## Pizza Heist: An Educational Game for Cybersecurity Threat Awareness

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## Introduction

As the internet becomes more integrated into our everyday lives, understanding how to protect oneself is crucial in ensuring the safety and protection of our data in a digital landscape. This study aims to educate middle school, high school, and college students on what malicious entities exist and how to prevent these entities from breaching your data. This project was inspired by the rising number of individuals falling victim to cybersecurity threats like phishing, malware, and data breaches. We will empower users to protect themselves from these growing threats by raising awareness and providing essential information. This project was developed as part of the Technology Ambassador Program (TAP) service-learning course.

## Technology Ambassador Program (TAP)

## The Technology Ambassador Program (TAP) is a service-based learning course that provides students with a collaborative environment to develop projects using the technologies of their choice that are then presented in the community [1]. These projects are intended to increase participation in IT through outreach workshops designed to showcase the fun side of technology. Our team is taking the initiative to excite and educate students about cybersecurity with an engaging workshop that allows the participants to learn about cybersecurity with mini-games from two sides: hackers and defenders. Our goal is to show how powerful someone in cybersecurity can be when it comes to protecting important data.

## Methods

## **Technology**

Our project utilizes Unity [2] to create a cybersecurity-inspired 2D game designed to simplify the learning process for non-technical audiences. Unity's 2D framework enables the development of immersive mini-games through its Canvas and Tilemap systems, allowing players to navigate and interact with game environments. Each mini-game simulates Windows applications to teach key cybersecurity concepts, leveraging Unity’s asset library and physics engine for dynamic and intuitive gameplay.

1. **Events**

While we will present our game at various events on campus, we will focus our research efforts on the Super Saturday Series (S3) and classroom workshops. The S3 event is a volunteer event where GGC faculty and students offer in-person STEM workshops for middle school-aged students. College classroom workshops will take place in general education computing courses across campus. Both events will be hosted in computer lab classrooms so participants can access a computer and play our full game independently, which will be accessed through Unity’s website. We will start these workshops by presenting a brief slide presentation to introduce the cybersecurity topics featured in our game, such as viruses and phishing, and address the risks they pose to our privacy and safety. We will also present our project at several symposia events on campus. These events will only include demonstrations of our project where participants can play our game, without a teaching component.

1. **Measuring Teaching Effectiveness**

Before each workshop, participants will be asked to complete a short survey about their current cybersecurity knowledge and their expectations for the workshop. Another survey will be given at the end of the workshop, asking what participants have learned and their final thoughts. This allows us to compare the before and after results to more accurately determine the effectiveness and impact of our workshop, as well as receive more helpful feedback for future improvement. At shorter events, we will only give a single, brief survey to gather data, but not take too much time. We will ask for their thoughts after seeing our game. The results of our study will be presented in our poster.

## References

1. Dekhane, S., Xu, X., Napier, N., Barakat, R., Gunay, C., & Nagel, K. (2018). Technology focused service-learning course to increase confidence and persistence in computing. *Journal of Computing Sciences in Colleges*, 34(2), 147-153. <https://dl.acm.org/doi/10.5555/3282588.3282609>
2. *Unity 2D tools for game dev – evolved for optimal graphics performance*. (n.d.). Unity. <https://unity.com/features/2dtools#why-unity-for-2d>

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