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Informed Consent

Keystroke Analysis in Introductory Computer Programming

Introduction

You are invited to participate in a research study by Dr. John Edwards, an assistant professor in the Department of Computer Science at Utah State University. ***The purpose of this research is*** *to learn about code development in CS courses. Specifically, we are interested in learning about the process that students use to build code, and vigilance during code development. You are being asked to participate in this research because it may improve future Computer Science courses.* ***Your participation is entirely voluntary, and you may withdraw your participation at any time for any reason.***

This form includes detailed information on the research to help you decide whether to participate. Please read it carefully and ask any questions you have before you agree to participate.

Procedures

Your participation will involve signing this informed consent document. If you agree to participate, the researchers will also collect your assignment submissions with keystroke data from PyPhanon from Canvas. This will include previous submissions with keystroke data, as well as all future assignments in this class. You will also be prompted occasionally by the PyCharm software asking if you are engaged in working on the assignment. Researchers will also gather information about your ACT scores, high school GPA, and college major from the Registrar's Office at USU and course scores from Canvas. We anticipate that 300 people will participate in this research study.

Risks

This is a minimal risk research study. That means that the risks of participating are no more likely or serious than those you encounter in everyday activities.

Benefits

Although you will not directly benefit from this study, it has been designed to learn more about code development in CS courses and may benefit future students.

Confidentiality

The researchers will make every effort to ensure that the information you provide as part of this study remains confidential. Your identity will not be revealed in any publications, presentations, or reports resulting from this research study.

We will collect your information through Canvas with your and the instructor's permission. Online activities always carry a risk of a data breach, but we will use systems and processes that minimize breach opportunities. This data will be securely stored in USU's restricted access Box. We will de-identify all project data once the analysis is completed. This is expected occur prior to August 31, 2022. This form will be kept for three years after the study is complete, and then it will be destroyed.

It is unlikely, but possible, that others (Utah State University, or state or federal officials) may require us to share the information you give us from the study to ensure that the research was conducted safely and appropriately. We will only share your information if law or policy requires us to do so.

Voluntary Participation & Withdrawal

Your participation in this research is completely voluntary. If you do not wish to be prompted with questions on if you are engaged but are still willing to allow researchers to use your keystroke data, you may cancel engagement

prompts by going to Preferences > Plugins > PyPhanon. If you agree to participate now and change your mind later, you may withdraw your homework submissions by contacting Dr. John Edwards at John.Edwards@usu.edu. Once we have de-identified the data (expected to occur prior to August 31, 2022), we will no longer be able to withdraw participants as we will not know whose data is whose.

Findings

If the researchers learn anything new during the course of this research study that might affect your willingness to continue participation, you will be contacted about those findings. This might include changes in procedures, changes in the risks or benefits of participation, or any new alternatives to participation that the researchers learn about.

Your de-identified submissions may be used or distributed for future research without additional consent from you. If you do not wish for us to use your submissions in this way, please state so below.

Once the research study is complete, the researchers will email you the findings of the study, including additional research topics that have not been described as to not bias the findings.

IRB Review

The Institutional Review Board (IRB) for the protection of human research participants at Utah State University has reviewed and approved this study. If you have questions about the research study itself, please contact the Principal Investigator at 435-797-0246 or John.Edwards@usu.edu.If you have questions about your rights or would simply like to speak with someone *other* than the research team about questions or concerns, please contact the IRB Director at (435) 797-0567 or irb@usu.edu.

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Informed Consent

By checking a box and signing below, you indicate that you understand the risks and benefits of participation, and that you know what you will be asked to do. You also agree that you have asked any questions you might have, and are clear on how to stop your participation in the study if you choose to do so. Please be sure to retain a copy of this form for your records.

☐ I agree to participate.

☐ I do not agree to participate.

Please sign and provide your email below to document your selection and to receive extra credit.

Participant's Signature _____ Participant's Name, Printed _____ Date _____

_____

Participant's Email

☐ I do **not** agree to allow my information to be used or shared for future research.