**Team Name – Database Divas**

Title: Unveiling Deceptive UI Practices: Understanding and Addressing Dark Patterns

Abstract:

Dark patterns, a term denoting deceptive design strategies in user interfaces intended to manipulate user behavior, encompass tactics such as misdirection, urgency, and sneakiness. This classification provides a foundation for recognizing and addressing these manipulative patterns.This research introduces a comprehensive solution for detecting and mitigating dark patterns in e-commerce through a plugin-based approach enriched with Natural Language Processing (NLP) and machine learning. Dark patterns, deceptive design strategies manipulating user behavior, are classified to form the basis for our tailored approach.

Our solution leverages NLP techniques from the Natural Language Toolkit (NLTK) to analyze textual content on e-commerce websites. Features like sentiment analysis, keyword extraction, and syntactic parsing contribute to identifying language-based dark patterns, a crucial aspect often overlooked in traditional detection methods.

Dark patterns exploit insights from behavioral economics and cognitive psychology, eroding user trust. Our proposed solution incorporates machine learning models, including decision trees, support vector machines, and neural networks, to enhance pattern recognition. Decision trees offer interpretability, support vector machines handle complex patterns, and neural networks capture intricate relationships, collectively providing a robust detection mechanism.Ethical considerations are embedded in the training process, prioritizing user well-being and fostering a culture of transparent and user-centric design in e-commerce.

The interdisciplinary approach integrates NLTK features, behavioral patterns, visual cues, and user interactions into a plugin framework. This user-friendly plugin seamlessly integrates with web browsers, offering real-time alerts and insights to users navigating e-commerce platforms. By fostering industry collaboration and prioritizing ethical design principles, our solution contributes to a transformative shift towards transparency and user empowerment in the e-commerce sector.

In summary, our proposed solution addresses the detection and mitigation of dark patterns in e-commerce through an interdisciplinary plugin-based approach, integrating NLP and machine learning models (decision trees, support vector machines, neural networks) to foster industry collaboration and user-centric design.

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