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| Project Title | Competing to build secure systems |
| Purpose of the Study | <p>You have applied to participate in the Build It, Break It, Fix It secure coding contest, which is part of a research project being conducted by Michael Hicks and others at the University of Maryland, College Park. The purpose of this study is to gain greater insight into both practice and pedagogy of building secure systems, as evident through your approach to and performance on the tasks assigned in the competition.</p> |
| Procedures | <p>The rules of the contest are detailed elsewhere. In brief: to participate you must be a member of a team. The contest takes place over several weeks. Your team either builds a system according to a specification provided at the start of the contest, or attempts to find defects and vulnerabilities in systems built by other teams, or both. We refer to the former role as the builder role and the latter role as the breaker role. To compete in the contest, builder teams must: (1) write software that implements the system prescribed by the contest, and (2) attempt to fix any problems found by breaker teams, within the provided deadlines. Breaker teams will try to find as many flaws as possible in builder teams' code. The contest is carried out online.</p> <p>During the contest we will collect several kinds of data for research purposes. Executable code/test cases: You must create a git code repository for your team to use and provide us access to this repository. Each time you push something to this repository (code, test case, bugfix, etc.) it may be used for later analysis. Official submissions will be accepted by customized contest software. For builders, this software will confirm your code builds and passes canned correctness and performance tests. Only the final submission will be considered when judging contest results.</p> <p>In between rounds of the contest, you will receive email invitations to answer survey questions about your experience. We will also collect limited demographic information from each individual participant, including your age, gender, university, year in school, major, relevant courses taken, relevant expertise, and relevant job experience. You will also be required to upload a CV. You will create a pseudonym that is stored on our servers. This pseudonym will identify you (and indicate you are part of a particular team) when you respond to surveys or submit code/test cases. The mapping from pseudonym to real name will only be used to administer prizes, and will not be used during data analysis.</p> |
| Potential Risks and Discomforts | <p>There is a risk that data we collect could be exposed if our servers are breached. We minimize this risk using standard data-protection practices (see Confidentiality section below).</p> <p>Otherwise, there are no risks greater than ordinarily encountered using a computer and an internet connection.</p> |

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| Potential Benefits | <p>Participants may gain experience in the development of software, in analyzing software developed by others, and in fixing their own bugs. Participants may opt to share their CV with companies who sponsor the contest in order to receive information about potential job opportunities.</p> <p>The information learned from this contest may be used to improve understanding of how students can most effectively develop secure, correct, and efficient systems, which may benefit other students in the future.</p> |
| Confidentiality | <p>We collect two primary types of data: executable artifacts (code, test cases, bug fixes) and responses to surveys. Information for each individual will be associated with a random pseudonym to link records; the mapping between real name and pseudonym will be stored separately. The mapping will be used to administer prizes, but will never be used as part of research data analysis.</p> <p>We also collect CVs, which inherently contain identifying information, such as name and address. The CV will not be used during administration of the contest. Information from the CV may be de-identified (to match your pseudonym) and then used during data analysis in conjunction with contest results.</p> <p>All data (including consent forms, survey data, executable artifacts, and any communications with the organizers) will be kept confidential on our secure, dedicated server with a firewall and secure-shell access limited to contest organizers.</p> <p>We will keep pseudonymized data for at least 3 years after the final contest, for purposes of analysis. If we write a report or article about this project, the identity of individuals will not be used. Contest winners' names and affiliations may be announced, but individual winners' requests to be anonymized will be honored.</p> |
| Compensation | <p>You will receive no direct compensation for participating in the study, but you may have the opportunity to win prizes based on your performance in each role, where the scoring and prize specifics are determined by the contest rules published (elsewhere) in advance. You will be responsible for any taxes assessed on prizes you receive. You will be asked to provide your name, address and SSN to The University of Maryland, College Park, which will distribute the prize money.</p> |
| Right to Withdraw and Questions | <p>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. Coursera participants: If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify. Non-Coursera participants: If you decide not to participate in this study or if you stop participating at any time, you will be withdrawn from the contest and will not be eligible for prizes or other benefits.</p> |

University of Maryland College Park

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| | <p>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:</p> <p>Professor Michael Hicks Department of Computer Science University of Maryland College Park College Park, MD 20742 Email: mwh@cs.umd.edu Telephone: (301) 405-2710</p> |
| Participant Rights | <p>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</p> <p>University of Maryland College Park Institutional Review Board Office 1204 Marie Mount Hall College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678</p> <p>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</p> |
| Statement of Consent | <p>By checking the consent box on the registration page, you indicate that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You should download a copy of this consent form for your records.</p> |