Ethics Module

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Module Learning Objectives

- **Critically reflect** on their individual ethical concerns in CS

- **Highlight examples** of ethics-related instances in the real world of CS

- Understand the **significance** of ethics from the perspective of their own academic discipline and desired careers

- Engage in **discussions** of ethical questions with peers

We believe this aptly compliments the course goals and student capabilities.

Implementation Design

- Ethics Reflections in 4 Unit Reviews
  - Each reflection relates to unit topics
  - Discussion questions
  - Supplemental links for curious students
- Ethics Lecture (week 15, last week before final exam)
  - 1 class session (50 minutes total)
    - Lecture (40 minutes)
    - Class Activity (small group, 10 minutes)
- Retrospective work
  - Supplemental readings (links in lecture slides and folder of readings)
  - Final Exam Assessments
    - Short answer questions (2)
    - Multiple choice questions (5)

Topics in Unit Reviews

Unit Topics	Ethics Reflection
Unit 1: Intro to Programming & Algorithms	AI Explainability
Unit 2: Data Structures	Facebook-Cambridge Analytica Scandal
Unit 3: Internet, Encryption	Encryption and Impact of Anonymity
Unit 4: Concepts in AI & ML	MIT Study on Misinformation & Social Media

Topics in Ethics Lecture

- Data
  - What is collected
  - How it is collected
  - Data economy on the Internet
- Bias in Machine Learning
  - Data bias
  - Real world examples (facial recognition, criminal justice system, job hiring software)
  - Differentiate between algorithms based on **biased datasets** and **systemic bias**

Bringing it all together

- Relevance to Course
  - Prepare students broadly for conversing/collaborating/evaluating work in computing
  - Help students understand the ethical impacts in computing concepts and data structures
- Relevance to Module Learning Objectives
  - Unit Reviews
    - Provide opportunities to **critically reflect** on individual ethical concerns
  - Ethics Lecture Activity
    - Exemplifies the **significance** of ethics across a diverse set of desired careers
  - Ethics Lecture & Unit Reviews
    - **Highlight examples** of ethics in the real world
    - Provide opportunities to engage in **discussions** with peers