AI Agent Assignment – Submission Document

SECTION 1: BASIC DETAILS

Name: Gautami Kadam

AI Agent Title / Use Case: *SimplifyIt – AI Concept Explainer for Students*

SECTION 2: PROBLEM FRAMING

1.1 What problem does your AI Agent solve?

Students often find it difficult to understand complex academic concepts like Newton's Laws. Searching on the internet can give overwhelming or unclear results. This AI Agent provides simple explanations with real-life examples in one place.

1.2 Why is this agent useful?

It simplifies difficult topics and gives trustworthy summaries from Wikipedia along with easy-to-understand examples generated by AI, saving time and effort for learners.

1.3 Who is the target user?

Students from Class 9 to College-level who need quick, clear concept explanations in science or academics.

1.4 What not to include?

Voice output, multi-language support, detailed textbook solutions, or memory-based dialogue for now. The agent is focused purely on concept explanation in a single query format.

SECTION 3: 4-LAYER PROMPT DESIGN

3.1 INPUT UNDERSTANDING

Prompt:
`"Give a simple, complete example for:` *SimplifyIt – AI Concept Explainer for Students*`"`

What is this prompt responsible for?
Understanding the user's entered concept (like "newton's law") and instructing the AI to generate a practical example.

Example Input + Output:
Input: `newtons law`
Output: Real-world example using a book on a table to explain all three laws.

3.2 STATE TRACKER

Prompt Logic:
There's no long-term memory implemented due to stateless HTTP. Context is retained only during the single request using variable `concept`.

How does this help the agent "remember"?
The current input is used to query Wikipedia and trigger the Cohere API, so the response is relevant per input. Memory simulation happens using form data (`request.form.get()`).

3.3 TASK PLANNER

Prompt:

1. Get user input →
2. Search Wikipedia summary (try multiple methods if disambiguation) →
3. Generate a practical example via Cohere API →
4. Provide links to both video and detailed Wikipedia page

How did you manage complexity?
Used error handling to fall back if Wikipedia auto-suggest or page retrieval fails. Ensured modularity with clear task boundaries: fetch, process, display.

3.4 OUTPUT GENERATOR

Prompt to Cohere:
`"Give a simple, complete example for:` *SimplifyIt – AI Concept Explainer for Students*`"`

Formatting:

- Displayed in labeled boxes: *Wikipedia Summary*, *AI Example*

- Also includes:
  - Read More on Wikipedia (link)
  - See related videos on YouTube (link)

Special behavior:
Real-world examples, educational tone, friendly language.

SECTION 4: CHATGPT EXPLORATION LOG

Attempt	Prompt	What Happened	What You Changed	Why You Changed It
1	`Give an example for Newton's law`	Too short, vague	Added "simple, complete"	Made the response richer
2	Used Wikipedia page()	DisambiguationError	Used `.summary()` with fallback logic	To handle unclear queries
3	Input: "motion thingy"	Gave random answers	Applied auto-suggest, added "Did you mean..."	To handle vague input gracefully

---

SECTION 5: OUTPUT TESTS

Test 1: Normal Input

Input: `newtons law`
Output:

- Wikipedia summary of the laws
- AI Example using a book to explain all three laws
- Video and article links

Test 2: Vague input

Input: `"What is that thing about motion?"`
Output:
Currently gives random answers. Needs NLP for better classification.

Test 3: Invalid Input

Input: `""`
Output:
"Please enter a concept." (Handled by input check)

SECTION 6: REFLECTION

6.1 Hardest part?

Handling vague or invalid inputs and getting Wikipedia to return a useful summary consistently. Dealing with DisambiguationErrors and fallbacks was tricky.

6.2 What did you enjoy most?

Designing the UI and seeing real-time generation of examples that actually help a student understand better. Also fun to combine AI with web dev.

6.3 Improvements if given more time?

- Add memory for multi-turn conversations
- Handle vague queries better using a classifier, NLP, ML/DL/Gen AI models
- Let user pick from disambiguated terms

6.4 What did you learn about ChatGPT/prompting?

Precision in prompt language really matters. The difference between “example” and “simple, complete example” changed the quality massively.

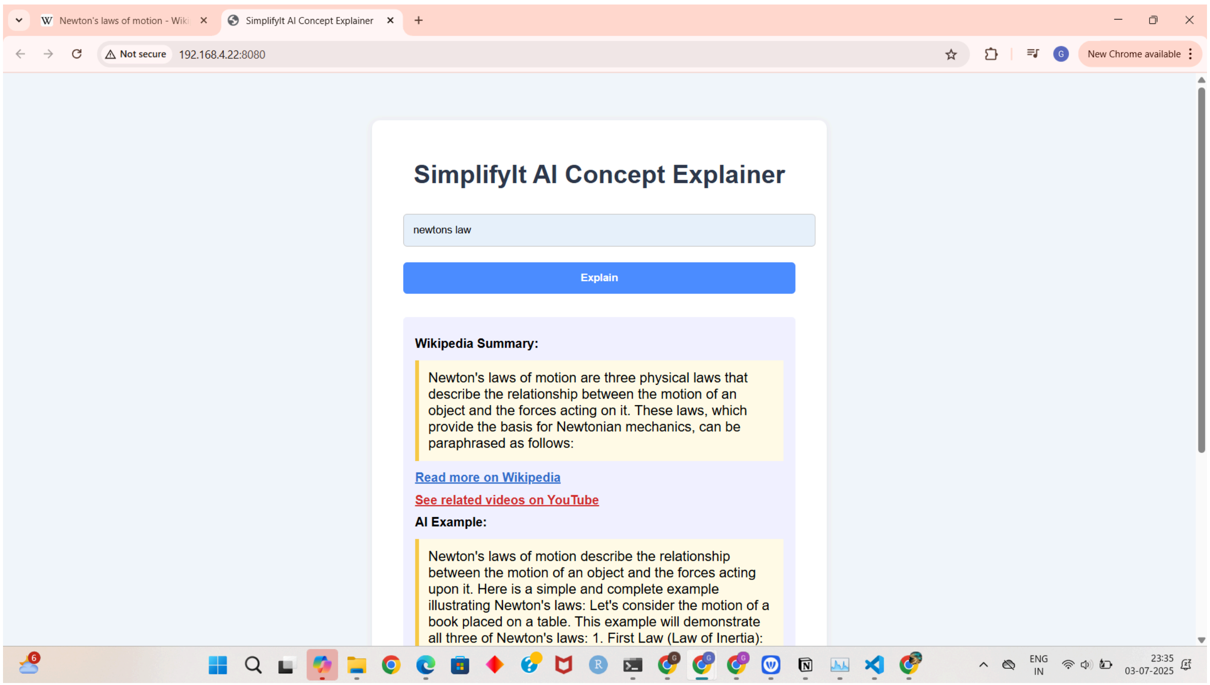
6.5 Did you get stuck? How did you handle it?

Yes—while handling Wikipedia errors and broken links. Resolved it by trying multiple methods: `page()`, `summary()`, and `search()` to get reliable output.

SECTION 7: HACK VALUE

- Added YouTube Search link using dynamic URL encoding
- Cohere API usage to simulate an agent with generated examples
- Multi-method Wikipedia fallback with disambiguation handling
- Clean, user-friendly frontend (screenshots show this clearly)

OUTPUT SCREENSHOTS:



SimplifyIt AI Concept Explainer

newtons law

Explain

Wikipedia Summary:

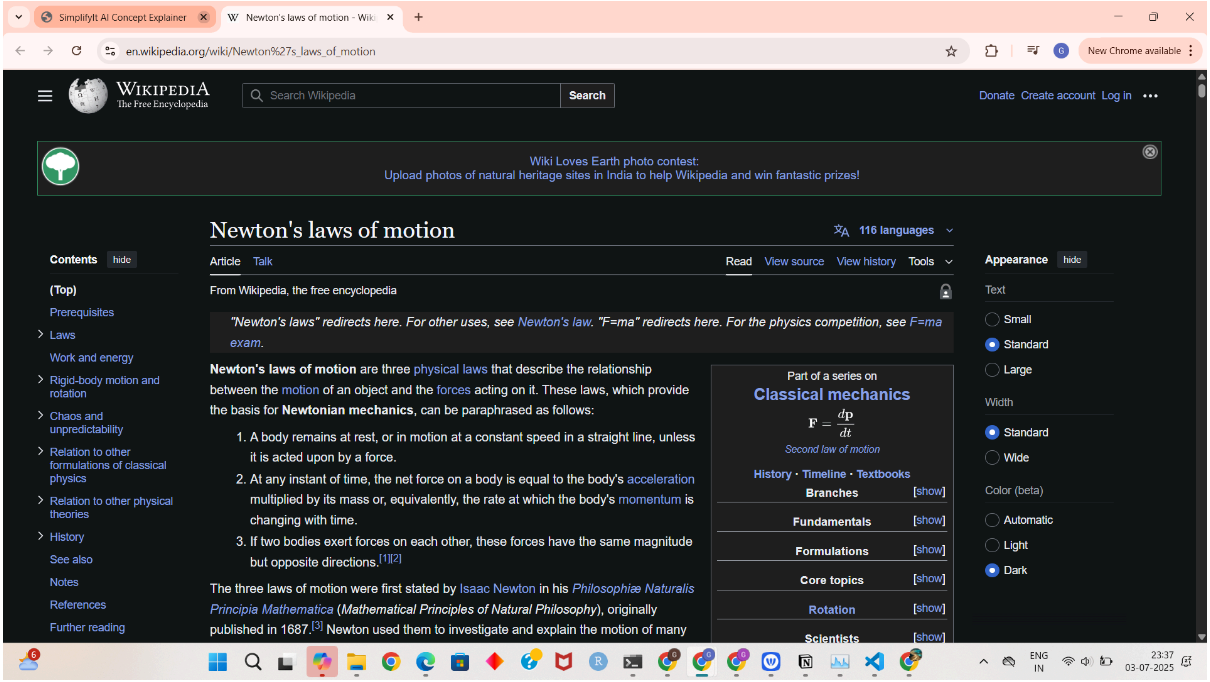
> Newton's laws of motion are three physical laws that describe the relationship between the motion of an object and the forces acting on it. These laws, which provide the basis for Newtonian mechanics, can be paraphrased as follows:

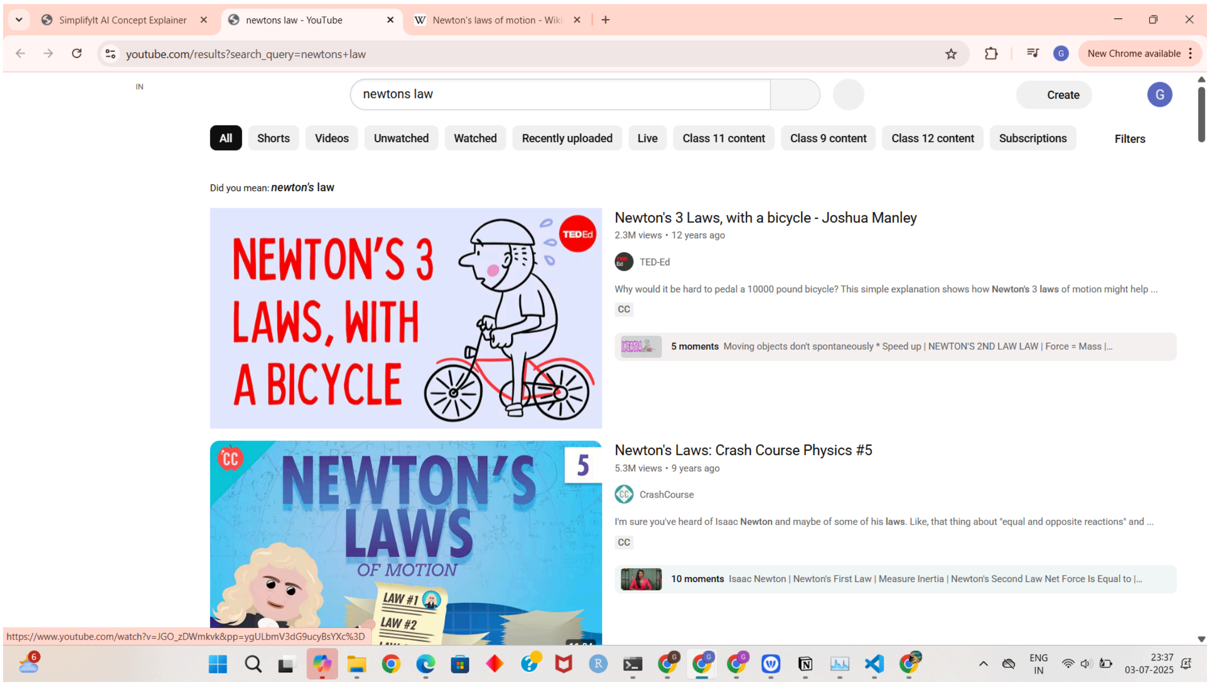
Read more on Wikipedia

See related videos on YouTube

AI Example:

> Newton's laws of motion describe the relationship between the motion of an object and the forces acting upon it. Here is a simple and complete example illustrating Newton's laws: Let's consider the motion of a book placed on a table. This example will demonstrate all three of Newton's laws: 1. First Law (Law of Inertia): An object at rest stays at rest, and an object in motion stays in motion with the same speed and in the same direction unless acted upon by an unbalanced external force. In this case, the book is at rest on the table. It will remain at rest unless a force is applied to it. 2. Second Law (Law of Acceleration): The acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass. Mathematically, this law is represented as F = ma, where F is the net force, m is the mass of the object, and a is the acceleration. If we apply a


SimplifyIt AI Concept Explainer
Newton's laws of motion - Wiki
en.wikipedia.org/wiki/Newton%27s_laws_of_motion
New Chrome available
WIKIPEDIA
The Free Encyclopedia
Search Wikipedia
Search
Donate Create account Log in
Wiki Loves Earth photo contest:
Upload photos of natural heritage sites in India to help Wikipedia and win fantastic prizes!
Newton's laws of motion
116 languages
Contents hide
(Top)
Prerequisites
Laws
Work and energy
Rigid-body motion and rotation
Chaos and unpredictability
Relation to other formulations of classical physics
Relation to other physical theories
History
See also
Notes
References
Further reading
Article Talk
Read View source View history Tools
From Wikipedia, the free encyclopedia
"Newton's laws" redirects here. For other uses, see Newton's law. "F=ma" redirects here. For the physics competition, see F=ma exam.
Newton's laws of motion are three physical laws that describe the relationship between the motion of an object and the forces acting on it. These laws, which provide the basis for Newtonian mechanics, can be paraphrased as follows:
1. A body remains at rest, or in motion at a constant speed in a straight line, unless it is acted upon by a force.
2. At any instant of time, the net force on a body is equal to the body's acceleration multiplied by its mass or, equivalently, the rate at which the body's momentum is changing with time.
3. If two bodies exert forces on each other, these forces have the same magnitude but opposite directions.[1][2]
The three laws of motion were first stated by Isaac Newton in his Philosophiæ Naturalis Principia Mathematica (Mathematical Principles of Natural Philosophy), originally published in 1687.[3] Newton used them to investigate and explain the motion of many
Part of a series on
Classical mechanics
$\mathbf{F} = \frac{dp}{dt}$
Second law of motion
History · Timeline · Textbooks
Branches [show]
Fundamentals [show]
Formulations [show]
Core topics [show]
Rotation [show]
Scientists [show]
Appearance hide
Text
Small
Standard
Large
Width
Standard
Wide
Color (beta)
Automatic
Light
Dark
ENG IN
23:37
03-07-2025


SimplifyIt AI Concept Explainer
newtons law - YouTube
Newton's laws of motion - Wiki
youtube.com/results?search_query=newtons+law
New Chrome available
newtons law
Create
All
Shorts
Videos
Unwatched
Watched
Recently uploaded
Live
Class 11 content
Class 9 content
Class 12 content
Subscriptions
Filters
Did you mean: newton's law
NEWTON'S 3 LAWS, WITH A BICYCLE
TEDEd
Newton's 3 Laws, with a bicycle - Joshua Manley
2.3M views • 12 years ago
TED-Ed
Why would it be hard to pedal a 10000 pound bicycle? This simple explanation shows how Newton's 3 laws of motion might help ...
CC
5 moments Moving objects don't spontaneously * Speed up | NEWTON'S 2ND LAW LAW | Force = Mass |...
NEWTON'S LAWS OF MOTION
LAW #1
LAW #2
5
Newton's Laws: Crash Course Physics #5
5.3M views • 9 years ago
CrashCourse
I'm sure you've heard of Isaac Newton and maybe of some of his laws. Like, that thing about "equal and opposite reactions" and ...
CC
10 moments Isaac Newton | Newton's First Law | Measure Inertia | Newton's Second Law Net Force Is Equal to |...
https://www.youtube.com/watch?v=JGO_zDWmkvk&pp=ygULbmV3dG9ucyBsYXc%3D
ENG IN
23:37
03-07-2025