Welcome

Dear participant,

Thank you for participating in our study on model explanations. We are very grateful for your participation and your invaluable insight. Please read this Explanatory Statement in full before moving forward. If you would like further information regarding any aspect of this project, please contact us via the email address provided below.

We are a group of researchers from the [redacted] dedicated to improving education through technology. **The goal of this study is to evaluate different explanations to help a student improve their performance in an online course.**

- This survey has been approved by the [redacted] Human Research Ethics Committee (HREC) under application number [redacted]. HREC reviews research proposals involving human participants to ensure that they are ethically acceptable.

- All the personal information will be kept confidential and anonymized. Only demographic information is being recorded and will only be reported as aggregate in a way that prevents identification of any individual participant. You can freely withdraw at any time and any collected data you provided so far will be destroyed.

- All data will be collected and stored safely and reported in an anonymous form, in accordance with the [redacted].

- Only anonymized or aggregated data may be used in follow-up research (subject to ethics approval), and made available to other researchers for further analysis and for verification of the conclusions reached by the research team.

- Only the principal investigator and the aforementioned researchers have access to the original data under strict confidentiality. Results from the project may be published in conference papers and/or journal articles. In any case, no personal data will be published (only aggregated, anonymous and/or anonymized data will be published).

- Personal data of participants will be stored for 5 years from the date of collection. During this time, participants have the right to access

their data and request information about the processing of their personal data. In order to exercise this right, you need to contact the Principal Investigator.

By participating in this survey, you agree that your data can be used for scientific purposes.

In the following study, you will be asked to compare explanations for approximately 20 minutes. Please ensure that you have enough time to finish the study correctly. Unfinished or only partially answered studies will not be considered as finished.

We ask you to approach the questions and exercises with seriousness and to complete them to the best of your ability. We will subsequently check questionnaires for seriousness and will have to discard questionnaires that do not meet this requirement.

Thank you for your help. If you encounter any problem with the survey, or if you want to give extra feedback, or receive additional information, feel free to contact us [redacted]

Agreement

I understand the purpose and nature of this task and would like to begin now.

Intro

You are a student taking three online courses (MOOCs): Digital Signal Processing, African Cities, and Elements of Geometry. Since the courses are difficult, often with low passing rates, the teaching team wants to help students who are not doing well to perform better in the course by giving them personalized assistance, and encourage students who are already performing well to continue.

To do this, we have a very good model (over 90% accurate) to predict students' success or failure using various weekly behavior features (such as number of video clicks or how accurately questions are answered on the weekly quizzes). We predict student performance early in the course (before the half-way point) as passing or failing behavior. We use the explanation of the prediction to give students additional, **personalized feedback** to help pass the course.

We want to compare these **personalized feedback explanations** according to several criteria:

- **Usefulness**: This explanation is useful to understand the prediction based on my learning behavior.
- **Trustworthiness**: This explanation lets me judge if I should trust the suggestions.
- **Actionability**: This explanation helps me make a decision on how to improve my learning behavior.
- **Completeness**: This explanation has sufficient detail to understand why the prediction was made based on my learning behavior.
- **Conciseness**: Every detail of this explanation is necessary.

We will first do a practice example.

Example

In the following questions, we will ask you to rank some explanations according to different criteria.

In this example, we ask you to rank Explanation 1 and Explanation 2 according to Criteria 1 and Criteria 2.

Practice Example

Select score 5 (highest) for Explanation 1 on Criteria 1.
Select score 1 (lowest) for Explanation 2 on Criteria 1.
This indicates that Explanation 1 is better than Explanation 2 at Criteria 1.

Select score 3 (middle) for Explanation 1 on Criteria 2.
Select score 3 (middle) for Explanation 2 on Criteria 2.
This indicates Explanation 1 and Explanation 2 are equally performing at Criteria 2.

The Likert scale choices represent the following:
1 - Completely disagree
2 - Somewhat disagree
3 - Neither agree nor disagree

4 - Somewhat agree
5 - Completely agree

	EXP 1					EXP 2				
	1	2	3	4	5	1	2	3	4	5
Criterion 1	○	○	○	○	○	○	○	○	○	○
Criterion 2	○	○	○	○	○	○	○	○	○	○

Demographics

What is your Prolific ID?

How do you describe yourself?

- Male
- Female
- Non-binary / third gender
- Prefer to self-describe
- Prefer not to say

How old are you?

- Under 18
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65+ years old

What is the highest level of education you have completed?

- Some high school or less
- High school diploma or GED
- Some college, but no degree

Associates or technical degree

Bachelor's degree

Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.)

Prefer not to say

Have you ever taken an online course (MOOC)?

Yes

No

Have you ever struggled in a course?

Never

Rarely

Sometimes

Often

Always

Student 1a

Digital Signal Processing
(Course 1/3, Explanations 1/2)

--- Explanation 1 ---

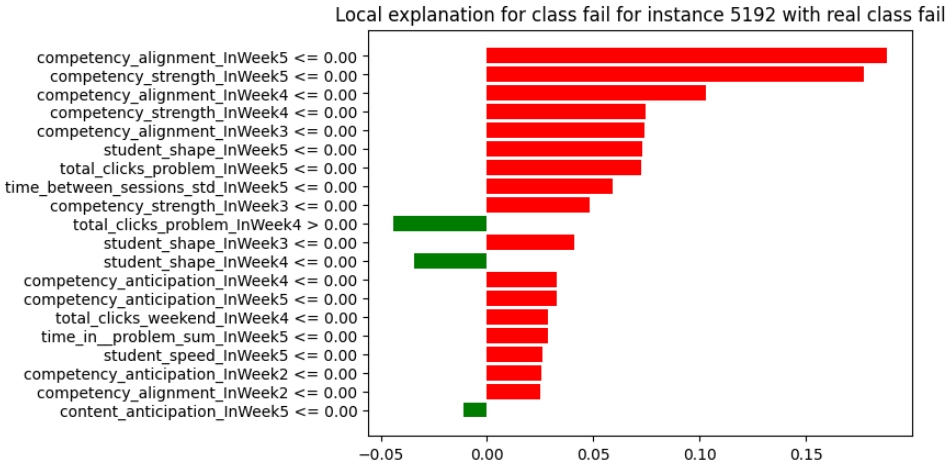
This student is predicted to fail the course with likelihood 99.75%. The model's explanation is determined by approximating the 20 features that contributed the most to the this student's prediction, with positive scores contributing towards a passing prediction and negative stores contributing towards a failing prediction. The magnitude of the score indicates the strength of the feature's contribution. The model found the following features to be the most predictive for this student:

Top Contributing Features to Student Failure:
CompetencyAlignment: The number of problems this week that the student has passed.
CompetencyStrength: The extent to which a student passes a quiz getting the maximum grade with few attempts.

Top Contributing Features to Student Success:
TotalClicksProblem: The number of clicks that a student has made on

problems this week.
StudentShape: The extent to which the student receives the maximum quiz grade on the first attempt.
ContentAnticipation: The number of videos covered by the student from those that are in subsequent weeks.

The top 20 feature-weeks found important are described in the plot. Improving on these behaviors could lead to stronger performance in the course.



--- Explanation 2 ----

Feedback Report: Digital Signal Processing 1

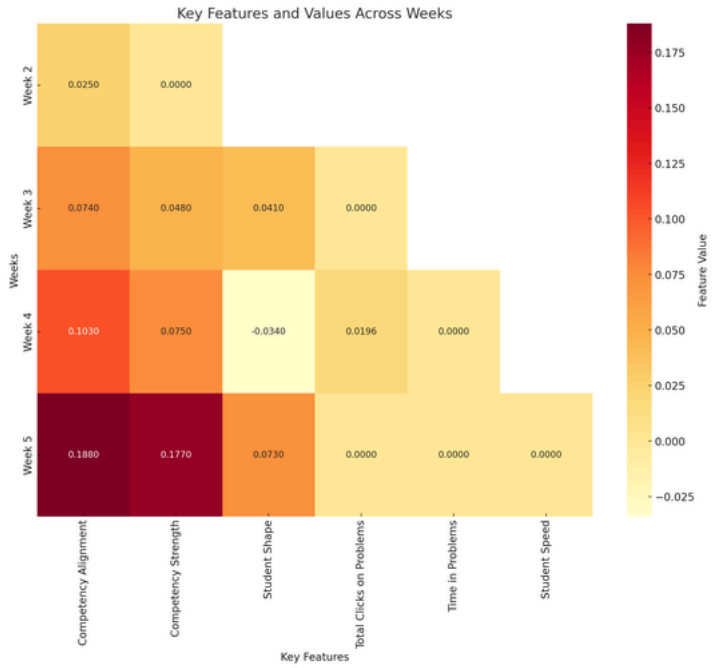
Where Am I Going?
Your performance in the course is on track, but there are areas that need improvement to ensure you pass. The learning goal is to enhance your problem-solving skills and consistency in quiz performance.

How Am I Doing?
Relevant Causes:
- ***Competency Alignment (Weeks 4 & 5)*:** You didn't pass any problems during these weeks, which is critical for aligning with course expectations.
- ***Competency Strength (Weeks 4 & 5)***: Your quiz performance was suboptimal, especially in Week 5.

New Information:
Assuming you know your general engagement, let's focus on specifics:
- ***Problem-Solving Engagement***: You have low interaction with problem sets in Weeks 4 and 5.
- ***Consistency***: Your study sessions in Week 5 lacked regularity.

I focused on these causes because they highlight areas where immediate improvements can be made to enhance your learning trajectory.

Where to Next?
1. *Weeks 6-7:* Increase your engagement with problem-solving activities. Make it a goal to solve more problems to improve competency alignment.
2. *Weeks 6-8:* Establish a consistent study schedule. Regular study times will help you manage your learning better and improve quiz performance.



--- Explanation 3 ---

You've been doing well in the Digital Signal Processing 1 course, and our goal is to help you excel even further. Your learning goal is to improve your understanding and application of course concepts, particularly in problem-solving and quiz performance.

How Am I Doing?

Abnormal Causes:
- ***Competency Alignment (Weeks 4 and 5)****:* You didn't pass any problems in these weeks, which is unusual and important because it indicates areas where you need more practice.
- ***Competency Strength (Week 5)****:* Your quiz performance was lower than expected, which negatively impacted your progress.

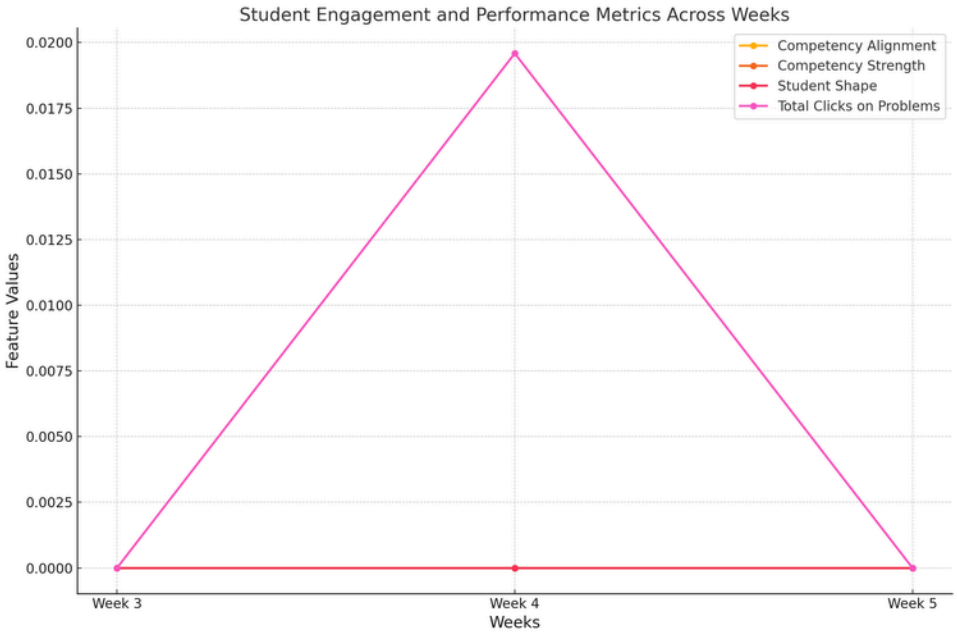
Recent Events:

- ***Week 5:*** Low engagement with problem-solving activities and quizzes. This week focused on filter design and stability, crucial for mastering future topics.
- ***Week 4****:* Similar low engagement with problems, affecting your understanding of the Discrete Fourier Transform and related concepts.

Controllable Factors:
- ***Problem-Solving Engagement****: I*ncrease your interaction with problem sets. This will help solidify your understanding of key concepts.
- ***Quiz Performance:*** Aim to score higher on quizzes by reviewing materials and seeking help if needed.

Where to Next?

1. *Week 6 Focus:* Concentrate on continuous-time signals and interpolation. This builds on filter design from Week 5 and prepares you for sampling and aliasing.
2. *Regular Study Routine:* Establish a consistent study schedule to improve your engagement and performance in upcoming weeks. This will help you better manage your time and focus on key areas.



--- Explanation 4 ---

Student Performance Feedback: Digital Signal Processing 1

Where Am I Going?
Your goal is to pass the Digital Signal Processing 1 course by improving your problem-solving skills and quiz performance.

How Am I Doing?

Necessary Causes:

- ***Competency Alignment (Weeks 4 & 5):*** You didn't pass any problems in these weeks, which is crucial for aligning with course expectations.
- ***Competency Strength (Week 5):*** Your quiz performance was below optimal, impacting your progress.

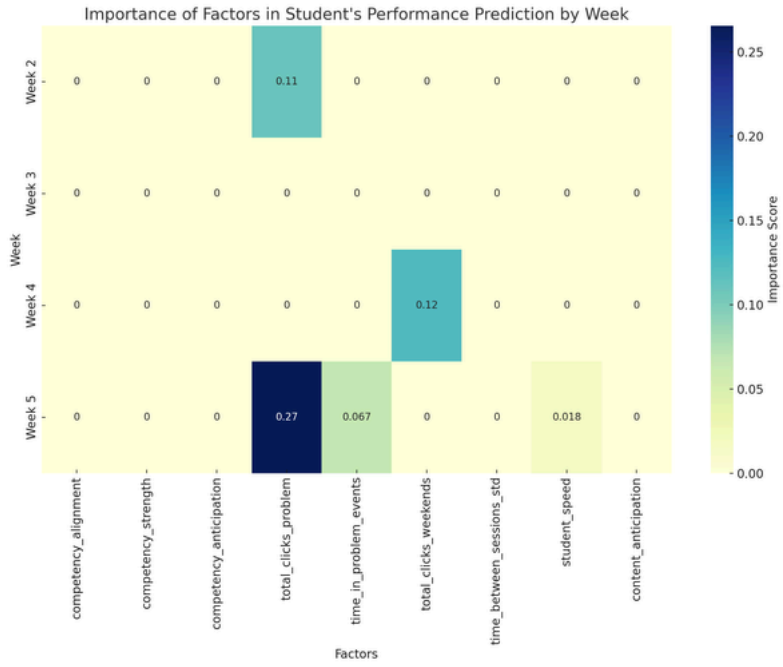
Robust Explanation:

- ***Problem-Solving Engagement****:* Consistently low engagement with problem sets in Weeks 4 and 5 suggests a need for more focus in this area.
- ***Regularity in Study Sessions****:* Irregular study sessions in Week 5 indicate that a more consistent schedule could improve your learning outcomes.

Where to Next?

1. *Weeks 6 & 7****:*** Increase your interaction with problem-solving activities. Focus on topics like "Interpolation" and "Quantization" to build a stronger foundation.
2. *Weeks 8 & 9:* Establish a regular study routine and work on anticipatory learning by engaging with upcoming content on "Image Processing" and "Digital Communication Systems."

By addressing these areas, you can enhance your learning trajectory and improve your performance in the course.



Which explanation do you prefer the most?

Why do you prefer this explanation?

What is the main action you would you take in the next week based on your preferred explanation?

- I would improve my regularity of learning on the platform (have a daily or weekly schedule).
- I would watch video lectures immediately when they are released
- I would attempt more problems.
- I would spend more time on the platform.
- I would watch more videos.
- I would engage more heavily with videos (pausing, replaying, rewinding)
- I would practice more for the quiz so I could solve it in fewer attempts.
- I would try to attempt quizzes for the next weeks earlier.
- I would try to solve the quizzes faster.
- I would try to watch videos for the next weeks earlier.

For this action, which weeks of material would you focus on? (Select minimum 1 week and maximum 3 weeks to focus on)

- ☐ Review Week 1 (Intro, Digital Signals)
- ☐ Review Week 2 (Digital Signals)
- ☐ Review Week 3 (Hilbert, Linear Algebra)
- ☐ Review Week 4 (DFT, DTFT DFS, DTFT: intuition and properties, FFT)
- ☐ Review Week 5 (Ideal Filters, Filter Design)
- ☐ Engage in upcoming Week 6 (Modulation, Interpolation & Sampling)
- ☐ Engage in upcoming Week 7 (Multirate)
- ☐ Engage in upcoming Week 8 (DFT, DTFT DFS, Ideal Filters)
- ☐ (

How would you grade each explanation?

A score of 1 is the lowest for each criteria, a score of 5 is the highest for each criteria. You can select multiple explanations for each score.

- **Usefulness**: This explanation is useful to understand the prediction based on my learning behavior.
- **Trustworthiness**: This explanation lets me judge if I should trust the suggestions.

- **Actionability**: This explanation helps me make a decision on how to improve my learning behavior.
- **Completeness**: This explanation has sufficient detail to understand why the prediction was made based on my learning behavior.
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	EXP 1					EXP 2					EXP 3					EXP 4				
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Usefulness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Trustworthiness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Actionability	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Completeness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Conciseness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Student 1b

Digital Signal Processing
(Course 1/3, Explanations 2/2)

--- Explanation 1 ---

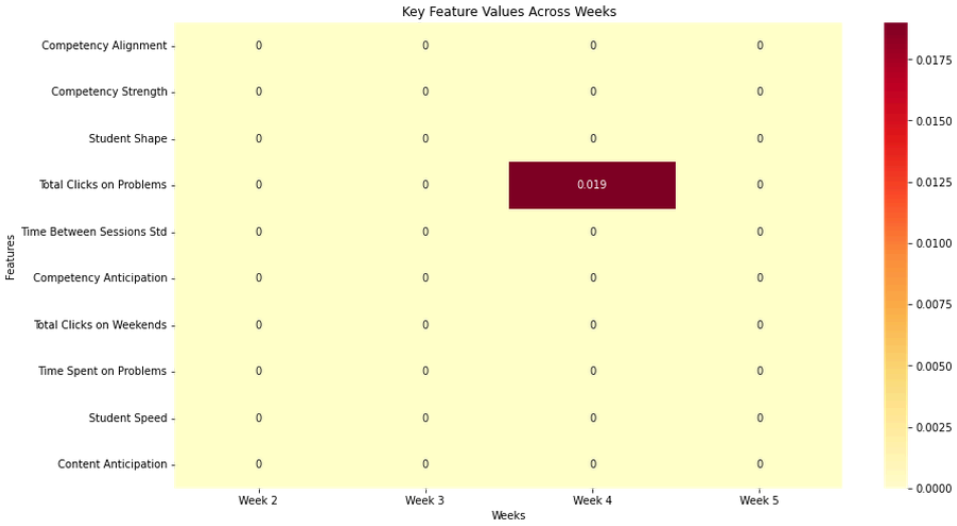
Student Performance Feedback: Digital Signal Processing 1

You've been doing well overall, but there's room for improvement to ensure you pass the course confidently. Your main goal should be to enhance your problem-solving skills and engage more consistently with course materials.

How Am I Doing?
In Weeks 4 and 5, you didn't pass any problems, which is crucial for understanding topics like DFT, DTFT, and filter design. Additionally, you haven't been engaging in anticipatory learning, which means you aren't preparing for upcoming quizzes and content. Your quiz performance in Week 5 was below expectations, and your study sessions lack regularity.

Where to Next?
1. **Weeks 6-7:** Focus on solving more problems related to interpolation, sampling, and quantization. This will help you grasp the fundamental concepts better and prepare you for advanced topics.
2. **Weeks 8-10**: Start reviewing upcoming content on image processing and digital communication systems now. Engaging with these topics ahead of time will build a stronger foundation and

improve your readiness for quizzes and final assessments.



--- Explanation 2 ---

This student is predicted to fail the course with likelihood 99.75%. The model's explanation is determined by approximating the 20 features that contributed the most to the this student's prediction, with positive scores contributing towards a passing prediction and negative stores contributing towards a failing prediction. The magnitude of the score indicates the strength of the feature's contribution. The model found the following features to be the most predictive for this student:

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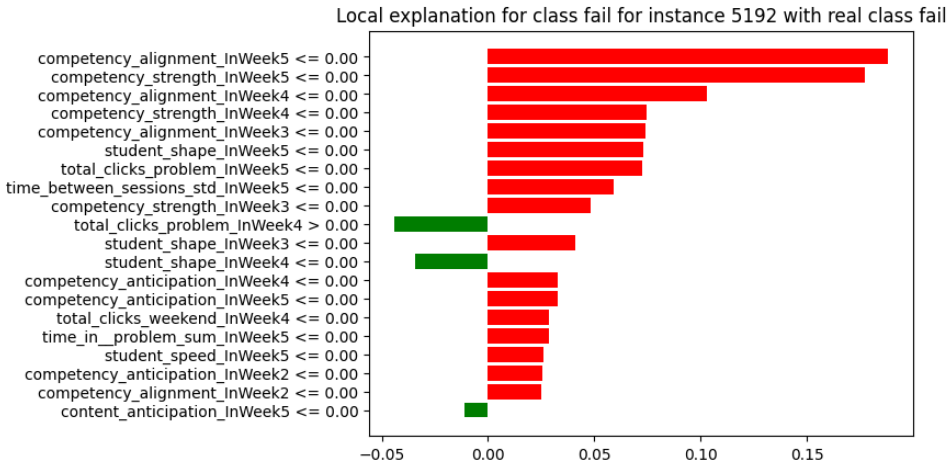
StudentShape: The extent to which the student receives the maximum quiz grade on the first attempt.
ContentAnticipation: The number of videos covered by the student from those that are in subsequent weeks.

The top 20 feature-weeks found important are described in the plot. Improving on these behaviors could lead to stronger performance in the course.



--- Explanation 3 ---

Feedback Report: Digital Signal Processing 1

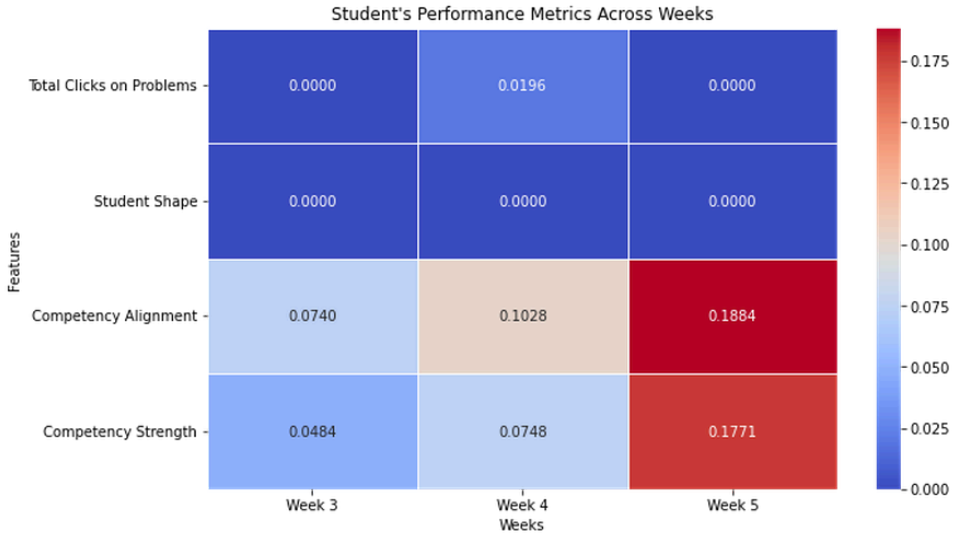
Your current performance suggests you're on track, but there's room for improvement. The goal is to pass the course by mastering the key concepts and skills outlined each week.

How Am I Doing?

- **External Factors:** Your engagement with problem-solving activities has been low in Weeks 4 and 5. This is crucial because solving problems helps solidify your understanding of the material.
- **Internal Relationships:** Your quiz performance has been inconsistent, especially in Week 5. Achieving high scores on quizzes is important as they directly reflect your grasp of the concepts.
- **Focus on Improvement:** The lack of regular study sessions and anticipatory learning (engaging with future content) are areas to improve. Establishing a consistent study routine and previewing upcoming topics can make a significant difference.

Where to Next?

1. **Weeks 6 and 7:** Focus on problem-solving activities related to Modulation, Interpolation, and Sampling. This will help you catch up and build a strong foundation.
2. **Weeks 8 and 9:** Engage with the upcoming content on DFT, DTFT, and Ideal Filters. Start early to anticipate the challenges and better prepare for quizzes and problem sets.



--- Explanation 4 ---

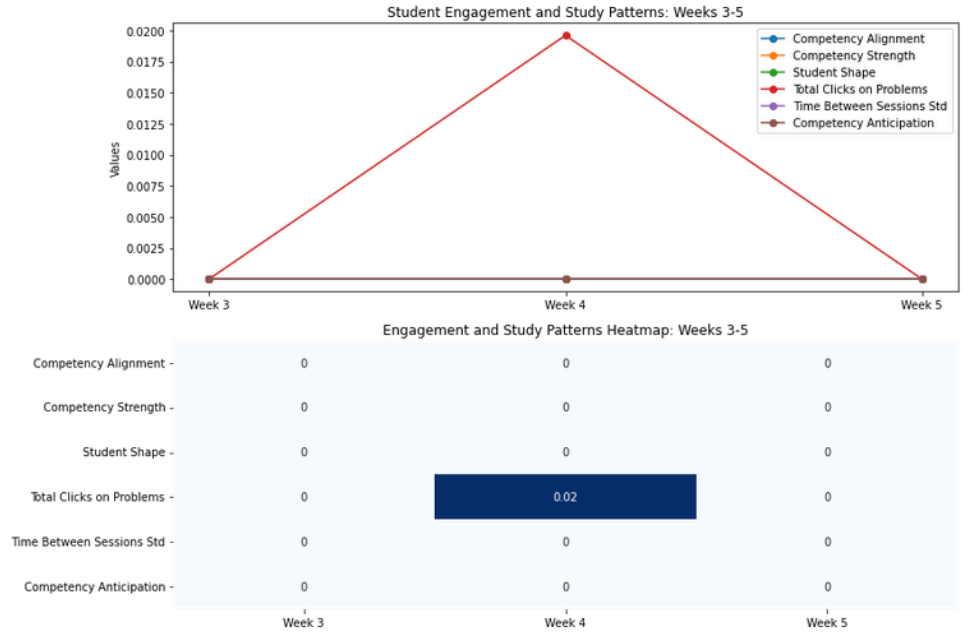
Your performance so far shows promise, but there are key areas to address. The learning goal is to improve your problem-solving skills and quiz performance, especially in Weeks 4 and 5.

How Am I Doing?

- *Target Event:* In Week 5, you did not pass any problems (competency alignment was 0.0). This is significant because problem-solving is crucial for mastering the material.
- *Contrast Event:* Ideally, you would have passed several problems, showing strong competency alignment. This would indicate a better grasp of the course content.
- *Key Differences:* The main difference is the level of problem-solving engagement. Passing problems demonstrates understanding and application of concepts, while not passing suggests gaps in learning.

Where to Next?

1. *Week 6 Focus:* Engage deeply with the content on Modulation, Interpolation, and Sampling. Try to solve more problems and seek help if needed. This will prepare you for upcoming topics and strengthen your foundation.
2. *Week 7 Preparation:* Start reviewing the concepts of Stochastic Signal Processing and Quantization. Anticipatory learning will help you grasp these complex topics better and improve your readiness for quizzes and problem-solving tasks.



Which explanation do you prefer the most?

Why do you prefer this explanation?

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- I would improve my regularity of learning on the platform (have a daily or weekly schedule).
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For this action, which weeks of material would you focus on? (Select

minimum 1 week and maximum 3 weeks to focus on)

Review Week 1 (Intro, Digital Signals)	Review Week 2 (Digital Signals)	Review Week 3 (Hilbert, Linear Algebra)	Review Week 4 (DFT, DTFT DFS, DTFT: intuition and properties, FFT)	Review Week 5 (Ideal Filters, Filter Design)	Engage in upcoming Week 6 (Modulation, Interpolation & Sampling)	Engage in upcoming Week 7 (Multirate)	Engage in upcoming Week 8 (DFT, DTFT DFS, Ideal Filters)	(C
☐	☐	☐	☐	☐	☐	☐	☐	

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Trustworthiness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Actionability	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Completeness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Conciseness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Student 2a

African Cities
(Course 2/3, Explanations 1/2)

--- Explanation 1 ---
Feedback on Your Course Performance

You are currently struggling in the course "Villes africaines I: Introduction a la planification urbaine." The goal is to pass the course

by actively engaging with the course material and assessments.

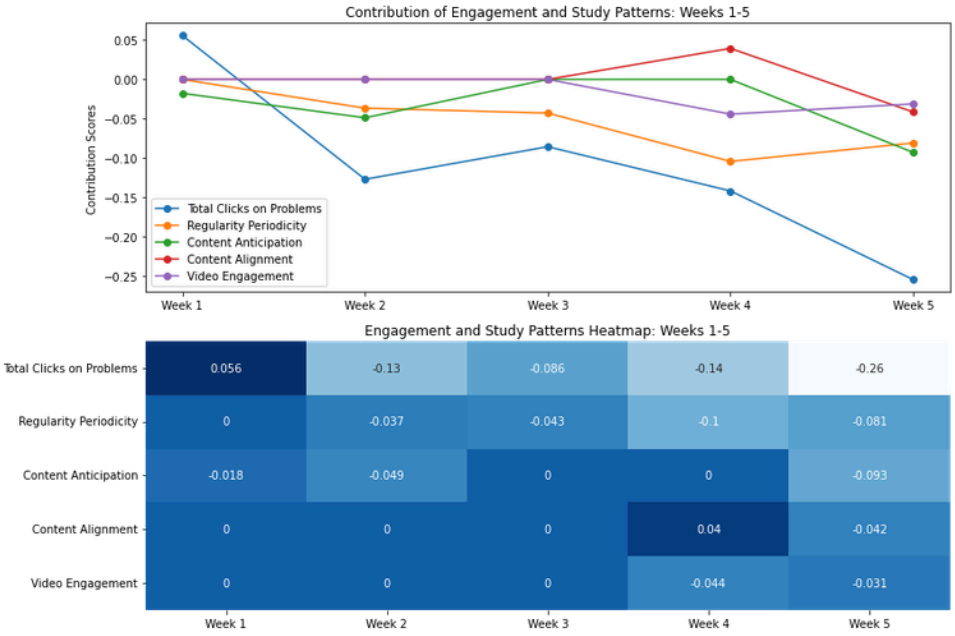
How Am I Doing?

- **Week 1:** You did not engage in any content anticipation activities, which means you didn't review upcoming material.
- **Week 2:** Similarly, no engagement in content anticipation or problem-solving activities.
- **Week 3:** No problem-solving activities and no regular study patterns.
- **Week 4:** No engagement in problem-solving or content alignment activities.
- **Week 5:** No problem-solving, content alignment, or video interactions. Your study patterns were irregular, and you did not attempt the quiz.

Where to Next?

1. **Weeks 6-7:** Focus on problem-solving activities and quizzes. These weeks cover critical topics like urban form and diagnostic tools. Engage with these to reinforce your learning.
2. **Weeks 8-9:** Establish regular study patterns and interact with video content. These weeks include practical examples and restructuring strategies that are vital for understanding urban planning concepts.

By following these steps, you can significantly improve your understanding and performance in the course.



--- Explanation 2 ---

Your current performance indicates that there are significant areas for

improvement in your engagement and study habits. The learning goal is to enhance your interaction with course materials and establish consistent study routines to better understand and apply urban planning concepts.

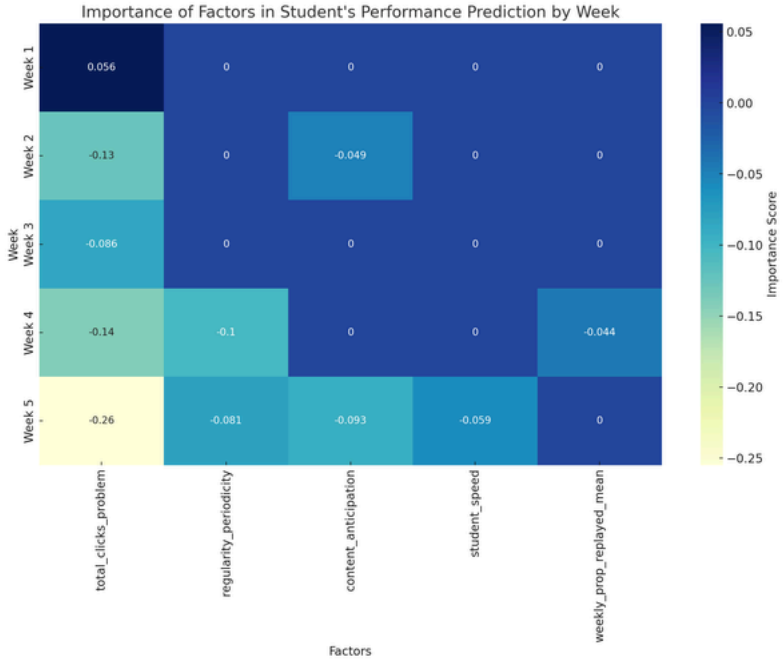
How Am I Doing?

Necessary Causes:
- Engagement with Problems: You haven't engaged with problem-solving activities in Weeks 2, 3, 4, and 5. These activities are crucial for grasping and applying course concepts.
- Study Regularity: Your study patterns lack regularity, especially in Weeks 3, 4, and 5. Consistent study habits are essential for reinforcing learning.

Robust Explanation:
- Content Interaction: You have not been aligning with weekly content or previewing upcoming material, which is vital for staying on track with the course.
- Video Lectures: Minimal interaction with video lectures, particularly in Week 5, is significantly affecting your understanding of the course material.

Where to Next?

1. Weeks 6 and 7: Focus on increasing your engagement with problem-solving activities. For example, actively participate in quizzes and problem sets related to urban form and GIS tools.
2. Weeks 8 and 9: Establish a regular study schedule. Dedicate specific hours each day to watch video lectures and review content on subdivisions and slum restructuring to build a strong foundation for the remaining weeks.



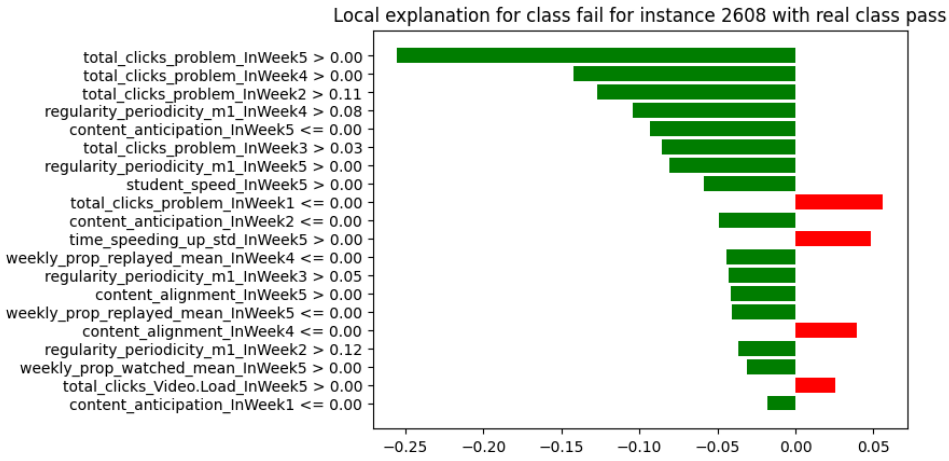
--- Explanation 3 ---

This student is predicted to pass the course with likelihood 60.19%. The model's explanation is determined by approximating the 20 features that contributed the most to the this student's prediction, with positive scores contributing towards a passing prediction and negative stores contributing towards a failing prediction. The magnitude of the score indicates the strength of the feature's contribution. The model found the following features to be the most predictive for this student:

Top Contributing Features to Student Failure:
TotalClicksProblem: The number of clicks that a student has made on problems this week.
StdTimeSpeedingUp: The student's standard deviation of time using Video.SeekForward actions (seconds).
ContentAlignment: The number of videos this week that have been watched by the student.
TotalClicksVideoLoad: The number of times a student loaded a video.

Top Contributing Features to Student Success:
TotalClicksProblem: The number of clicks that a student has made on problems this week.
RegPeriodicityDayHour: The extent to which the hourly pattern of user's activities repeats over days.
ContentAnticipation: The number of videos covered by the student from those that are in subsequent weeks.

The top 20 feature-weeks found important are described in the plot. Improving on these behaviors could lead to stronger performance in the course.



--- Explanation 4 ---

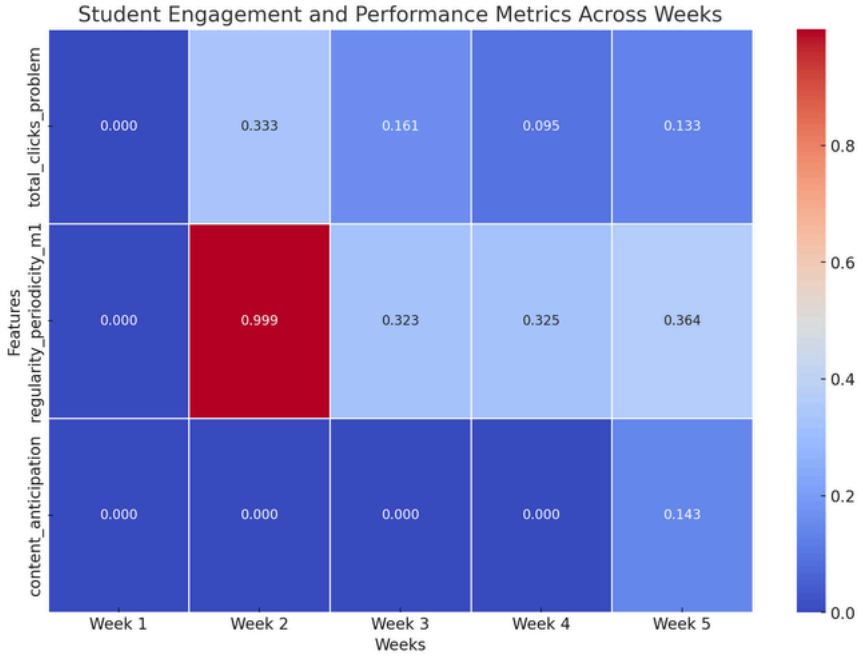
Your performance so far shows that you're struggling to engage with the course material effectively. The goal is to ensure you understand and apply the concepts of urban planning in African cities.

How Am I Doing?

- *External Factors:* Your interaction with problem-solving activities and video lectures is minimal. These elements are crucial for understanding and applying course concepts.
- *Internal Relationships:* Regularity in study patterns and engagement with quizzes are interconnected. Consistent study habits reinforce learning, and quizzes help assess your understanding.
- *Focus on Improvement:* The lack of engagement with problems and videos, along with inconsistent study habits, are major areas needing attention.

Where to Next?

1. *Week 6:* Focus on watching the video lectures related to "Critical reading" and "The 10 basic principles." This will help you grasp essential concepts and prepare for the upcoming quizzes.
2. *Week 7*: Actively participate in the diagnostic and GIS activities. These practical sessions are crucial for applying what you've learned and will help you catch up and solidify your understanding.



Which explanation do you prefer the most?

Why do you prefer this explanation?

What is the main action you would you take in the next week based on your preferred explanation?

- I would improve my regularity of learning on the platform (have a daily or weekly schedule).
- I would watch video lectures immediately when they are released
- I would attempt more problems.
- I would spend more time on the platform.
- I would watch more videos.
- I would engage more heavily with videos (pausing, replaying, rewinding)
- I would practice more for the quiz so I could solve it in fewer attempts.
- I would try to attempt quizzes for the next weeks earlier.
- I would try to solve the quizzes faster.
- I would try to watch videos for the next weeks earlier.

For this action, which weeks of material would you focus on? (Select minimum 1 week and maximum 3 weeks to focus on)

Review Week 1 (Intro, Urban Planning, African Cities)	Review Week 2 (Stakes and Challenges, Which model for which city)	Review Week 3 (Globalization and Cities, Climate Change, Transport)	Review Week 4 (Urban Facilities, Public Spaces)	Review Week 5 (Urban Sprawl, Professions, Informal settlements)	Engage in upcoming Week 6 (Critical Reading, 10 basic principles, Urban Agriculture)	Engage in upcoming Week 7 (Tools of urban planning, GIS)	(
☐	☐	☐	☐	☐	☐	☐	

How would you grade each explanation?

A score of 1 is the lowest for each criteria, a score of 5 is the highest for each criteria. You can select multiple explanations for each score.

- **Usefulness**: This explanation is useful to understand the prediction based on my learning behavior.
- **Trustworthiness**: This explanation lets me judge if I should trust the suggestions.
- **Actionability**: This explanation helps me make a decision on how to improve my learning behavior.
- **Completeness**: This explanation has sufficient detail to understand why the prediction was made based on my learning behavior.
- **Conciseness**: Every detail of this explanation is necessary.

	EXP 1					EXP 2					EXP 3					EXP 4				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Usefulness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Trustworthiness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Actionability	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Completeness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Conciseness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Student 2b

African Cities
(Course 2/3, Explanations 2/2)

---Explanation 1---

Feedback on Your Course Performance

Your current performance indicates that you are struggling with the course. The goal is to help you pass by improving your engagement and study habits.

How Am I Doing?

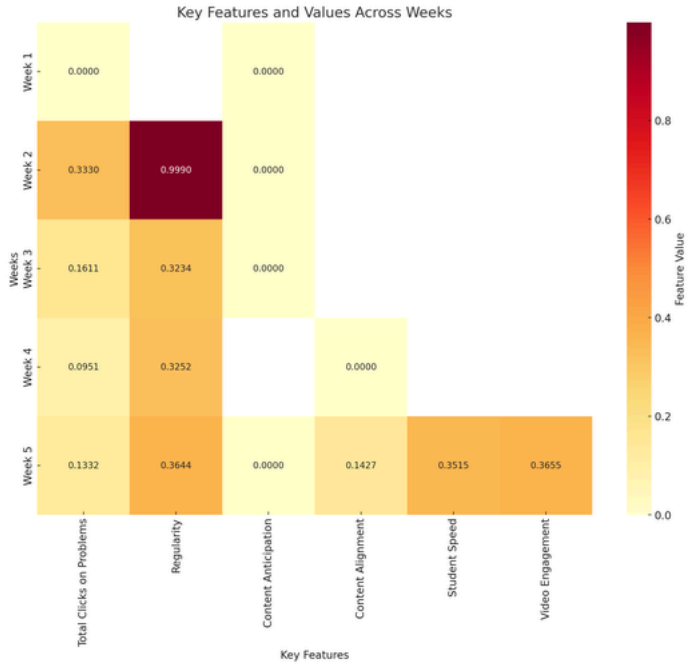
Relevant Causes:
1. *Engagement with Problem-Solving Activities:* You haven't engaged with problem-solving activities in Weeks 2, 3, 4, and 5, which are crucial for understanding and applying the course concepts.
2. *Regularity of Study Patterns*: Your study habits lack consistency, which affects your ability to retain information.
3. *Content Interaction*: You haven't watched the weekly video lectures, which are vital for grasping key concepts.

New Information:
Assuming you know that active participation is essential, it's important to highlight that your current lack of engagement in problem-solving and video lectures is significantly impacting your learning. Consistent study patterns are also key to success.

Where to Next?

1. *Weeks 6 and 7:* Focus on watching all the video lectures and engage with the problem-solving activities. These weeks cover critical topics like "The 10 Basic Principles" and "Tools of Urban Planning," which are fundamental for the course.
2. *Weeks 8 and 9:* Establish a regular study schedule. Consistent study habits during these weeks will help you better understand complex topics like "Subdivisions" and "Precarious Neighborhoods."

By addressing these areas, you can significantly improve your performance in the course.



---Explanation 2---

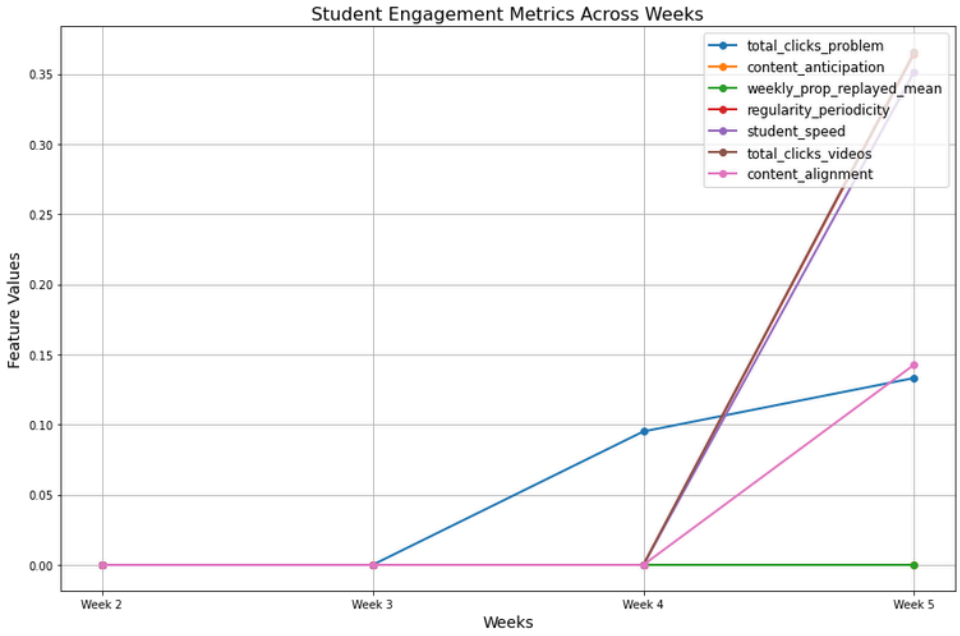
Feedback on Your Course Progress

Where Am I Going?
Your current performance indicates that you're struggling with the course. The goal is to engage more deeply with the course materials and activities to improve your understanding and application of urban planning concepts.

How Am I Doing?
- *Abnormal Causes*: You haven't engaged with problem-solving activities (quizzes and assignments) across Weeks 2 to 5. This is crucial because these activities help you apply what you've learned.
- *Recent Events:* Recently, there has been a lack of regular study patterns and minimal interaction with video lectures. These are important as they structure your learning and provide essential information.
- *Controllable Factors*: You can control your engagement with the course content. Focusing on consistent study habits and actively participating in quizzes and video lectures can significantly improve your learning outcomes.

Where to Next?
1. *Week 6*: Focus on watching the video lectures and participating in the quiz. The topics on critical reading and urban principles are fundamental and will help you catch up.
2. *Week 7:* Engage with the diagnostic tools and case study on Ndjamena. Applying these tools will reinforce your understanding and prepare you for the final weeks.

By addressing these areas, you can enhance your performance and grasp the course material more effectively.

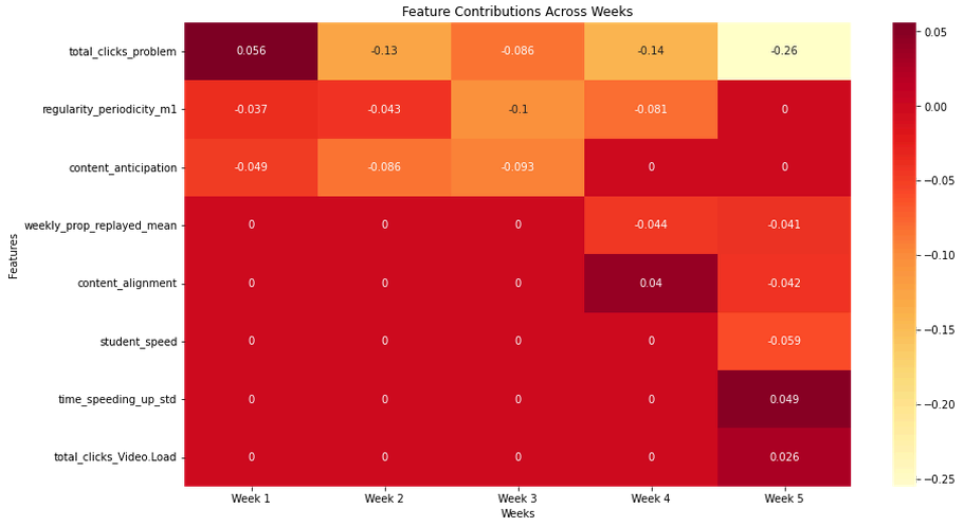


---Explanation 3---

Your performance so far suggests a need for improvement to reach our learning goal: successfully passing the course.

How Am I Doing?
- *Target Event (P):* You have not engaged with problem-solving activities, video lectures, or quizzes, and your study patterns lack regularity. This lack of engagement is crucial because these activities are designed to reinforce learning and ensure comprehension.
- *Contrast Event (Q):* Ideally, you should be actively participating in problem-solving activities, watching video lectures, attempting quizzes, and maintaining regular study patterns. These actions help in understanding the material and staying on track with the course.
- *Key Causes:* The significant factors contributing to your current performance include no clicks on problem-solving activities, no video interactions, and irregular study patterns. These activities are essential for learning and retention, and their absence is hindering your progress.

Where to Next?
1. *Weeks 6 and 7:* Focus on watching and engaging with video lectures on "Critical reading" and "Tools of urban planning." This will help you grasp essential concepts and prepare for upcoming quizzes.
2. *Weeks 4 and 5*: Start solving problems and quizzes related to "Urban facilities" and "Urban sprawl." Regular practice will improve your understanding and retention of the course material.



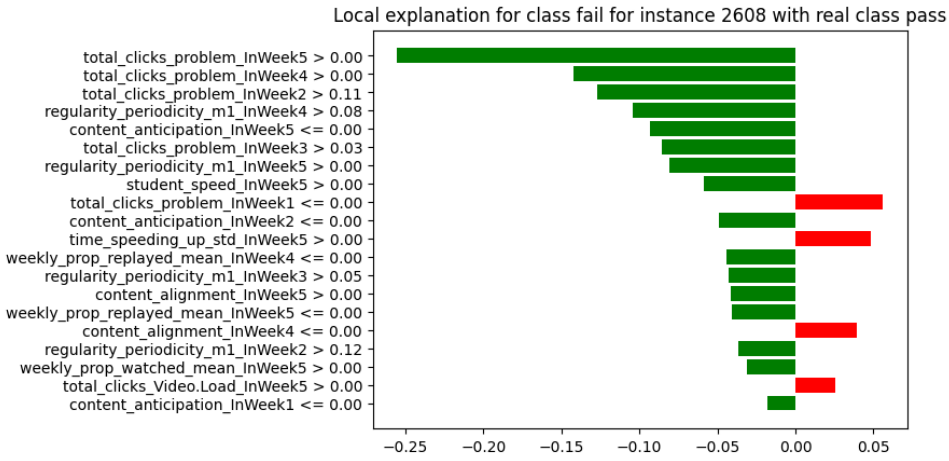
---Explanation 4---

This student is predicted to pass the course with likelihood 60.19%. The model's explanation is determined by approximating the 20 features that contributed the most to the this student's prediction, with positive scores contributing towards a passing prediction and negative stores contributing towards a failing prediction. The magnitude of the score indicates the strength of the feature's contribution. The model found the following features to be the most predictive for this student:

Top Contributing Features to Student Failure:
TotalClicksProblem: The number of clicks that a student has made on problems this week.
StdTimeSpeedingUp: The student's standard deviation of time using Video.SeekForward actions (seconds).
ContentAlignment: The number of videos this week that have been watched by the student.
TotalClicksVideoLoad: The number of times a student loaded a video.

Top Contributing Features to Student Success:
TotalClicksProblem: The number of clicks that a student has made on problems this week.
RegPeriodicityDayHour: The extent to which the hourly pattern of user's activities repeats over days.
ContentAnticipation: The number of videos covered by the student from those that are in subsequent weeks.

The top 20 feature-weeks found important are described in the plot. Improving on these behaviors could lead to stronger performance in the course.



Which explanation do you prefer the most?

Why do you prefer this explanation?

What is the main action you would you take in the next week based on your preferred explanation?

- I would improve my regularity of learning on the platform (have a daily or weekly schedule).
- I would watch video lectures immediately when they are released
- I would attempt more problems.
- I would spend more time on the platform.
- I would watch more videos.
- I would engage more heavily with videos (pausing, replaying, rewinding)
- I would practice more for the quiz so I could solve it in fewer attempts.
- I would try to attempt quizzes for the next weeks earlier.
- I would try to solve the quizzes faster.
- I would try to watch videos for the next weeks earlier.

For this action, which weeks of material would you focus on? (Select minimum 1 week and maximum 3 weeks to focus on)

Review Week 1 (Intro, Urban Planning, African Cities)	Review Week 2 (Stakes and Challenges, Which model for which city)	Review Week 3 (Globalization and Cities, Climate Change, Transport)	Review Week 4 (Urban Facilities, Public Spaces)	Review Week 5 (Urban Sprawl, Professions, Informal settlements)	Engage in upcoming Week 6 (Critical Reading, 10 basic principles, Urban Agriculture)	Engage in upcoming Week 7 (Tools of urban planning, GIS)	(
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How would you grade each explanation?

A score of 1 is the lowest for each criteria, a score of 5 is the highest for each criteria. You can select multiple explanations for each score.

- **Usefulness**: This explanation is useful to understand the prediction based on my learning behavior.
- **Trustworthiness**: This explanation lets me judge if I should trust the suggestions.
- **Actionability**: This explanation helps me make a decision on how to improve my learning behavior.
- **Completeness**: This explanation has sufficient detail to understand why the prediction was made based on my learning behavior.
- **Conciseness**: Every detail of this explanation is necessary.

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	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Usefulness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Trustworthiness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Actionability	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Completeness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Conciseness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Student 3a

Elements of Geometry
(Course 3/3, Explanations 1/2)

---Explanation 1---

Where Am I Going?
You are doing well overall, but there are some areas where you can improve to ensure you pass the course "Elements de Geomatique." The goal is for you to engage consistently with the course material

and perform well on quizzes.

How Am I Doing?

Abnormal Causes:

- ***High Competency Strength in Week 2:*** Your high performance in Week 2 was not consistent across other weeks, impacting your progress.
- ***Interrupted Sessions in Week 3: You*** had many interruptions in Week 3, which could have affected your focus.

Recent Events:

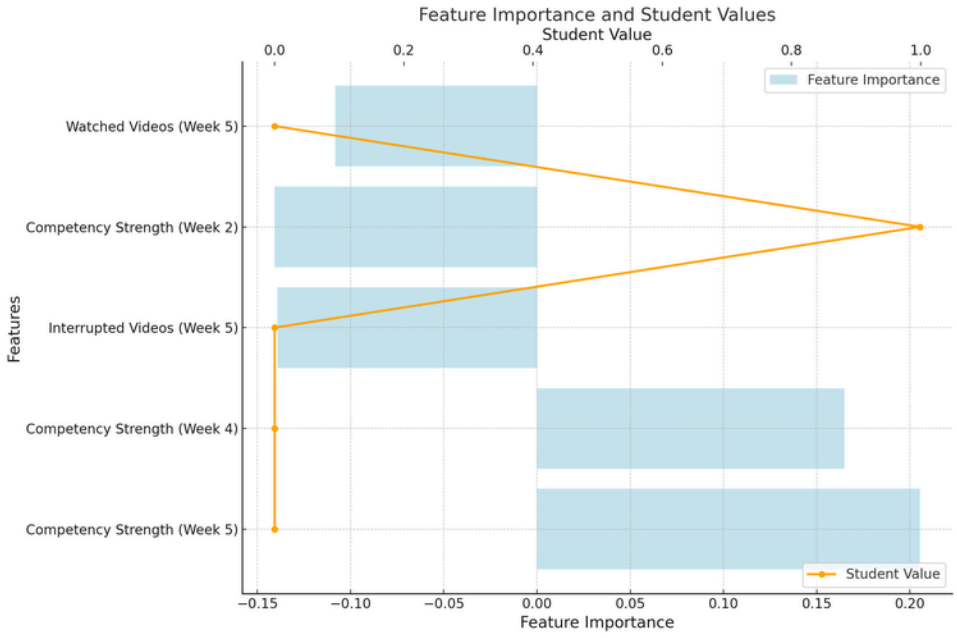
- ***Week 5:*** You spent a moderate amount of time on problems but didn't replay videos, suggesting you understood the material but struggled with problem-solving.

Controllable Factors:

- ***Engagement:*** Maintain consistent engagement by reducing interruptions and staying focused during study sessions.
- ***Anticipation***: Start previewing upcoming materials to build a stronger foundation for future topics.

Where to Next?

1. ***Weeks 6-7:*** Focus on previewing materials for "Geometric Leveling" and "Surveying" to anticipate and understand upcoming content better.
2. ***Weeks 4-5***: Reflect on your performance in "Cartography" and "Modeling and Interpolation." Identify areas where you struggled and seek additional resources or practice problems to improve your understanding and skills.



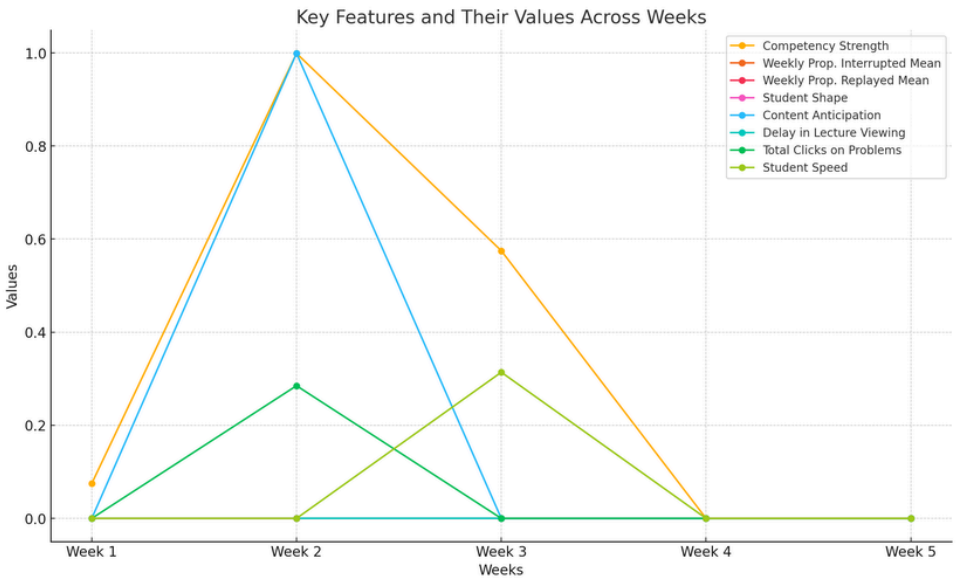
---Explanation 2---

You've shown some strong potential in this course, and I'd like to help you build on that.

Where Am I Going?
Your goal is to pass the course "Elements de Geomatique" by demonstrating consistent engagement and understanding across all weeks.

How Am I Doing?
- *Target Event (P):* You engaged well in Week 2 with high competency strength and had no delay in viewing lectures in Week 5. These are important as they show your capability to understand and keep up with the material.
- *Contrast Event (Q):* In Weeks 4 and 5, you did not achieve maximum quiz grades on the first attempt, but this actually contributed positively. This was chosen because it shows resilience and improvement over multiple attempts.
- *Key Causes:* The high competency strength in Week 2 and timely lecture viewing in Week 5 are significant. However, the lack of anticipation in covering future content and the moderate time spent on problems in Week 5 indicate areas needing improvement.

Where to Next?
1. *Week 6*: Focus on reviewing Week 5's content on "Modeling and Interpolation" to strengthen your understanding before moving to "Geometric Leveling."
2. *Week 7*: Anticipate and start engaging with Week 7's "Surveying" material early. This will help you build a strong foundation and improve your performance in subsequent weeks.



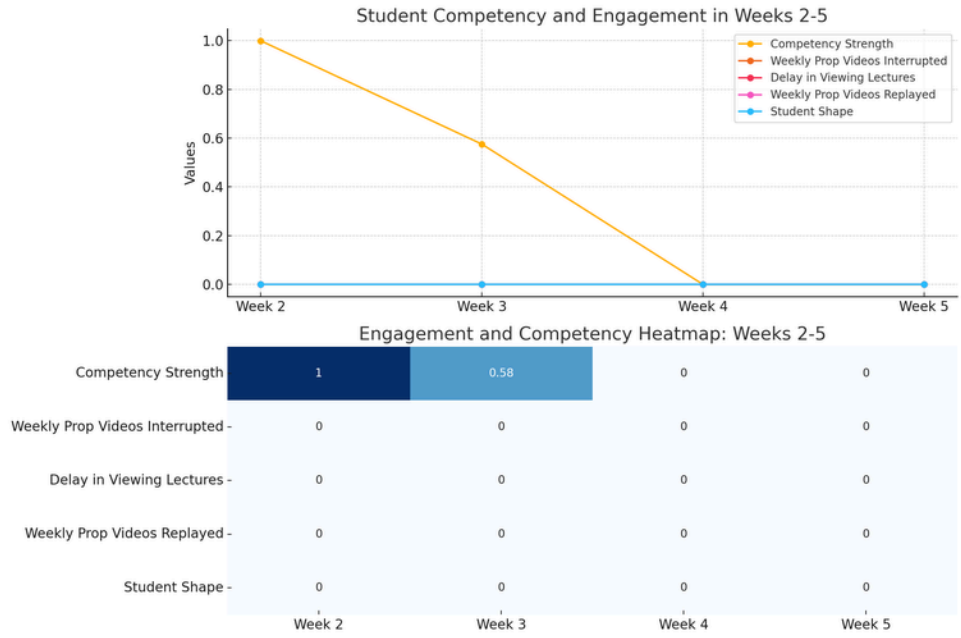
---Explanation 3---

Course Title: Elements de Geomatique

Where Am I Going?
You are doing well, but there are areas to improve to ensure you pass the course. The goal is to consistently engage with the material and improve your problem-solving skills.

How Am I Doing?
In Week 2, your competency strength was high, meaning you performed well on quizzes but this wasn't consistent in Week 3. You had many interrupted sessions in Week 3, suggesting active engagement but with distractions. In Week 5, you spent some time on problems, but it seems you struggled. You also did not replay any videos, indicating you might have grasped the content well.

Where to Next?
1. *Week 6:* Focus on the quizzes related to Geometric Leveling. Try to minimize interruptions during study sessions to enhance your understanding.
2. *Week 7:* Preview the content on Surveying and start practicing problems early. This will help build a stronger foundation and improve your competency in upcoming weeks.



---Explanation 4---

This student is predicted to pass the course with likelihood 80.80%. The model's explanation is determined by approximating the 20

features that contributed the most to the this student's prediction, with positive scores contributing towards a passing prediction and negative stores contributing towards a failing prediction. The magnitude of the score indicates the strength of the feature's contribution. The model found the following features to be the most predictive for this student:

Top Contributing Features to Student Failure:
CompetencyStrength: The extent to which a student passes a quiz getting the maximum grade with few attempts.
AvgReplayedWeeklyProp: The ratio of videos replayed over the number of videos available.
StudentShape: The extent to which the student receives the maximum quiz grade on the first attempt.
DelayLecture: The average delay in viewing video lectures after they are released to students.

Top Contributing Features to Student Success:
CompetencyStrength: The extent to which a student passes a quiz getting the maximum grade with few attempts.
AvgInterruptedWeeklyProp: The ratio of videos interrupted over the number of videos available.
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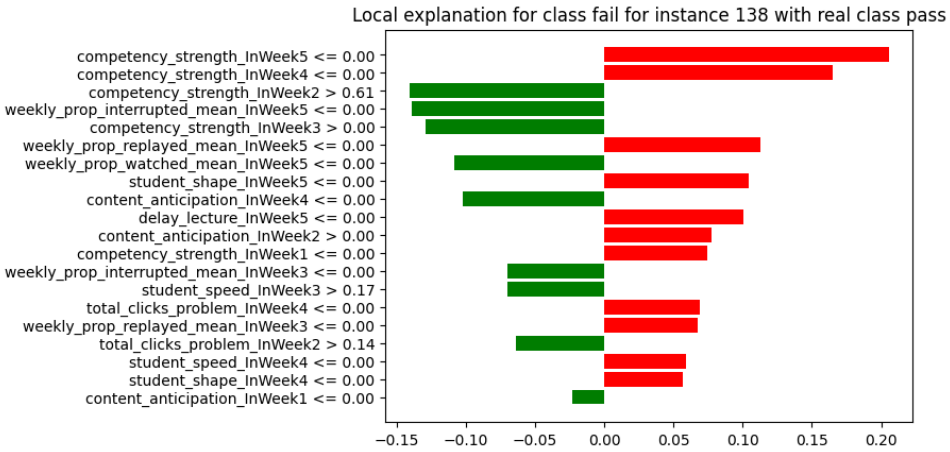

Which explainer do you prefer the most?

Why do you prefer this explanation?

What is the main action you would you take in the next week based on your preferred explanation?

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- I would watch video lectures immediately when they are released
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- I would spend more time on the platform.
- I would watch more videos.
- I would engage more heavily with videos (pausing, replaying, rewinding)
- I would practice more for the quiz so I could solve it in fewer attempts.
- I would try to attempt quizzes for the next weeks earlier.
- I would try to solve the quizzes faster.
- I would try to watch videos for the next weeks earlier.

For this action, which weeks of material would you focus on? (Select minimum 1 week and maximum 3 weeks to focus on)

Review Week 1 (Introduction to Geomatics)	Review Week 2 (Geodesy)	Review Week 3 (Geodetic References)	Review Week 4 (Cartography)	Review Week 5 (Modeling and Interpolation)	Engage in upcoming Week 6 (Geometric Leveling)	Engag upcom Week (Survey
☐	☐	☐	☐	☐	☐	

How would you grade each explanation?

A score of 1 is the lowest for each criteria, a score of 5 is the highest for each criteria. You can select multiple explanations for each score.

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- **Trustworthiness**: This explanation lets me judge if I should trust the suggestions.

- **Actionability**: This explanation helps me make a decision on how to improve my learning behavior.
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Actionability	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Completeness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Conciseness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Student 3b

Elements of Geometry
(Course 3/3, Explanations 2/2)

--- Explanation 1 ---

This student is predicted to pass the course with likelihood 80.80%. The model's explanation is determined by approximating the 20 features that contributed the most to the this student's prediction, with positive scores contributing towards a passing prediction and negative stores contributing towards a failing prediction. The magnitude of the score indicates the strength of the feature's contribution. The model found the following features to be the most predictive for this student:

Top Contributing Features to Student Failure:
CompetencyStrength: The extent to which a student passes a quiz getting the maximum grade with few attempts.
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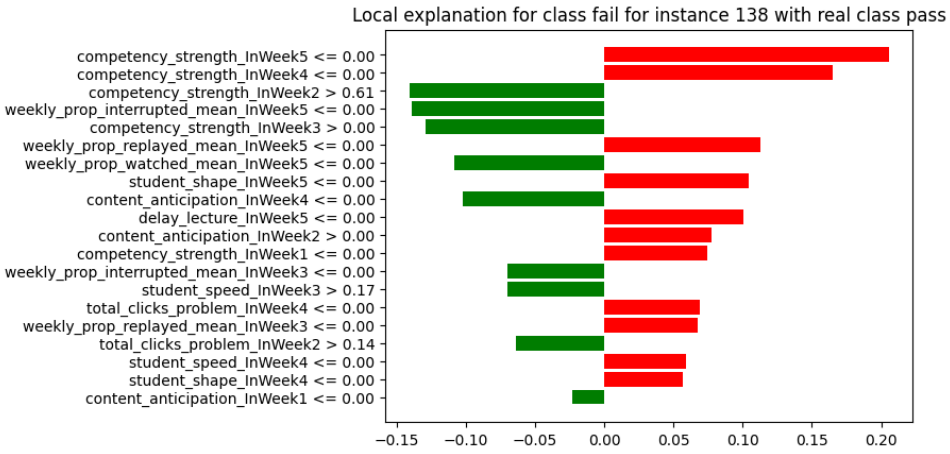
DelayLecture: The average delay in viewing video lectures after they are released to students.

Top Contributing Features to Student Success:
CompetencyStrength: The extent to which a student passes a quiz getting the maximum grade with few attempts.

AvgInterruptedWeeklyProp: The ratio of videos interrupted over the number of videos available.
AvgWatchedWeeklyProp: The ratio of videos watched over the number of videos available.
ContentAnticipation: The number of videos covered by the student from those that are in subsequent weeks.

The top 20 feature-weeks found important are described in the plot. Improving on these behaviors could lead to stronger performance in the course.



---Explanation 2---

You've been doing well overall, but let's focus on some areas to ensure you succeed in "Elements de Geomatique."

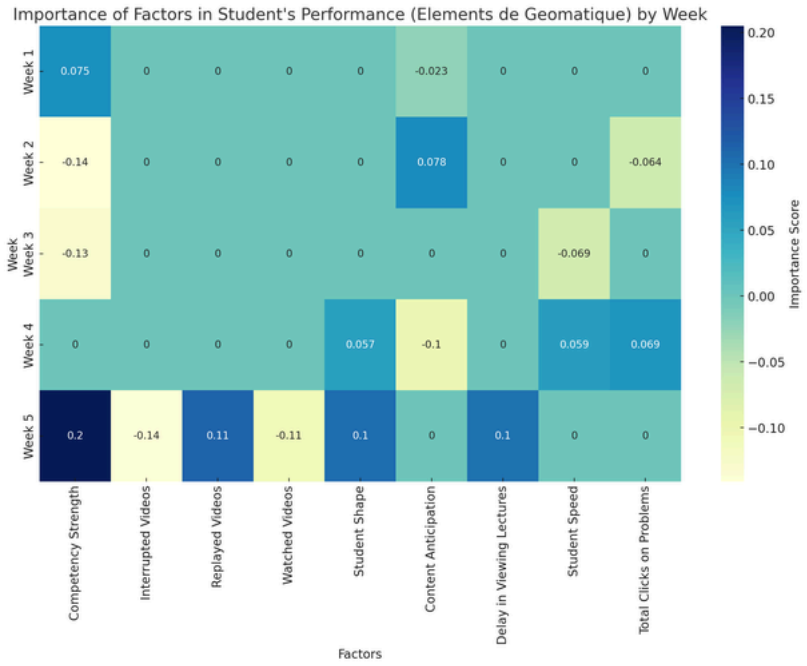
Where Am I Going?
Your goal is to pass the course by mastering the weekly skills and quizzes, from geodesy and cartography to satellite positioning principles.

How Am I Doing?
• Necessary Causes:
- **Competency Strength in Week 2**: You performed very well in Week 2, but this high performance wasn't consistent in other weeks.
- **Interrupted Sessions in Week 3**: You had many interruptions in Week 3, which, surprisingly, didn't hinder your performance significantly.

• Robust Explanation:
- **Quiz Performance**: While you didn't always get the maximum grade on the first attempt in Weeks 4 and 5, your persistence and multiple attempts positively impacted your learning.
- **Timely Lecture Viewing:** You viewed lectures on time in Week 5, which helped you stay on track.

Where to Next?

1. *Weeks 6 and 7:* Focus on maintaining consistent study sessions and reducing interruptions. This will help you build on the skills from Week 5, like Modeling and Interpolation, and prepare for Geometric Leveling and Surveying.
2. *Weeks 8 and 9:* Start previewing upcoming materials on Polar Surveying and Distance Measurement Techniques. This anticipation will give you a head start and solidify your understanding of current concepts.



---Explanation 3---

Student Feedback Report

Where Am I Going?

You've shown potential in the "Elements de Geomatique" course. Your goal is to pass the course by maintaining consistent engagement and improving problem-solving skills.

How Am I Doing?

External Factors:

- **Interrupted Sessions:** In Week 3, you had many interrupted sessions, which indicates active engagement but also distractions. Maintaining focus is crucial for better performance.
- **Lecture Viewing**: In Week 5, you viewed lectures promptly, which is beneficial.

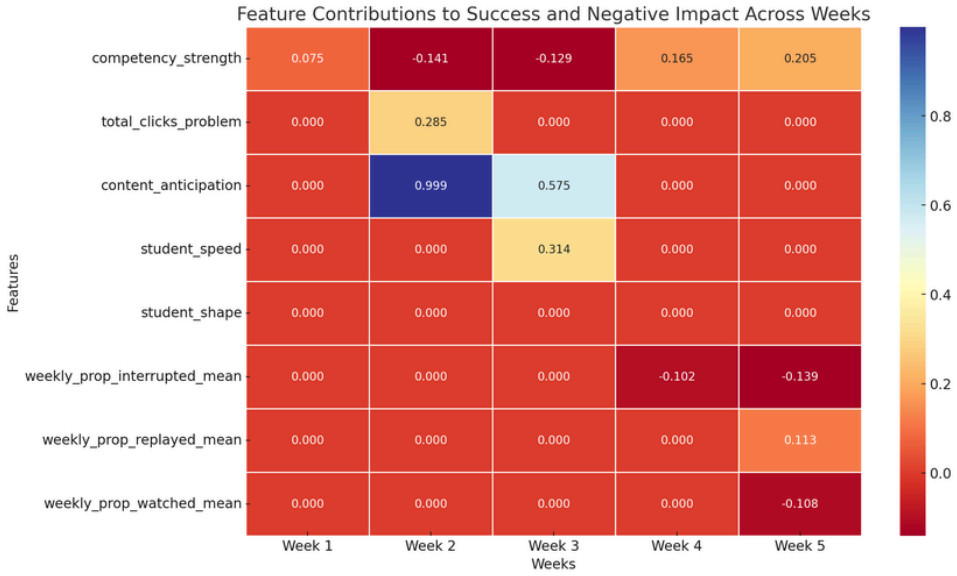
Internal Relationships:

- **Competency Strength**: Your performance was strong in Week 2 but inconsistent in later weeks. This inconsistency can affect your overall

success.
- **Content Anticipation**: You didn't engage with future content in Weeks 1, 2, and 3, which is essential for building a strong foundation.

Focus on Improvement:
- *Problem Solving*: In Week 5, you spent a moderate amount of time on problems but struggled. More practice will help improve your skills.
- *Replaying Videos*: Not replaying videos in Week 5 suggests good initial understanding, but revisiting difficult topics could reinforce your learning.

Where to Next?
1. *Weeks 6-7:* Focus on consistent study sessions without interruptions. Use resources to practice problem-solving, especially on geometric leveling and surveying.
2. *Weeks 8-10:* Start previewing future content on polar surveying and satellite positioning. This will help you anticipate and understand upcoming material better.



---Explanation 4---

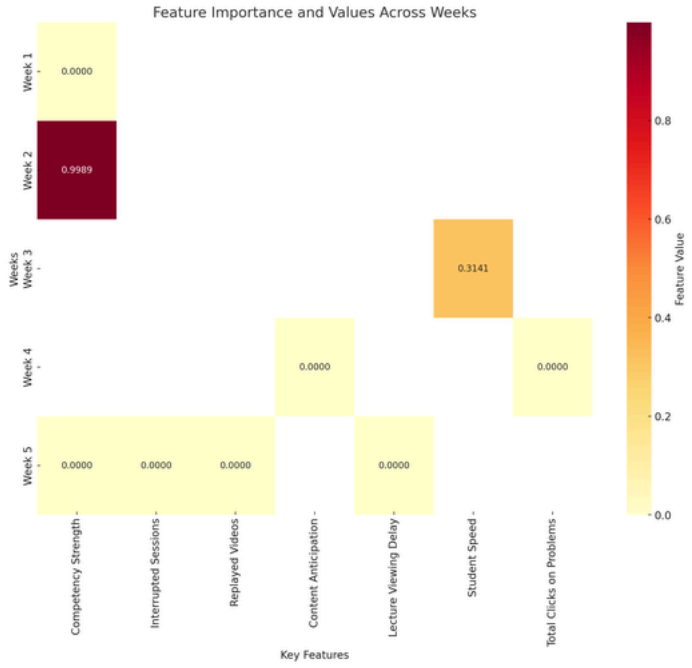
You've shown some strong potential in this course, and I'd like to help you build on that.

Where Am I Going?
Your goal is to pass the course "Elements de Geomatique" by demonstrating consistent engagement and understanding across all weeks.

How Am I Doing?
- *Target Event (P):* You engaged well in Week 2 with high competency

strength and had no delay in viewing lectures in Week 5. These are important as they show your capability to understand and keep up with the material.
- *Contrast Event (Q)*: In Weeks 4 and 5, you did not achieve maximum quiz grades on the first attempt, but this actually contributed positively. This was chosen because it shows resilience and improvement over multiple attempts.
- *Key Causes*: The high competency strength in Week 2 and timely lecture viewing in Week 5 are significant. However, the lack of anticipation in covering future content and the moderate time spent on problems in Week 5 indicate areas needing improvement.

Where to Next?
1. *Week 6:* Focus on reviewing Week 5's content on "Modeling and Interpolation" to strengthen your understanding before moving to "Geometric Leveling."
2. *Week 7:* Anticipate and start engaging with Week 7's "Surveying" material early. This will help you build a strong foundation and improve your performance in subsequent weeks.



Which explanation do you prefer the most?

Why do you prefer this explanation?

What is the main action you would you take in the next week based on your preferred explanation?

- I would improve my regularity of learning on the platform (have a daily or weekly schedule).
- I would watch video lectures immediately when they are released
- I would attempt more problems.
- I would spend more time on the platform.
- I would watch more videos.
- I would engage more heavily with videos (pausing, replaying, rewinding)
- I would practice more for the quiz so I could solve it in fewer attempts.
- I would try to attempt quizzes for the next weeks earlier.
- I would try to solve the quizzes faster.
- I would try to watch videos for the next weeks earlier.

For this action, which weeks of material would you focus on? (Select minimum 1 week and maximum 3 weeks to focus on)

Review Week 1 (Introduction to Geomatics)	Review Week 2 (Geodesy)	Review Week 3 (Geodetic References)	Review Week 4 (Cartography)	Review Week 5 (Modeling and Interpolation)	Engage in upcoming Week 6 (Geometric Leveling)	Engag upcom Week (Survey
☐	☐	☐	☐	☐	☐	

How would you grade each explanation?

A score of 1 is the lowest for each criteria, a score of 5 is the highest for each criteria. You can select multiple explanations for each score.

- **Usefulness**: This explanation is useful to understand the prediction based on my learning behavior.
- **Trustworthiness**: This explanation lets me judge if I should trust the suggestions.
- **Actionability**: This explanation helps me make a decision on how to improve my learning behavior.
- **Completeness**: This explanation has sufficient detail to understand why the prediction was made based on my learning behavior.
- **Conciseness**: Every detail of this explanation is necessary.

	EXP 1					EXP 2					EXP 3					EXP 4				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Usefulness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Trustworthiness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Actionability	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Completeness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Conciseness	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

End remarks

Rank the criterias that matter most to you.

Usefulness

Trustworthiness

Actionability

Completeness

Conciseness

Could you elaborate on why you ranked the criteria this way? What do you expect from the explanation of a model's prediction?

How important are the following elements of the explanation?

	1	2	3	3	4	5
Textual Explanation						☐
Plot						☐

Finally, we would like to ask for your general feedback. Do you have any comments or suggestions that you would like to give us?