

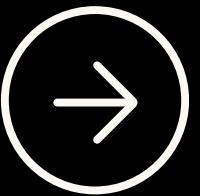


Team Vague

VIZ MATH



github.com/sunidhisharma03/Vague/



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PROBLEM STATEMENT

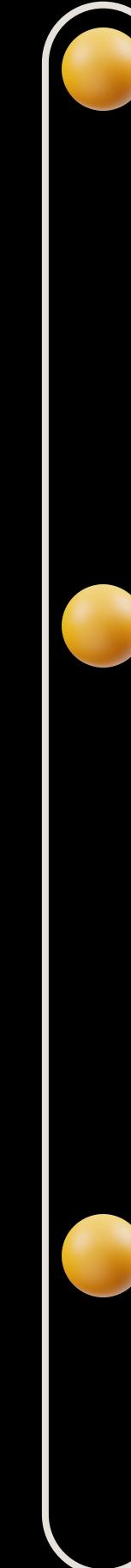
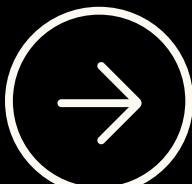
Question to Audience: How many of you have struggled with understanding calculus, particularly concepts like integrals and derivatives? What do you think makes these topics difficult to grasp?

Visualizing derivatives as slopes and integrals as areas makes abstract concepts more tangible and easier to grasp. Let me show you how a dynamic visual can clarify complex problems.





SUPPORTING RESEARCH



Improved Retention

Visual learning methods can boost retention by up to 400% (VideoScribe study).

Effectiveness of Visuals

Visuals are 83% more effective than text alone in improving understanding and memory retention.

Engagement

Incorporating visuals like graphs, animations, and interactive tools enhances student attention and engagement, especially in digital learning environments.

Conceptual Understanding

Visual learning aids improve students' conceptual grasp of subjects like mathematics. Studies show that using 3D graphing software can improve comprehension, especially in subjects like calculus and geometry.

DIFFERENTIATION



Fine-Tuned LLM

The LLM is fine-tuned to generate Python code automatically for visualizing mathematical equations, eliminating manual coding.

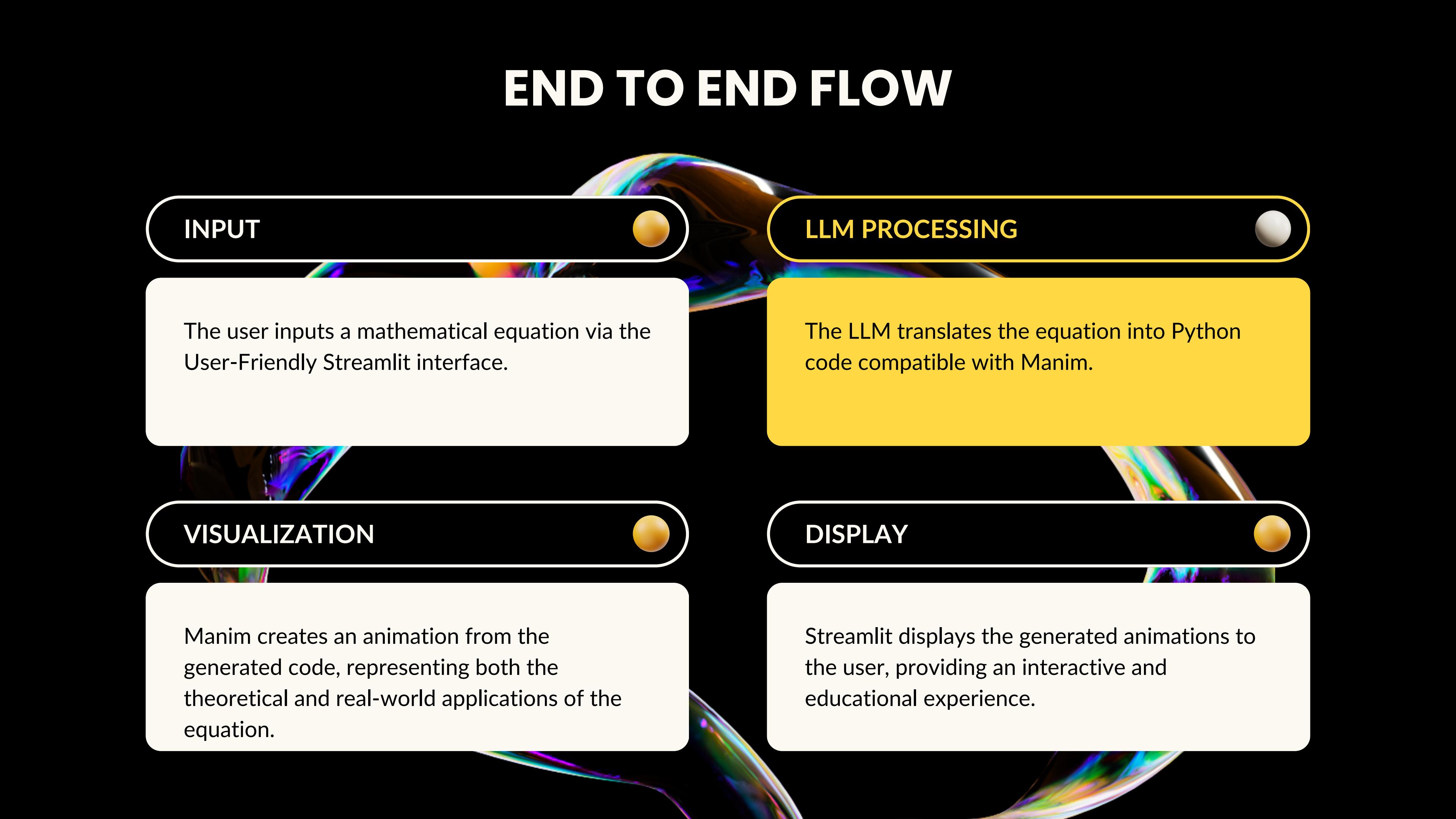
Dynamic Visualizations

The generated Manim code creates engaging, dynamic animations for abstract concepts like derivatives and integrals, making them easier to understand.

Real-World Applications

The system not only visualizes equations but also demonstrates their practical applications, linking theory with real-world use.

END TO END FLOW



INPUT

The user inputs a mathematical equation via the User-Friendly Streamlit interface.

LLM PROCESSING

The LLM translates the equation into Python code compatible with Manim.

VISUALIZATION

Manim creates an animation from the generated code, representing both the theoretical and real-world applications of the equation.

DISPLAY

Streamlit displays the generated animations to the user, providing an interactive and educational experience.

VALUE PROPOSITIONS

Educational Impact

Enhancing the understanding of complex mathematical equations through visualization and real-world applications.

Intuitive & Dynamic Learning

Providing students and teachers with a tool that offers a more interactive way to engage with mathematics.

Time-Saving for Developers

Automating the generation of Manim animations, reducing the need for manual coding.

Practical Applications for Professionals

Helping engineers, scientists, and mathematicians see the practical impact of equations in real-world scenarios.

CUSTOMER SEGMENTS

Educational Institutions

Universities, colleges, and high schools looking to improve their mathematics and science education offerings.

Students

Learners who need a more engaging and visual approach to understanding complex mathematical concepts.

Teachers/Professors

Educators seeking tools to make their lessons more interactive and accessible.

Professionals

Engineers, data scientists, and researchers who need to visualize mathematical models in their work.

REVENUE STREAMS

Premium version with advanced features and personalized support.

Free access with paid upgrades for additional features.

Partnering with schools and universities for curriculum integration.

Offering the tool to industries for real-world mathematical visualizations.

COST STRUCTURE

Ongoing costs for cloud infrastructure and technical support.

Expenses for improving the LLM's accuracy.

Costs for user acquisition, promotion, and educational partnerships

Developing examples, real-world applications, and educational resources.



Team Vague

THANK YOU



VIZMath

Start with VIZ



```
-----  
Traceback (most recent call last)  
-----
```

```
/opt/homebrew/Cellar/manim/0.18.1_2/libexec/lib/python3.12/site-packages/manim/scene/scene.py:90  
0 in compile_animations
```

```
897     # Allow passing a generator to self.play instead of comma separated arguments
898     for arg in arg_anims:
899         try:
900             |   animations.append(prepare_animation(arg))
901         except TypeError:
902             if inspect.ismethod(arg):
903                 |   raise TypeError(
```

```
/opt/homebrew/Cellar/manim/0.18.1_2/libexec/lib/python3.12/site-packages/manim/animation/animation.py:525 in prepare_animation
```

```
522     if isinstance	anim, Animation):
523     |     return anim
524
9 525     raise TypeError(f"Object {anim} cannot be converted to an animation")
526
527
528 class Wait(Animation):
```