Informatics Students

Research on the security mindset of informatics students.

There are 43 questions in this survey.

Purpose

The purpose of this research project is to learn how computer science students interact with security topics in their studies and daily lives. The results of this research will help educators better understand the starting knowledge and needs of incoming students, not just security students. It will also help us better understand potential sources of attitudes and behaviours observed in professional software developers.

What will I be asked to do?

This survey will take approximately 25 minutes to complete. It will ask you multiple choice questions about different security-related concepts such as your attitudes towards security technologies as well as your awareness of different tools, technologies, and concepts. It will also ask you basic demographic information such as your age and education. Personally identifying information will not be collected.

Voluntary

Your participation in this survey is purely voluntary. At the end of the survey you will be asked to allow us to use your data for education and research purposes. You will have the option of selecting 'no' at that point and if you do so we will not share your survey answers as requested. If you select 'no' to both questions we will delete your data.

How will my data be used?

Your data will be used for two purposes. First, to provide data for the Usable Privacy and Security course so they can learn about survey design and analysis. If you consent to this, the information you provide in the survey will be given to the course students. Second, If you consent to this, we will use your data for research about how students understand and manage security concepts both as end-users and as future software developers.

Compensation

You will receive no compensation for completing this survey other than the knowledge you have benefited the Usable Security and Privacy course students and society more broadly. All participation is anonymous and we have no way of connecting responses to individual survey participants, therefore no compensation through credits or other means is possible.

Who is running the research?

This is a research project being conducted by Dr. Kami Vaniea and Mohammad Tahaei at the University of Edinburgh. If you have any questions about the research study, please contact Dr. Kami Vaniea at kami.vaniea@ed.ac.uk or Mohammad Tahaei at mohammad.tahaei@ed.ac.uk. If you have any concerns about your treatment or right as a research subject, you may contact the School Ethics Panel by e-mail to infkm+ethics@inf.ed.ac.uk. This research complies with the Informatics School ethics procedures for research involving human subjects.

Clicking on the "agree" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age
- you are a student at the University of Edinburgh

If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button or leaving the page.

*

F	Please choose only one of the following:
	Agree
	Disagree

For each of the following statements, how strongly do you agree or disagree? *

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
Consumers have lost all control over how personal information is collected and used by companies				
Most businesses handle the personal information they collect about consumers in a proper and confidential way				
Existing laws and organizational practices provide a reasonable level of protection for consumer privacy today				

*							
Please choose the appropriate response for each item:							
	Never	Rarely	Sometimes	Often	Always		

I set my computer screen to automatically lock if I don't use it for a prolonged period of time					
I use a password/passcode to unlock my laptop or tablet			0		
I manually lock my computer screen when I step away from it	0				
I use a PIN or passcode to unlock my mobile phone	0				
I do not change my passwords, unless I have to	\bigcirc				
I use different passwords for different accounts that I have	0				
When I create a new online account, I try to use a password that goes beyond the site's minimum requirements					
I do not include special characters in my password if it's not required					
When someone sends me a link, I open it without first verifying where it goes		0		0	
Please select "always"	\bigcirc	\bigcirc	\bigcirc		

for this question				
I know what website I'm visiting based on its look and feel, rather than by looking at the URL bar				
I submit information to websites without first verifying that it will be sent securely (e.g., SSL, "https://", a lock icon)				
When browsing websites, I mouseover links to see where they go, before clicking them				
If I discover a security problem, I continue what I was doing because I assume someone else will fix it				
When I'm prompted about a software update, I install it right away				
I try to make sure that the programs I use are up-to-date				\bigcirc
I verify that my anti- virus software has been regularly updating itself		\bigcirc	\bigcirc	

Please indicate whether you agree or disagree with the following statements. *

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
A virus steals personal and/or financial information	0		0	0	
Using an Apple computer means you can't get a virus	0		0		
Clicking on advertisements will give you a virus			0		
Merely visiting the wrong webpages will give you a virus			0		
A virus kicks me out of applications that are running			0	0	
A virus erases important files on the computer	0		0	0	
You can't get a virus if you never download things from the Internet	0		0		
A virus causes computers to crash	0	0	0	\bigcirc	0
The only way to get a virus is by downloading something			0		
Watching pornography on the Internet will give you a virus			0		

Strange emails will give you a virus	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
You can't get a virus if you keep your antivirus software up to date	\bigcirc	\bigcirc	\bigcirc		\bigcirc
Downloads from the Internet will give you a virus	\bigcirc	\bigcirc			
Not paying attention to cookies can result in getting a virus	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0
Blocking popups makes it very difficult to get a virus	0	0	0	0	0
A virus causes annoying problems	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Being aware of what websites I go to will help me avoid getting a virus					
Antivirus software always detects viruses	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ

How often do you do the following security precautions to avoid getting a virus? *

Please choose the appropriate response for each item:

	Never	Rarely	Sometimes	Often	Always
Use antivirus software	\bigcirc	\bigcirc		\bigcirc	\bigcirc
Use security software such as firewall	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ
Be aware of what websites you visit	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ
Regularly scan the computer with anti virus software	\bigcirc			\bigcirc	
Check antivirus software to make sure it is up to date	\bigcirc			\bigcirc	
Avoid clicking on email attachments from people you do not know	\bigcirc			\bigcirc	
Block popups	\bigcirc	\bigcirc		\bigcirc	
Avoid downloading anything without knowing what exactly is being downloaded					

Please indicate whether you agree or disagree with the following statements. *

Hackers target home computer users Hackers are mischievous A hacker makes a				
mischievous A hacker makes a	0	0	OO	
	0	\circ	\bigcirc	
record of everything on the computer				
Hackers target banks	\cup	\bigcirc	\bigcirc	\bigcirc
A hacker watches what you are doing on your computer	\bigcirc			
Hackers work with other criminals	\bigcirc	\bigcirc	\bigcirc	\circ
Hackers are members of organized crime	\bigcirc	\bigcirc	\bigcirc	\circ
Hackers target the upper class	\bigcirc		\bigcirc	\circ
Please select "disagree" for this question	\bigcirc	\bigcirc	\bigcirc	\circ
Hackers are professional criminals	\bigcirc	\bigcirc	\bigcirc	\bigcirc
A hacker breaks stuff on the computer	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Hackers target large databases	\bigcirc	\bigcirc	\bigcirc	\circ
Hackers target rich and important people	0	0		

A hacker installs monitoring software on the computer					
A hacker intentionally puts viruses on the computer	\bigcirc			\bigcirc	
Hackers target large businesses	\bigcirc	\bigcirc	\circ	\circ	
Hackers have no morals	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

How often do you do the following security precautions to avoid being hacked? *

	Never	Rarely	Sometimes	Often	Always
Disable scripting on websites	\bigcirc	\bigcirc		\bigcirc	\bigcirc
Update patches regularly	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ
Disable scripting on emails	\bigcirc	\bigcirc	0	\bigcirc	0
Back up your information on an external harddrive, network, or server					0
Be careful downloading software from the Internet	\bigcirc	0		0	0
Use some preexisting security software such as firewall	\bigcirc	0	0	\bigcirc	0

Always sign out of accounts when you are done with that website	\bigcirc	\bigcirc		0	
Avoid clicking on attachments	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
Scan your computer regularly with antivirus software	0	0			
Use good passwords (good passwords include uppercase and lowercase letters, numbers, and symbols)					

Do you know anything about adversarial behaviours?

Examples include adversarial tradecraft and threat agents, attacker models and attack trees and the economics and mechanisms behind malicious business.

*

Please choose only one of the following:

Yes

No

Do you know anything about digital forensics? Examples include the various kinds of digital evidence and artefacts as well as the evidence gathering process and antiforensic techniques. * Please choose only one of the following:
Do you know anything about malware or attack technology? Examples include the various kinds of malware and viruses, malware analysis and techniques for removing malicious software from systems. * Please choose only one of the following:

Do you know anything about security operations or incident management?
Examples include organisational security policies, incident analysis, security monitoring and threat intelligence.
*
Please choose only one of the following:
Yes
○ No
Do you know anything about the human factors of cybersecurity?
, , ,

Do you know anything about the legal or regulatory aspects of cybersecurity?
Examples include the relevant legislation and statutory and regulatory requirements, as well as the legal aspects of cybercrime and issues involving cooperation across borders for legal purposes. *
Please choose only one of the following:
Yes
○ No
Do you know anything about privacy or online rights?
Do you know anything about privacy or online rights? Examples include privacy enhancing technology, data privacy techniques (including differential privacy) and transparency, the mechanisms for abuse prevention and covert communication (such as steganography).
Examples include privacy enhancing technology, data privacy techniques (including differential privacy) and transparency, the mechanisms for abuse prevention and covert communication (such as steganography).
Examples include privacy enhancing technology, data privacy techniques (including differential privacy) and transparency, the mechanisms for abuse prevention and covert communication (such as steganography).

Do you know anything about cyber risk management or governance?
Examples include threat, risk and impact assessments, asset audits, security management standards (such as the ISO 27000 series), as well as board- level cybersecurity.
Please choose only one of the following:
✓ Yes✓ No
Do you know anything about the security of cyber-physical
systems?
systems? Examples include SCADA, IoT, automotive or industrial control systems as well as the various attacks to and defences for these kinds of systems and the protocols they use to

Do you know anything about hardware security?

Examples include Trusted Platform Modules (TPMs) and secure boot, as well as hardware roots of trust, hardware design and security architectures as well as hardware attacks (such as side-channels), hardware defenses, and hardware accelerated cryptography.

*

Please choose **only one** of the following:

Yes

No

Do you know anything about network security?

Examples include network defence tools such as intrusion detection, packet filters and firewalls; network vulnerabilities and threats, and network technologies such as routing protocols, IP networks, wireless and wired networks.

*

Please choose only one of the following:

O Yes

No

Do you know anything about physical-layer or telephony security?
Examples include signalling and telephone protocols, telecommunications security, and attacks which rely upon the emanations from physical media (such as TEMPEST).
Please choose only one of the following:
Yes
○ No
Do you know anything about the secure software development lifecycle?
j
Examples include code reviews, patch management, devops, development processes, fuzzing, static and dynamic analysis tools, the use of formal methods for security as well as attack modelling and developer training.
Examples include code reviews, patch management, devops, development processes, fuzzing, static and dynamic analysis tools, the use of formal methods for security as well as attack modelling and developer training.

Do y	ou knov	v anything	about	software	security	/?
J		, ,			J	,

Examples include software and memory management attacks, CVEs and CWEs, structured input attacks (such as SQL injection), security API design, coding guidelines, techniques for mitigating exploits (such as address space layout randomisation or sandboxing), as well as techniques for finding vulnerabilities.

inding vulnerabilities.
*
Please choose only one of the following:
Yes
○ No
Do you know anything about web or mobile security?
Examples include Javascript security models, browser based attacks such as cross site scripting, firewalls, authentication protocols and phishing and app isolation and deployment mechanisms.
*
Please choose only one of the following:
Yes
○ No

Do you know anything about authentication, authorisation or accountability?
Examples include access control models, policies, public key infrastructure, multi-factor authentication, biometrics and logging techniques.
*
Please choose only one of the following:
Yes
○ No

Do you know anything about cryptography?

Examples include various encryption schemes such as RSA, AES, RC4, as well as game theoretic models for security, digital signatures and zero- knowledge proofs.

*

Please choose only one of the following:

O No

Do you know anything about distributed systems security? Examples include security considerations in middleware architectures, distributed protocols such as LDAP, NTP, byzantine agreements, blockchains, cloud architectures, peerto-peer networks and trust management. *
Please choose only one of the following:
YesNo
Do you know anything about operating systems or virtualisation?
Examples include database security, VM architectures and attacks, OS protection mechanisms such as address space layout randomisation, access control, and paging, as well as information flow models and the trusted computing base.
Please choose only one of the following:
YesNo

How often do you do the following activities online (on any device, e.g. desktop, tablet, mobile)? *

	Never	Once a Month or Less	2-3 Times a Month	Once a Week	2-3 Times a Week	Daily	Multiple Times a Day
Email	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Social Media (e.g. Facebook, Twitter)		\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Read news	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Audio/Video conference			\bigcirc	\bigcirc			\circ
Instant Message	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Stream audio or video (e.g. Hulu, Netflix, Pandora)		0		\circ		\bigcirc	
Play games	0	0	\circ	\circ	0	\bigcirc	0

On a typical day, how many hours do you spend online? * Please choose only one of the following:
Fewer than 2 hours 2-4 hours 5-7 hours 8-10 hours More than 10 hours

Please indicate whether you agree or disagree with the following statements. *

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
I feel confident trouble shooting Internet problems						
I feel confident using the Internet to gather data					\bigcirc	
I feel confident learning advanced skills within a specific Internet program	0	0		\bigcirc		
I feel confident describing functions of Internet hardware	0					
I feel confident turning	0	\bigcirc	0	\bigcirc		

to an online discussion group when help is needed				
I feel confident understanding terms/words relating to Internet hardware				
I feel confident explaining why a task will not run on the Internet			0	0
I feel confident understanding terms/words relating to Internet software				

Which of the following best describes you? *
Please choose only one of the following:
UG1/UG2 student
UG3 student
UG4 student
UG5/MInf student
MSc (Masters) student
O PhD student
Other

Have you ever worked in a "high tech" job such as computer programming, IT, or computer networking? * Please choose only one of the following: Yes No	
Do you have any industrial experience of cybersecurity or a related discipline; for example as a security engineer? * Please choose only one of the following: None 0-3 years 3+ years	
Where did you get your high school diploma? * Please choose only one of the following: Afghanistan Albania Algeria Andorra Angola Antigua & Deps Argentina Armenia Australia Austria	

○ Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bhutan
Bolivia
O Bosnia Herzegovina
○ Botswana
○ Brazil
Brunei
○ Bulgaria
Burkina
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Central African Rep
Chad
Chile
China
Colombia
Comoros
Congo
Ocongo {Democratic Rep}

Osta Rica
○ Croatia
Cuba
○ Cyprus
Czech Republic
○ Denmark
□ Djibouti
○ Dominica
O Dominican Republic
East Timor
○ Ecuador
□ Egypt □
◯ El Salvador
Equatorial Guinea
○ Eritrea
○ Estonia
○ Ethiopia
Fiji
Finland
France
Gabon
Gambia
Georgia
Germany
Ghana
Greece
○ Grenada
○ Guatemala
Guinea
Guinea-Bissau

Guyana
○ Haiti
Honduras
Hungary
Clceland
☐ India
☐ Indonesia
○ Iran
○ Iraq
☐ Ireland {Republic}
☐ Israel
○ Italy
O Ivory Coast
Jordan
○ Kenya
─ Kiribati
○ Korea North
◯ Korea South
─ Kyrgyzstan
Laos
○ Latvia
Lebanon
Lesotho
Liberia
Libya

Liechtenstein	
Lithuania	
Luxembourg	
Macedonia	
Maldives	
Marshall Islands	
Mauritius	
Mexico	
Micronesia	
Moldova	
Monaco	
Mongolia	
Morocco	
Mozambique	
Myanmar, {Burma}	
Namibia	
Nauru	
Nepal	
Netherlands	
New Zealand	
Nicaragua	
Niger	
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\subset) Norway
\subset) Oman
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) Palau
\subset) Panama
\subset) Papua New Guinea
) Paraguay
\subset) Peru
\subset) Philippines
\subset) Poland
\subset) Portugal
) Qatar
\subset) Romania
\subset	Russian Federation
\subset) Rwanda
\subset) St Kitts & Nevis
\subset) St Lucia
\subset	Saint Vincent & the Grenadines
\subset) Samoa
\subset) San Marino
\subset) Sao Tome & Principe
\subset) Saudi Arabia
\subset) Senegal
\subset) Serbia
\subset) Seychelles
\subset) Sierra Leone
\subset) Singapore
\subset) Slovakia
\subset) Slovenia
) Solomon Islands

Somalia
O South Africa
O South Sudan
Spain
◯ Sri Lanka
Sudan
Suriname
Swaziland
Sweden
Switzerland
Syria
○ Thailand
○ Tonga
Trinidad & Tobago
─ Tunisia
☐ Turkey
○ Turkmenistan
─ Tuvalu
─ Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
○ Uruguay
Uzbekistan
○ Vanuatu

Vatican City
○ Venezuela
Vietnam
Yemen
Zambia
Zimbabwe
Other (specify)

If you are a postgraduate student,	where	did y	you	do	your
undergraduate studies?					

Please choose **only one** of the following:

Afghanistan
Albania

Algeria	l

\bigcirc	And	orra

Antigua & Deps

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Belgium

Belize
Benin
Bhutan
Bolivia
O Bosnia Herzegovina
○ Botswana
Brazil
Brunei
Bulgaria
Burkina
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Central African Rep
Chad
Chile
China
Colombia
Comoros
Congo
Congo {Democratic Rep}
Costa Rica
○ Croatia
Cuba
○ Cyprus
Czech Republic
○ Denmark
O Diibouti

O Dominica
O Dominican Republic
East Timor
C Ecuador
Egypt
○ El Salvador
Equatorial Guinea
C Eritrea
Estonia
○ Ethiopia
○ Fiji
Finland
France
Gabon
Gambia
Georgia
Germany
○ Ghana
Greece
○ Guatemala
Guinea
Guinea-Bissau
Guyana
○ Haiti
○ Honduras
Hungary
Clceland
☐ India
Indonesia

☐ Iran
☐ Iraq
☐ Ireland {Republic}
☐ Israel
O Ivory Coast
∫ Jordan
○ Kenya
Kiribati
○ Korea North
◯ Korea South
─ Kyrgyzstan
Laos
○ Latvia
Lebanon
Lesotho
Liberia
Libya
Liechtenstein
Lithuania
Luxembourg
Macedonia

Maldives
Marshall Islands
Mexico
Micronesia
Monaco
Morocco
Myanmar, {Burma}
Namibia
Nauru
○ Nepal
Netherlands
New Zealand
○ Nicaragua
Niger
Nigeria
Norway
Oman
○ Pakistan
Palau
Panama
Papua New Guinea
Paraguay

Peru	
Philippines	
Poland	
OPortugal	
Qatar	
Romania	
Russian Federation	
Rwanda	
St Kitts & Nevis	
St Lucia	
Saint Vincent & the Grenadines	
Samoa	
San Marino	
Sao Tome & Principe	
Saudi Arabia	
Senegal	
Serbia	
Seychelles	
Sierra Leone	
Singapore	
Slovakia	
Slovenia	
Solomon Islands	
Somalia	
South Africa	
South Sudan	
Spain	
Sri Lanka	
Sudan	
Suriname	

Swaziland
Sweden
Switzerland
Syria
○ Thailand
○ Tonga
Trinidad & Tobago
─ Tunisia
☐ Turkey
○ Turkmenistan
─ Tuvalu
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
○ Uruguay
Uzbekistan
○ Vatican City
○ Venezuela
Vietnam
Yemen
Zambia
Zimbabwe

Other (specify)
Please rate your ability in English. *
Please choose only one of the following:
Native speaker
Fluent
○ Intermediate

Which subject areas below have you covered in previous
courses here or at any other university? (please do not include
courses you are taking now) *
,

courses you are taking now) "	
Please choose all that apply:	
Computer Security (Information Security)	
Networking and Communication (Computer Networks)	
Operating Systems	
Usable Security and Privacy	
Software Engineering	
Social Issues and Professional Practice	
Human-Computer Interaction	
Cryptography	
Secure Programming	
Blockchains and Distributed Ledgers	
Ethics	
Cybercrime and Cyber Security	
loT Systems, Security, and the Cloud	
Software Testing	
Software Architecture, Process, and Management	
Distributed Systems	
None of above	
Please add any other security and privacy related courses/trainings that are not in the list	
above:	

Which of the following courses are you currently enrolled in? *
Please choose all that apply: Software Development Introduction to Modern Cryptography Internet of Things Systems, Security, and the Cloud (IoTSSC) Secure Programming Software Architecture, Process, and Management Usable Security and Privacy Operating Systems Software Testing Computer Security None of above
Do you have any security certificates such as Security+, Certified Ethical Hacker, CCNA Security, etc.? * Please choose only one of the following: No Yes, please specify
What is your age? * • Your answer must be between 10 and 90 Please write your answer here:

	-,-,,
What is your gender? *	
Please choose only one of the following:	
Female Male Non-binary Prefer not to answer Prefer to self-describe	
Use my answers in the Usable Security and Privacy course. The Usable Security and Privacy course will use the	
The Usable Security and Privacy course will use the	

The Usable Security and Privacy course will use the information in this survey to learn about survey design and analysis. If you answer "yes" to this question, we will include your fully anonymised answers in the data set we provide to the students. Having data from many different people will greatly help students in the course with their learning.

*
Please choose **only one** of the following:

Yes - use my answers in the USEC course

No - do not use my answers in the USEC course

Use my answers for research.

If you indicate "yes", we will use your fully anonymised answers in academic research to better understand how students in different courses think about security and use it in their daily lives. This research may impact educators in how we design courses to better support the needs of students as well as impact the types of post-university education employers may want to make available. *

Please choose only one of the following:
Yes - use my answers for academic research
Tes discrify answers for addactific rescarcif
No - do not use my answers for academic research
Any comments or thoughts you would like to share with us? (These will not be shared with the USec course.)
(These will not be shared with the Osec Course.)
Please write your answer here:

Thank you for taking the time to complete this survey. We truly value the information you have provided.

17.02.2019 - 16:22

Submit your survey.

Thank you for completing this survey.