Algorithmic foundations and ethics in AI: from theory to practice course

CU4 | Data fairness and bias in AI

Formative assessment exercises

Project number | 2022-1-ES01-KA220-HED-000085257

Formative assessment exercises*

* Instructors will find 2 potential formative assessment activities for this CU and can chose using any of them or both

Formative assessment exercise 1

	Description	Comments
Task description	**Scenario analysis:** students are to analyze the deployment and effectiveness of Generative AI Chatbots across various universities. These chatbots are designed to improve student services, increase retention and graduation rates, and efficiently use university staff time. **System capabilities:** • Engagement: chatbots such as CSUNny, Pounce, Sunny, Aggie Bot, and Maizey offer functionalities ranging from answering questions about enrollment and financial aid to providing emotional support and proactive reminders about deadlines and campus events. • Data handling: these chatbots utilize advanced machine learning algorithms to interact with students on a variety of platforms, providing personalized, 24/7 assistance. • Integration and personalization: the chatbots integrate seamlessly with university databases to fetch up-to-date information and personalize interactions, enhancing user experience and support efficiency.	
Description of how to do the task	Students will: • Select one or more specific AI chatbots implemented at universities (e.g., CSUNny at CSUN, Pounce at Georgia State University, or Aggie Bot at UC Davis) • Evaluate their impact on both student outcomes and administrative processes. The analysis should cover the AI's functionality, integration into the university environment, and effectiveness in meeting its stated goals.	
Estimated time to do the task	30-60minutes.	
Suggestion of sources for doing the task	Review the case studies of AI in admissions at: https://www.matrixflows.com/blog/generative-ai-chatbots-in-higher-education-universities#sunny-at-arizona-state-university	
Detailed description of how to deliver the task	Develop a report that: • Outlines the overview of the chosen chatbot(s), including their functions and technology. • Analyze how the chatbot(s) have enhanced student services and university operations. • Identify any biases or ethical issues associated with the chatbot(s). • Provide final thoughts and future directions for AI chatbots in education.	Your teacher will guide you on how and where to return the assignment.
Information on the deadline for the task delivery	Your teacher will guide you on the deadline.	
Contact information or how to clarify doubts	Contact your teacher.	

Formative assessment exercise 2

	Description	Comments
Task description	**Scenario Analysis:** Evaluate AI-driven personalized learning platforms in higher education designed to tailor content to individual learning styles, aiming to improve academic outcomes and engagement. **System Capabilities**: • Adaptive Learning: Platforms adjust in real-time to learners' abilities. • Data Analytics: Analyze performance data to personalize learning. • Integration: Ensure consistency across devices.	
Description of how to do the task	Please select one of the AI learning platforms (in the next slide), visit the platform and assess their impact on educational outcomes and engagement, look and feel, covering their integration and effectiveness.	
Estimated time to do the task	30-60minutes	
Suggestion of sources for doing the task	Review the article on the next slide	More details can be found from the next pages.
Detailed description of how to deliver the task	Develop a report that: • Outlines the overview of the chosen platform, including its functions and offerings. • Identify any biases or ethical issues associated with the Platform selected. • Provide final thoughts and future directions for AI learning platform in education.	Your teacher will guide you on how and where to return the assignment.
Information on the deadline for the task delivery	Your teacher will guide you on the deadline.	
Contact information or how to clarify doubts	Contact your teacher.	

Formative assessment exercise 2

Article to support the activity

AI learning platforms in education

The use of AI in educational settings is increasingly prevalent. It offers the potential to enhance personalized learning, automate administrative tasks, and improve educational outcomes.

Overview of AI Learning Platforms
AI learning platforms leverage sophisticated algorithms to tailor educational content to students' individual needs and learning styles. Below are some of the leading platforms currently in use in educational institutions:

- **Knewton:** Knewton's alta platform offers adaptive learning paths in higher education courses, focusing on math, chemistry, and economics. It customizes content based on student performance to help close learning gaps.

https://www.wiley.com/en-us/education/alta

- **Carnegie Learning:** Known for its robust approach to math education, Carnegie Learning combines cognitive and learning science with artificial intelligence to provide real-time data on student learning habits and tailor instruction accordingly.

https://www.carnegielearning.com/

- **Discovery Education x AWS:** Discovery Education enhanced its K-12 learning platform with machine learning capabilities from Amazon Web Services (AWS), helping educators spend less time searching for digital resources and more time teaching. It enhances classroom learning with digital content integrated with AI to create immersive and engaging learning experiences. This platform provides teachers and students with access to a vast library of educational videos, tools, and activities that support inquiry-based and personalized learning.

https://www.discoveryeducation.com/details/discovery-education-collaborates-with-aws-to-enhance-recommendation-engine/

- **ALEKS:** A product of McGraw-Hill, ALEKS is an AI-based learning system for subjects ranging from mathematics to chemistry, using periodic assessments to adapt to a student's unique learning needs.

https://www.aleks.com/?_s=7147121242657785

- **Duolingo:** While primarily known for language learning, Duolingo's AI-driven platform adapts to the user's learning style and pace, offering personalized language practice in a game-like environment that increases student engagement.

https://blog.duolingo.com/how-duolingo-experts-work-with-ai/

Formative assessment exercise 2

Evaluation metrics: AI learning platforms in education

Integration and Effectiveness of AI Platforms	**Curriculum Alignment**: Ensuring AI tools align with educational goals.
	Training for Educators: Providing necessary training to effectively utilize AI technologies.
	Technological Infrastructure: Establishing a robust technological infrastructure to fully leverage AI capabilities.
Criteria for Evaluating AI Learning Platforms	**Educational Outcomes**: Impact on academic performance and mastery of subject matter.
	Engagement Levels: Effectiveness in engaging and motivating students.
	Accessibility: Ability to provide equitable access to all learners, including those with disabilities.
Benefits	**Personalized Learning**: Platforms cater to individual learning needs, potentially improving outcomes.
	Increased Efficiency: Automation of tasks like grading frees up time for more impactful teaching.
	Scalable Solutions: Efficient management of large student data sets.
Challenges	**Data Privacy and Security**: Handling sensitive student data raises privacy concerns.
	Over-reliance on Technology: Risk of diminishing critical thinking skills.
	Cost of Implementation: Significant initial investment may be required.
Conclusion	AI learning platforms present a transformative opportunity for educational systems, offering personalized, efficient, and scalable solutions. However, their success depends on careful integration, ongoing evaluation, and addressing potential drawbacks. By critically assessing these platforms, students can gain deeper insights into the role of technology in education and its potential to enhance teaching and learning.

THANK YOU

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