

RUNNING HEAD: Ethic of data privacy

## **The Ethical Implications of User Data Privacy in Web Development**

**STS 4500 Prospectus**

**Computer Science**

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**The University of Virginia, Charlottesville**

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## The Ethical Implications of User Data Privacy in Web Development

### Overview:

In this paper, I will explore the ethical implications of user data privacy in web development, with a focus on my own technical project, a website software. Using a qualitative research methodology, I will examine the ways in which user data is collected, stored, and used by websites and web applications, as well as the potential risks and harms that can arise when user data is mishandled or misused. Through this inquiry, I aim to provide insights into the complex ethical and legal challenges faced by web developers and website owners, and to offer best practices for protecting user privacy while providing a high-quality user experience. One cool thing that readers will learn from my work is how the ethical responsibilities of web developers and website owners intersect with legal and regulatory policies to shape the landscape of user data privacy in web development.

### Positionality:

I personally hate phishing websites since I had an experience where my information was deprived by a phishing website and they knew all my information including my names, age, school, phone number, and my family information. They pretended to be me and contact my parents to ask for money. They used my phone number (fake) to contact my parents so they hadn't realized it was a fraud until I was home and told them I never asked for money from them. This unpleasant experience made me realize the importance of user data privacy.

### Problematization:

Web developers and website owners must balance the need to collect user data to improve the user experience and earning profits with the risks to user privacy. The controversy arises from the tension between these two competing needs. This issue is relevant to web developers and website owners globally, as well as to the users of websites and web applications who entrust their personal data to these platforms. As the user data can be easily exposed to the website developers and website owners, the primary points of my paper will include the ethical and legal responsibilities of web developers and website owners in protecting user data privacy and how to balance between the website profits and the risk to user privacy with social and political factors.

### Main Argument:

Protecting user data privacy in web development is an ethical imperative that requires balancing the need for user data with the need for user privacy.

### Projected Outcomes:

This research aims to analyze the complex ethical and legal challenges surrounding user data privacy in web development. By examining the tensions between the need for user data and the risks to user privacy, this project seeks to provide insights into best practices for web developers and website owners to protect user data privacy. The outcomes of this research would

benefit web developers, website owners, and users by providing a framework for balancing user data needs with ethical and legal responsibilities, as well as empowering users to better understand and control their personal data.

### **Technical Project Description:**

I led a team of 5 and built a project in Django that I thought to be useful and practical. The team worked in agile mode which speeded up the efficiency of our team by weekly sprint meetings to combine the work from each team member and distribute new missions among the group. The project is used to help students search and select courses in a faster way, considering our school's system is running like a turtle. Students can check all courses according to departments using our project, and add the course they like to their shopping cart. Besides, students can use courses from their shopping cart to build a schedule they want and they can check their schedule anytime as long as they log in. What I did is to build the shopping cart functionality of our project by building the entire backend with Django models and relate the frontend and the backend together using Django views to make the shopping cart work. Meanwhile, I scraped down the school's system API to track all courses' information in update, stored them on the backend, and deployed those courses on the frontend so that students can check them. The most difficult part was about the security issue. Our website was declared as "dangerous" and "phishing" by Google because we did not care too much on our security issue. To solve that, I first changed the "debug" function to false because we could not set debug to true for production. Then, I added a function so that my websites will be automatically redirected to https:// from http:// because https is a security version of http. I also enabled the default DNS protection in Django to protect my website from DNS attack. Some other means were implemented to further protect user data.

### **Preliminary Literature Review & Findings:**

The main findings of my annotated bibliography are that engineers have developed various technical solutions to enhance user privacy, such as privacy-preserving algorithms and encryption techniques. However, these approaches have not always been implemented effectively, as many websites continue to collect and use user data without their consent. Engineers and STS researchers have faced challenges in balancing user privacy with the need for data to improve services and generate revenue (Kshetri, 2014). In STS research, scholars have examined the ethical implications of user data privacy in web development, including issues related to consent, transparency, and power dynamics. They have also explored how various actors, including governments, corporations, and users, negotiate privacy concerns and shape privacy practices (Lloyd, 2019). STS researchers have highlighted the need for interdisciplinary approaches that consider both technical and social factors (Nissenbaum, 2010) in addressing user data privacy in web development. The main challenges and problems faced by those working on user data privacy in web development include a lack of standardization and regulation, limited user awareness and understanding of privacy issues, and the complex interplay between technical and social factors (Floridi, 2014). Additionally, some corporations have been resistant to implementing privacy-enhancing technologies due to concerns about cost and competitiveness. To build on these approaches and help resolve some of these difficulties, further interdisciplinary

research is needed that considers the perspectives of various stakeholders, including users, engineers, policymakers, and industry representatives (Hildebrandt, 2013).

### **STS Project Proposal:**

In my perspective and the view from professional scholars, STS is an interdisciplinary field that examines the complex relationships between science, technology, and society. STS scholars investigate how scientific and technological knowledge is produced, shaped, and used within specific social, cultural, economic, and political contexts. STS also emphasizes the importance of ethical considerations in technological development, and the need to ensure that technologies align with social values and promote justice and equality. My project on the ethical implications of user data privacy in web development falls within the STS framework, as it investigates the social and ethical dimensions of technology development.

The ecosystem of knowledge that my project aligns with is the ethics and values and social justice. In particular, my approach focuses on the ethical implications of collecting and processing user data in web development. The use of personal data has become an essential aspect of digital life, but the rise of data breaches and cyber-attacks has highlighted the need for data protection and privacy. My project draws on the works of scholars such as Helen Nissenbaum and Luciano Floridi, who have written extensively on information ethics and the value of privacy. Their work is valuable as it offers a framework for understanding the ethical implications of collecting and processing user data and the importance of protecting users' privacy in a digital age. Moreover, my project also aligns with social justice as data privacy affects individuals and communities differently. Historically marginalized communities are often subject to data discrimination and have less control over their personal data, which exacerbates existing inequalities. Therefore, understanding how user data privacy is handled in web development is essential to promoting social justice and equality.

The theory I will be using to investigate my topic is Value Sensitive Design (VSD). VSD is an approach to designing technology that takes into account the values of stakeholders involved in the design process, including users, designers, and other relevant parties. VSD emphasizes the importance of designing technologies that align with stakeholders' values, such as privacy, autonomy, and accountability. This approach is relevant to my research as it enables an understanding of the importance of ethical considerations in web development and how they should be integrated into the design process. Using VSD as a theoretical framework enables me to consider the values that are relevant to different stakeholders and their impact on web development practices. VSD will also allow me to develop ethical guidelines for web developers that promote data privacy and protect users' rights.

The specific VSD that I am referring is the one written by Batya Friedman, David G. Hendry, and Alan Borning, which describes a range of methods that can be used to elicit, articulate, and incorporate values into the design process (Friedman et al, 2017). To conduct VSD, I will first identify values and stakeholders where I'll explore the values that are relevant to the website development like the data privacy and data collection. I will also identify the stakeholders who are individuals or groups affected by the website designed in respect of data privacy and collection. Second, I'll analyze the relationship between the identified values and the technical features. This involves exploring how different design choices of the website can either promote or hinder the data privacy and the data collection. I may use methods such as scenario analysis, stakeholder interviews, surveys, or focus groups to gather data and insights about how

websites are related to data privacy. Based on the insights gathered in the previous phases, I will propose new design solutions or modifications to website developments that better align with the need for data privacy. These solutions are then evaluated for their effectiveness in promoting the data privacy and minimizing the loss for web developers.

### **Barriers & Boons**

First, one limitation is the availability and accessibility of relevant literature and data on user data privacy in web development. Second, there may also be financial and time barriers to obtaining and analyzing relevant data. Third, communication and rapport barriers happen when interviewing participants with diverse backgrounds and perspectives. Finally, there could be understanding and experience limitations with certain research methods, such as ethnography or social construction analysis. To address these limitations, I need to expand my understanding and experience with relevant research methods through additional reading and seeking out collaborations with researchers who have expertise in these areas. Additionally, I can strive to build strong relationships with study participants through effective communication and rapport-building techniques. At the meantime, I can explore alternative data sources or use multi approaches to compensate for limited data availability. Overall, I will remain vigilant in acknowledging and addressing potential blindspots and limitations to ensure the validity of the project.

### References

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