CyberWarriors Summer Camp 2021

Software Security

Me

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• Assistant Professor
• UTSA Alumnus
• Research: software engineering, privacy, and cybersecurity
• Industry: web and mobile applications
Software Engineering

- Software is made for people by people
- Bridge the gap!

Software Security

*Software should work as expected*

Confidentiality

Integrity

Availability

SECURITY
Software Security Problems

- Passwords and Authentication
- Data Storage
- Scalability
- Robustness
- Maintenance
- User Experience
- *and so many more...*

Astonishing UI

Emergency alert system

MISSLE ALERT
ALERT TEST
As part of the standard operation [...], Indeed will automatically collect information from your computer or mobile device, including, but not limited to, your browser type, operating system, IP address and the domain name from which you accessed the site, and if you are accessing our site with your mobile device, type of mobile device. In addition we may record actions taken on the Website including, but not limited to, date and times of use, clicks, page views, the amount of time you spend on each page, and search queries. Indeed reserves the right to match your IP address or other information with other information about you in any way permitted by applicable law. Indeed will store this information on its equipment or the equipment of third parties that it has a relationship with for that purpose. If you create an Indeed account, information may be collected under your account email address.
Problem: Humans don’t speak too good

- “We collect your location information.” (collected)
- “We do not collect your location information.” (not collected)
- “We collect information including, but not limited to, location information.” (collected)
- “We collect location information when the app is not in the foreground.” (collected)
- “We do not not collect your location information when you are not using the app unless it is not specified by the terms of use.” (???)
Problem: What is the app doing?

Developer Tools
End User Tools

Software Engineering and Security

Create quality, predictable software
Help the people involved in the software lifecycle
Best Practices
Research