Idea Description

Mining Bisons is an innovative educational project leveraging Generative AI to empower teachers and students alike. Tailored for educators, the platform encompasses three essential components: Storybook Creation, Academic Advising, and Study Companion. Teachers can craft engaging learning storybooks by inputting themes, objectives, and preferences, while students benefit from personalized academic advising, ensuring a smooth path to graduation. The Study Companion feature acts as a digital study coach, summarizing key points, generating flashcards, and formulating quizzes for efficient review and knowledge retention. Mining Bisons revolutionizes the educational landscape, making learning more engaging, personalized, and effective through the application of advanced AI technologies.

Storybook

User Input

Teachers can input the following:

- Educational Themes: Specify the main theme of the story, such as science, math, language arts, or social studies.
- Learning Objectives: Define specific learning goals or concepts they want to reinforce through the story.(math equations, important historic events, reading skills, experiments), they can upload math equations they want to include or have similar versions of
- Student Preferences: Customize the story based on the age group, reading level, and interests of the students.

Database Query

The system will store and retrieve:

Teacher Profiles**:** To keep track of individual teacher preferences and previously created storybooks.

Student Profiles: Optionally, to personalize stories further based on individual student reading levels and interests.

Gen AI Calls

Generative AI will be employed to:

- Enhance Story Content:
  - Inputs: Users tell Gen AI what kind of story or learning content they want by giving details like characters, visuals, and educational goals.(they can also input photos to include equations to include into the story etc) MAKE ENGAGING. This can lead to the input of predetermined lesson plans for specific units (pdf etc.).
  - Outputs: Generate age-appropriate language, engaging dialogues, and educational scenarios based on the provided themes and objectives.

- Create Visual Elements: Suggest and generate illustrations, diagrams, or interactive elements to complement the educational content.
  - Inputs: input the text story while using specific requests by the user, this may include diagrams for mathematical problems or a timeline for social studies.
  - Outputs: As you can import photos into the story the AI can also produce its own diagrams for science/math/any subject, create creative photos to picture the story, finally it can create different variations of the images in the input helping with creating more problems for the class

Output

The final output will be a complete learning storybook with:

Engaging Text: AI-generated narrative aligned with educational objectives.
Interactive Visuals: AI-created illustrations and diagrams enhancing the learning experience.
Assessment Quizzes: Optionally, AI-generated quizzes to reinforce learning.

Academic Advising

User Input

- Checklist Submission: Students are able to submit their checklist populated with their registered classes for the given semester.
- User prompt: Users including students are able to interact with a chatbot to receive course recommendations and personalized guidance based on the student academic per

Database Query

The system will store and retrieve:

- User login information for authorization and authentication purposes
- Checklists populated with classes/courses registered for the given semester
- [Stretch] Depending on the nature of vertex AI, old chats and messages would be stored for future reference in db

Gen AI Calls

Generative AI will be employed to:

- Personalized Advising: Provide recommendations and suggestions while implementing proactive interventions to ensure that students remain on course for timely graduation.
  - Inputs: User prompt tailored toward personalized academic advising
  - Outputs: Recommendations and suggestion prompt based on the input prompt from the user.

Output

Users including students and advisors receive enhanced academic advising experience by leveraging Generative AI.

Study Companion

Teachers can input the following:

- Users can type or paste text directly into the app.
- They can upload PDFs of lecture notes or textbooks via drag-and-drop or file selection.
- They can highlight specific sections within the uploaded document or manually entered text to guide summarization and flashcard creation.

Database Query

The system will store and retrieve:

- Will store:
  - Username/Email (anonymous whenever possible): For identification and account management.
  - Preferences: To personalize content and difficulty levels based on individual needs.
  - Learning goals: To tailor the learning experience and track progress towards specific objectives.
- Will receive:
  - Retrieve uploaded text/PDFs for processing and analysis.
  - Access generated content (stories, visuals, quizzes, flashcards) for review and further learning.
  - Recover performance data to analyze strengths, weaknesses, and personalize future learning paths.

Gen AI Calls

Generative AI will be employed to:

- Inputs:
  - Bard or a similar LLM: Analyze the input text and generate summaries highlighting key points. Assist in generating quiz questions based on the content and potential from knowledge bases.
  - Generative Text API: Create flashcards in various formats based on extracted terms, definitions, and facts.
- Outputs:
  - Summarized text displayed alongside the original with highlighted sections.
  - Flashcards and visual examples categorized by topics and accessible for spaced repetition review.
  - Quizzes with immediate feedback and performance tracking.
  - Option to save/download summaries, flashcards, and quiz results.

Output

This app will act as a student's digital study coach, summarizing key points, creating flashcards, and generating quizzes, allowing for efficient review and knowledge retention.