span style="color: orange;">Below Avg</span>

## 27 Use it to see which attributes move together or diverge.

This screenshot shows the same dashboard as the previous one, but the selected visualization type is now "Correlation Heatmap". A circular highlight is placed over the "Attribute Correlation Heatmap" section. The main area displays three large correlation matrices. The left matrix is labeled "Attribute Correlation Heatmap" and lists attributes like "Pattern\_followed\_quasi\_exam\_i", "active\_days", "average\_posts\_per\_day", etc. The middle matrix is labeled "1" and the right matrix is labeled "0". To the right of the matrices is a vertical color scale bar ranging from -0.5 (blue) to 1 (red). The color scale indicates the strength and direction of correlations between attributes.

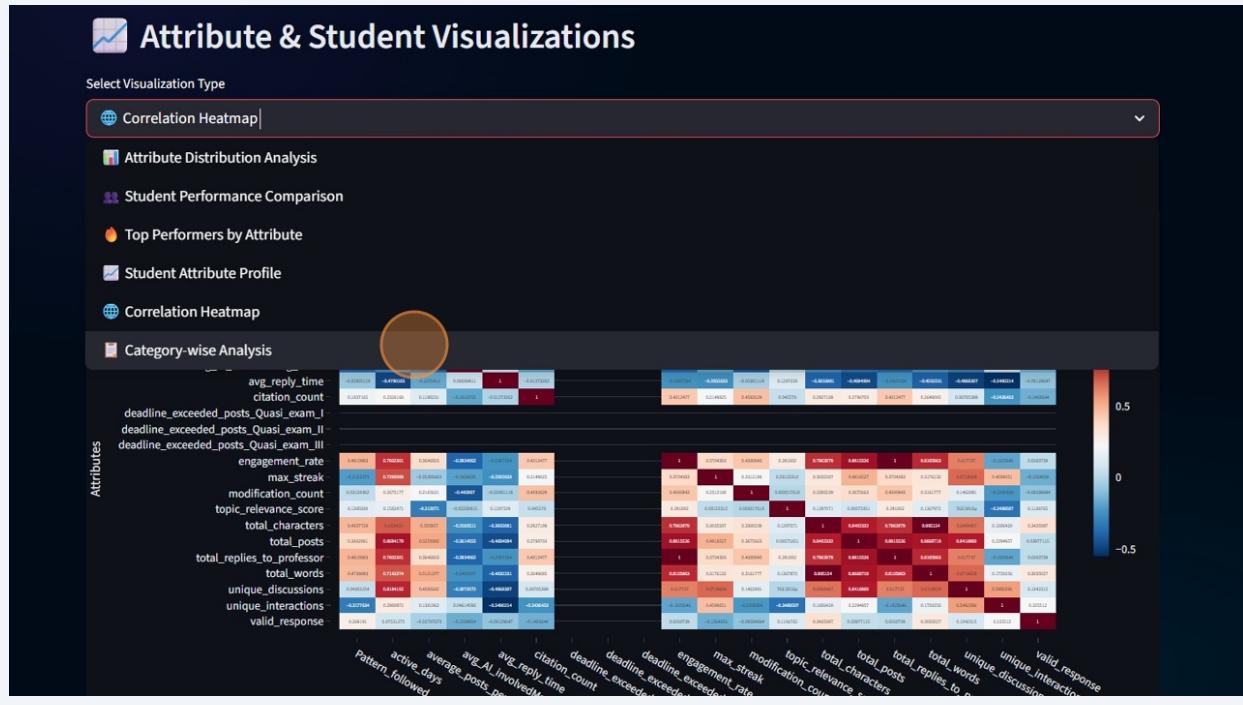
28

Refer to the Correlation Interpretation Guide below the chart for meaning.



29

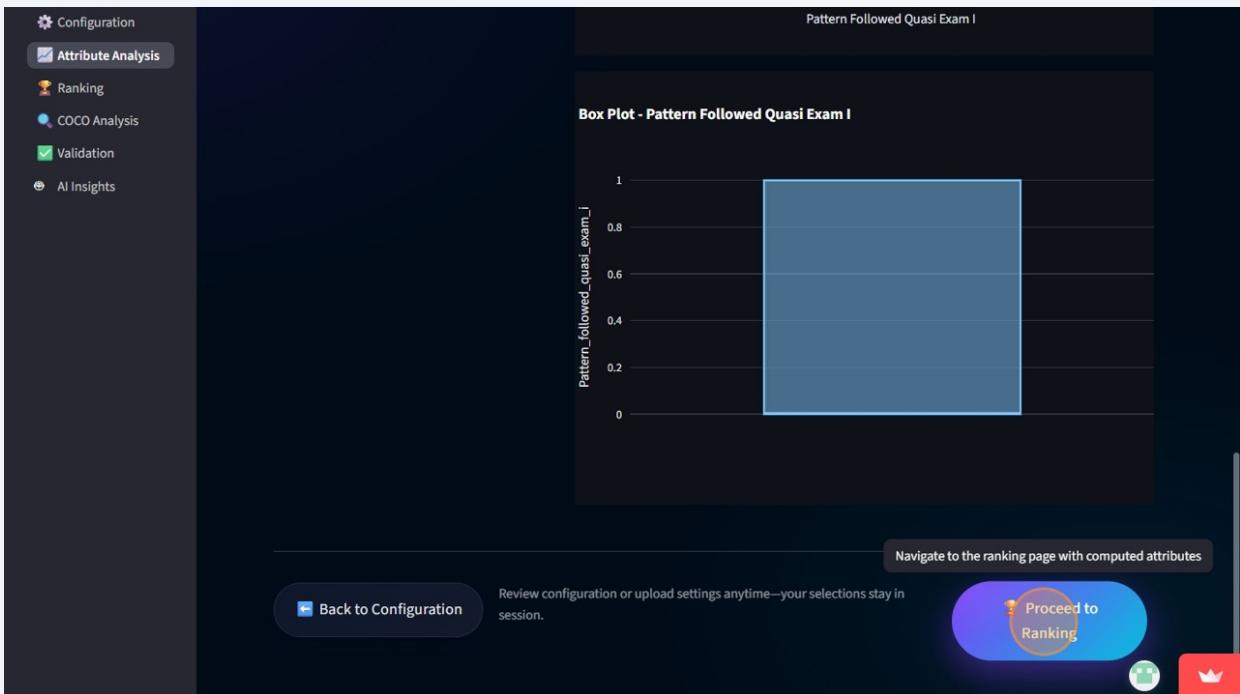
Category-wise Analysis summarizes performance by category (Activity, Engagement, Content, Exam).



**30** Use this to spot strengths and areas needing attention at a glance.

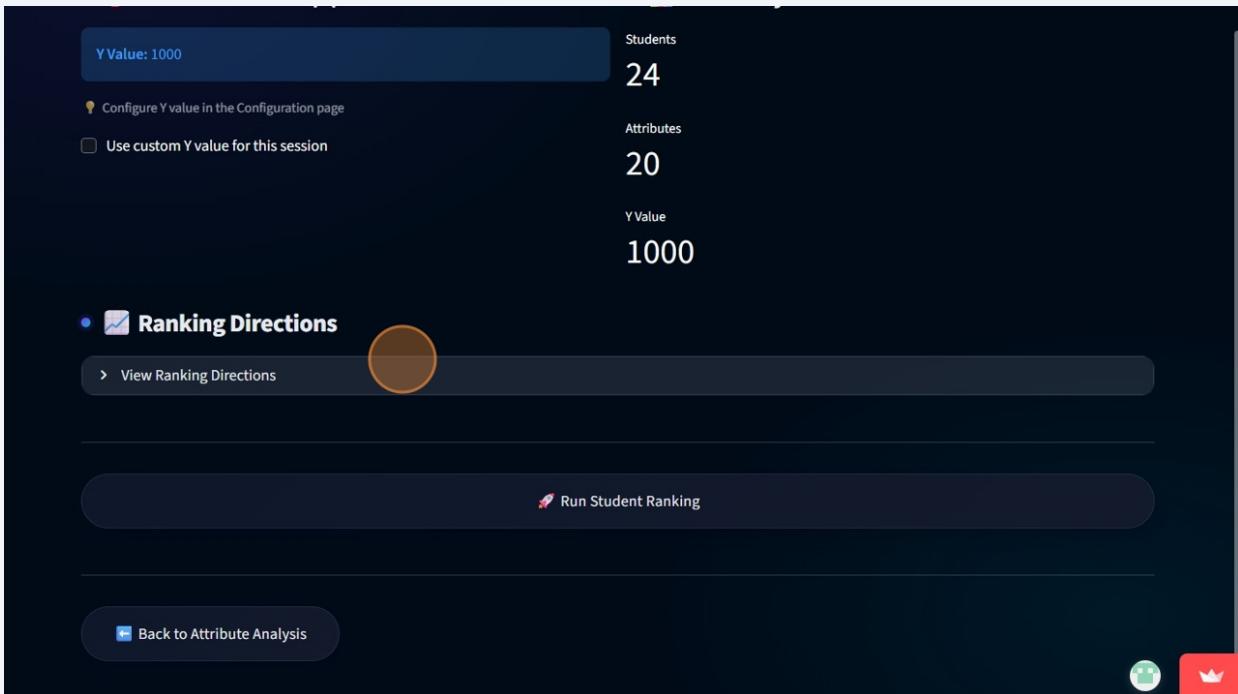


**31** Click "🏆 Proceed to Ranking"



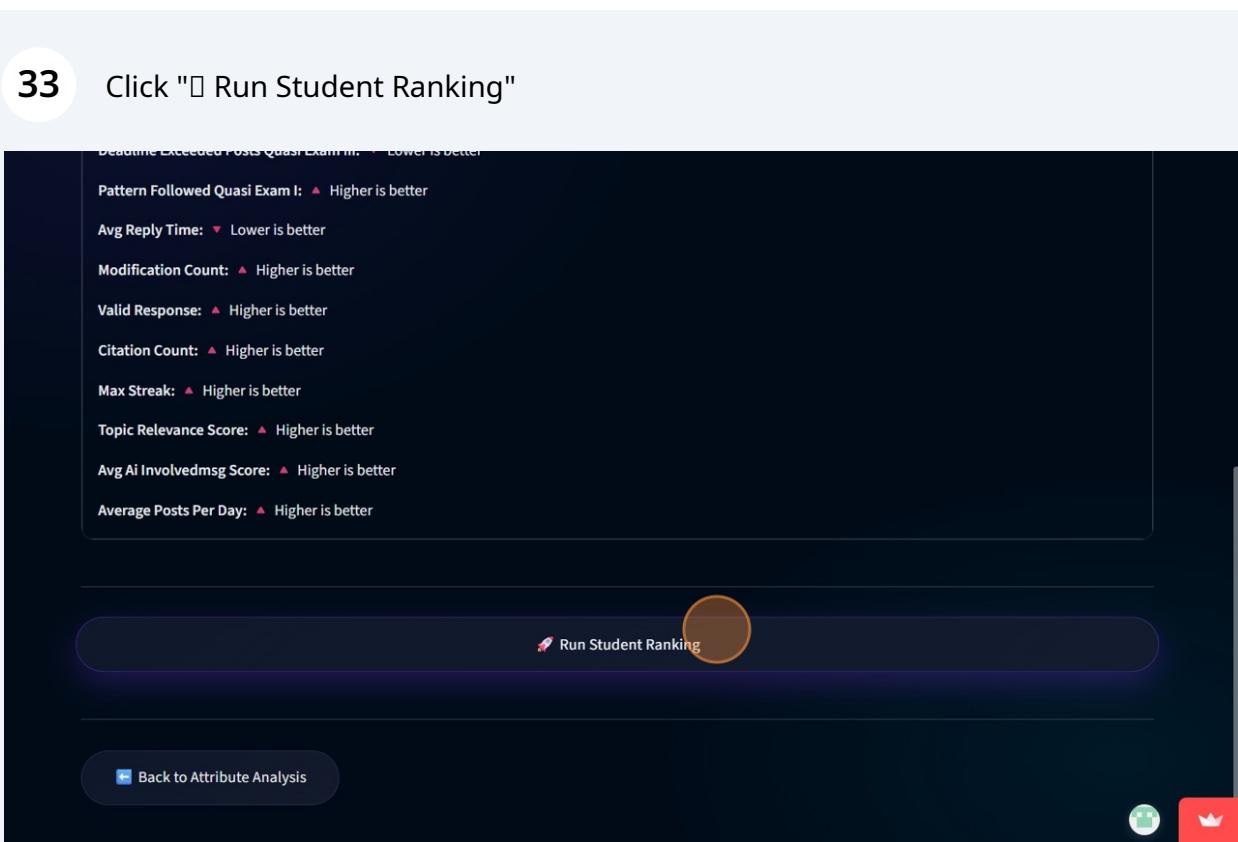
32

On the Ranking page, you'll rank students for COCO analysis (see View ranking directions if needed).



33

Click "Run Student Ranking"



34

Review the combined table showing original values and assigned ranks.

The screenshot shows a dark-themed dashboard titled "Ranking Results". At the top, it displays "Total Students: 24", "Average Rank: 9.0", and "Y Value Used: 1000". Below this is a section titled "Ranked Students" with a trophy icon. A table lists 24 students with their names, overall rank, average rank, total posts, active days, total replies to professor, total characters, total words, unique interactions, and unique discussions. The data is as follows:

	Student Name	Overall Rank	Average Rank	Total Posts	Active Days	Total Replies To Professor	Total Characters	Total Words	Unique Interactions	Unique Discussions
20	student_6	1	3.35	1	2	1	2	1	7	2
18	student_4	2	4.65	3	3	2	1	2	11	10
6	student_15	3	5.5	2	1	6	8	7	2	1
7	student_16	4	5.55	8	6	8	6	6	7	7
8	student_17	5	5.95	4	3	3	10	9	7	2
12	student_20	6	6.05	5	6	3	7	8	11	10
14	student_22	7	7.05	5	14	3	4	4	11	7
10	student_19	8	7.2	11	6	11	3	3	3	7
22	student_8	9	7.45	7	11	6	5	5	11	10
1	student_10	10	8.55	8	11	13	16	16	3	5

35

after this, Click "Proceed to COCO Analysis"

The screenshot shows a dark-themed dashboard titled "Top Performers". It lists the top 5 students based on average rank: 1. student\_6 (Avg Rank: 3.4), 2. student\_4 (Avg Rank: 4.7), 3. student\_15 (Avg Rank: 5.5), 4. student\_16 (Avg Rank: 5.5), and 5. student\_17 (Avg Rank: 6.0). Below this is an "Export" section with a "Download Ranking Data (CSV)" button. At the bottom, there are buttons for "Back to Attribute Analysis", "Proceed to COCO Analysis" (which is highlighted with a blue glow and orange border), and other navigation icons.

**36** Click "Run COCO Analysis"

The screenshot shows a data analysis interface. At the top, there is a dark header bar with the text "Start Value (Objects): 24" and a large number "1000". Below this is a table titled "Preview Ranked Data" with 10 rows of data. The columns include: userid, userfullname, Pattern\_followed\_quasi\_exam\_i, active\_days, average\_posts\_per\_day, avg\_AI\_involvedMsg\_score, avg\_reply\_time, citation\_count, and deadlin. The data shows various student profiles with their activity levels and scores. Below the table, it says "Full dataset: 24 rows x 9 columns". At the bottom right of the main area is a button labeled "Run COCO Analysis" with a rocket icon, which is highlighted with a yellow circle.

**37** After it completes, open All result tables to review the COCO outputs.

The screenshot shows the "COCO Analysis Result" page. At the top, there is a progress bar with the text "Sending request to COCO service..." and a blue progress bar. Below the progress bar, a message says "COCO analysis completed!" with a checkmark icon. There is a circular highlight on the "COCO Analysis Result" button. Below this, there is another button labeled "All Result Tables". At the bottom, there is a section titled "Export Results & Result Validation" with a "Download All Results (ZIP)" button and a "Result Validation" button.

38

To validate results, click "Result Validation".

S1 összeg: 1940.7  
S24 összeg: 257.9  
Becslés összeg: 24000.1  
Tény összeg: 24000  
Tény-becslés eltérés: 0.1  
Tény négyzetösszeg: None  
Becslés négyzetösszeg: None  
Négyzetösszeg hiba: 0

Export Results & Result Validation

Download All Results (ZIP)

Back to Ranking

Result Validation

39

Click "Run Comprehensive Validation"

Validate COCO results by comparing original and inverted rankings.

Students ready for validation: 24

Data Preview

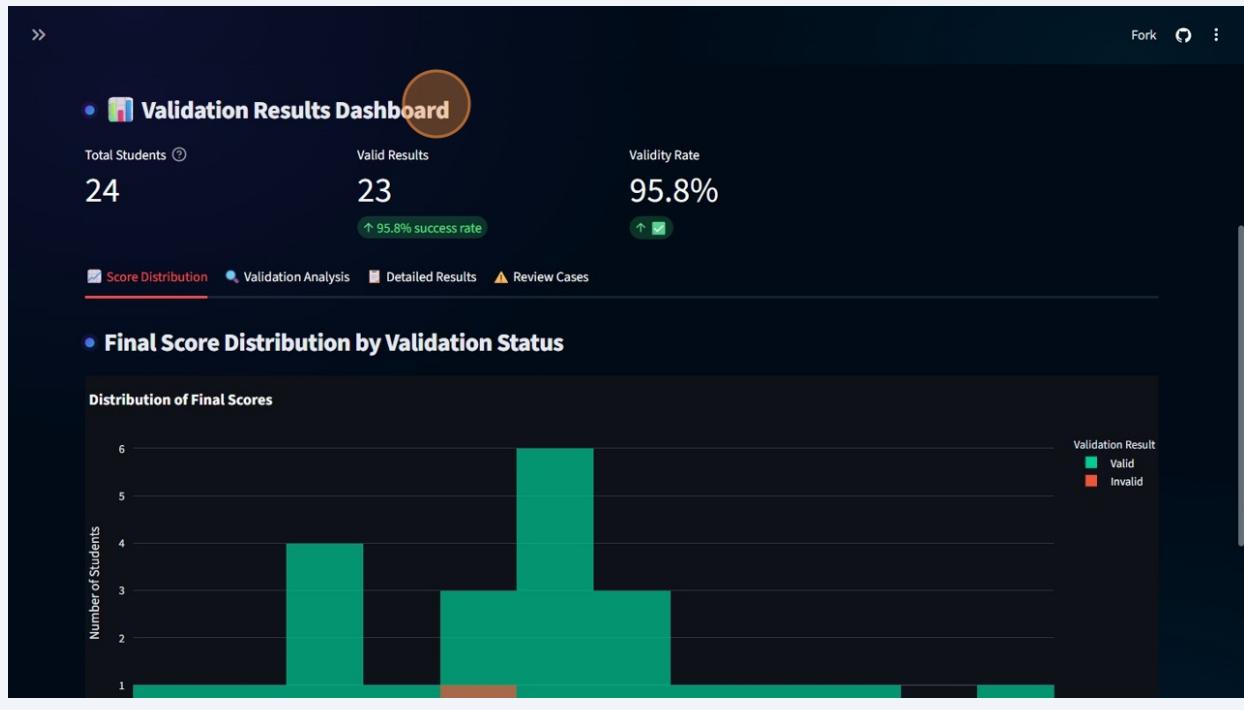
Validate COCO results by comparing with inverted rankings

Run Comprehensive Validation

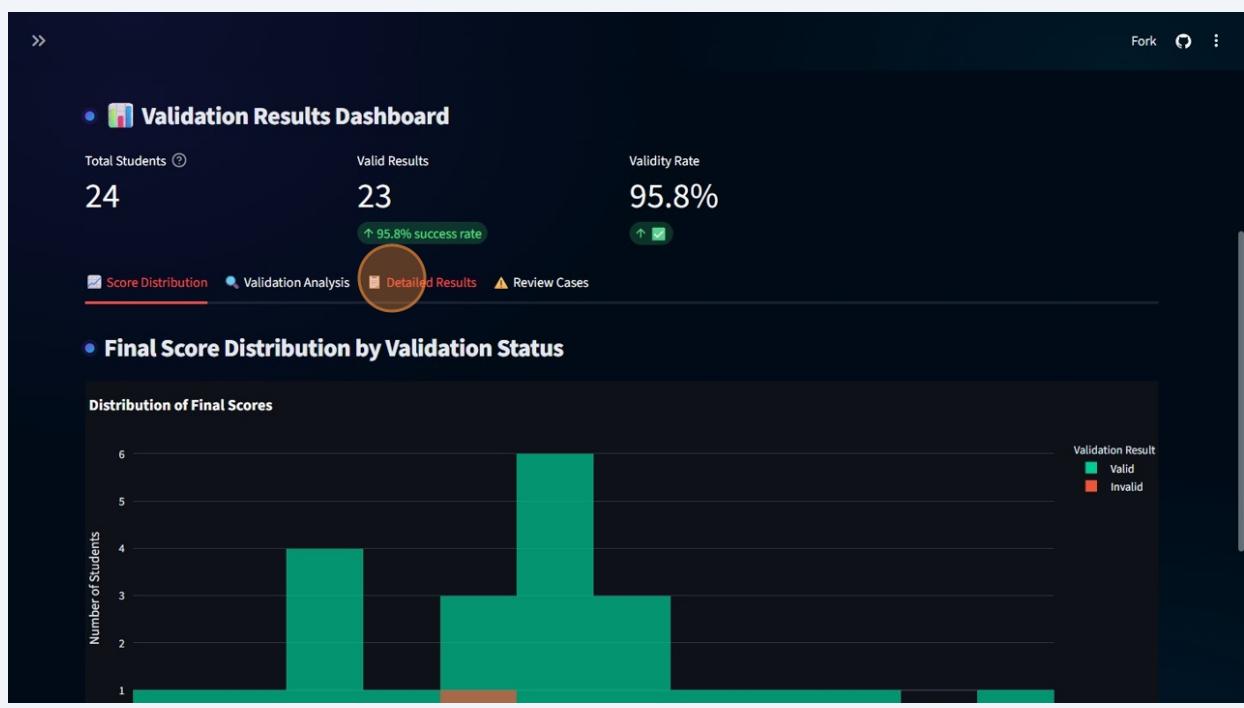
Back to COCO Analysis

Go to AI Insights

- 40 Review which objects are valid and explore additional validation insights.



- 41 Check score distribution to understand spread and consistency.



- 42 Use the tabs to view different validation analyses.

The screenshot shows a dark-themed dashboard titled "Validation Results Dashboard". At the top, it displays "Total Students: 24", "Valid Results: 23", and "Validity Rate: 95.8%". A green button below the validity rate says "↑ 95.8% success rate". Below these metrics is a navigation bar with four tabs: "Score Distribution", "Validation Analysis" (which is selected and highlighted in red), "Detailed Results", and "Review Cases". The "Review Cases" tab has a brown circle drawn around it. The main content area is titled "Detailed Validation Results" and contains a table with 24 rows, each representing a student. The columns are "Student Name", "Rank", "Final Score", "Validation", "Original Delta", and "Inverted Delta". Most students have a "Valid" status in the "Validation" column, while student\_17 is marked as "Invalid".

	Student Name	Rank	Final Score	Validation	Original Delta	Inverted Delta
20	student_6	1	1121.000	Valid	-12.100	10.720
18	student_4	2	1081.300	Valid	-8.130	7.790
12	student_20	3	1066.700	Valid	-6.670	6.590
7	student_16	4	1050.600	Valid	-5.060	5.250
19	student_5	5	1023.500	Valid	-2.350	2.320
10	student_19	6	1021.500	Valid	-2.150	2.120
14	student_22	7	1020.500	Valid	-2.050	2.770
6	student_15	8	1019.500	Valid	-1.950	1.420
15	student_23	9	1005.400	Valid	0.540	0.520

- 43 Review the final output after validation to confirm conclusions.

The screenshot shows a dark-themed dashboard titled "Invalid Cases Analysis". It features a bar chart titled "Student Final Scores with Validation Results". The y-axis is labeled "Final Score(Beccs\_s)" and ranges from 0 to 1,200. The x-axis is labeled "Student" and lists students from student\_1 to student\_9. Most students have green bars representing "Valid" scores, while student\_17 has a red bar representing an "Invalid" score. A legend on the right indicates that green bars represent "Valid" and red bars represent "Invalid". Below the chart, there is a section titled "Export Options" with a button "Download Summary Report (CSV)".

44

When finished, click “Go to AI Insights” (in preparation) for upcoming conversational helpers, summaries, and predictive flags.

