



Data Breaches in Higher Education Institutions



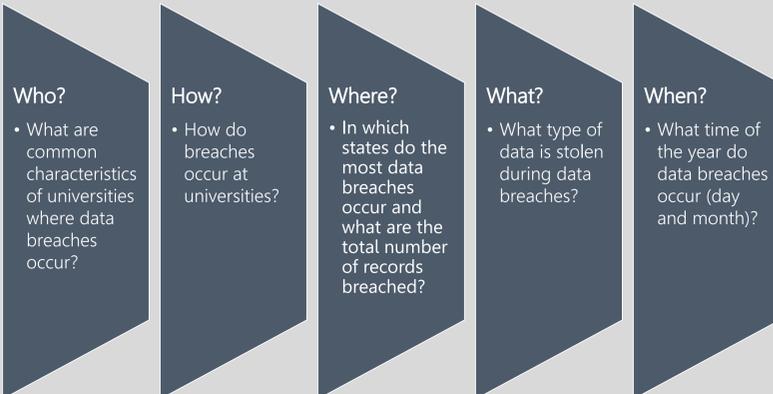
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DID YOU KNOW?

- On average, 82,112 student records are stolen each year.
- The per capita data breach cost for the education sector is, on average, \$200.00 per person.
- Medical data is the most sensitive data to have been stolen.

GOALS OF THE RESEARCH



METHODOLOGY



Research Questions:

1. What are the characteristics of universities where data breaches occur?
2. Among the universities that get breached, a. How do the breaches occur? b. In which parts of the US are breaches more prevalent? c. What type of data is breached most often?

Data Collection: Data sources include Privacy Clearing House; US News; College Scoreboard

Data cleaning: Data sets were merged; cleansing was conducted in Excel

Analysis: Correlation Analysis; Exploratory Data Analysis

FINDINGS: WHO

Correlation Matrix												
	Breach	Size	Admission Rate	Faculty Salary	Undergrad Comp	First Gen	Privacy	Ownership	Main Campus	Accredited	Family Income	
Breached	1											
Size	-0.448	1										
AdmissionRate	-0.138	-0.113	1									
Salary	0.342	0.404	-0.372	1								
UndergradComp*	0.279	0.282	-0.2	0.286	1							
FirstGen	-0.229	-0.211	0.328	-0.505	-0.638	1						
Privacy*	-0.144	-0.316	-0.17	-0.051	-0.11	-0.042	1					
PrivacyNumber*	-0.137	-0.261	-0.017	-0.073	-0.354	0.212	0.376	1				
Ownership*	-0.236	-0.419	0.134	-0.381	-0.294	0.331	0.047	0.122	1			
MainCampus	0.11	0.182	-0.206	0.229	0.093	-0.237	0.317	0.308	-0.342	1		
Accredited	0.082	0.145	-0.179	0.199	0.113	-0.179	0.063	-0.028	-0.253	0.284	1	
FamilyIncome	0.229	0.207	-0.252	0.519	0.646	-0.795	0.049	-0.19	-0.325	0.21	0.192	1

Definitions

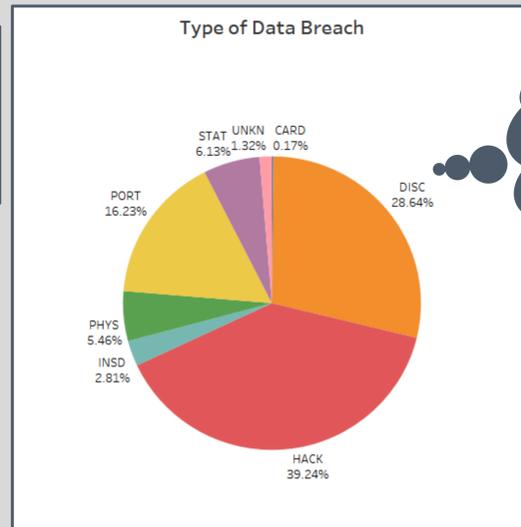
Size – Number of students enrolled in the institution
UndergradComp – Carnegie classification of size and location
Privacy – Indicates whether a university suppresses data for privacy purposes
PrivacyNumber – The amount of data categories a university suppresses for privacy purposes
Ownership – Public, Private Non-Profit, Private For-Profit

University size (in terms of enrollments) is significantly ($p < 0.05$) positively correlated to whether or not a university is breached.

FINDINGS: HOW, WHERE, WHAT

How the Breach Occurs

DISC – Unintended Disclosure
 HACK – Hacking or Malware
 INSD – Insider
 PHYS – Physical Loss
 PORT – Portable Device
 STAT – Stationary Device
 CARD – Payment Card Fraud
 UNKN – Unknown

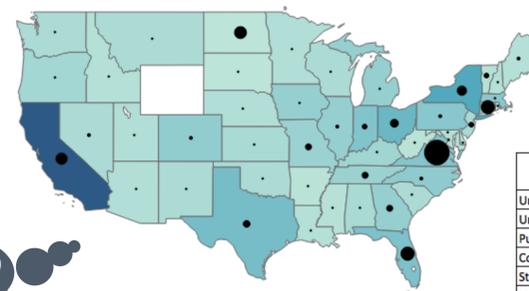


Did you know... 31.45% of data breaches originate internally?

Poor data management practices such as accidentally posting student information online are common. In August 2007, UNH announced that it had accidentally posted the Social Security numbers, credit hours and tuition information of 29 graduate students online.

Where the Breach Occurs

Number of Data Breaches and Total Records Breached per State



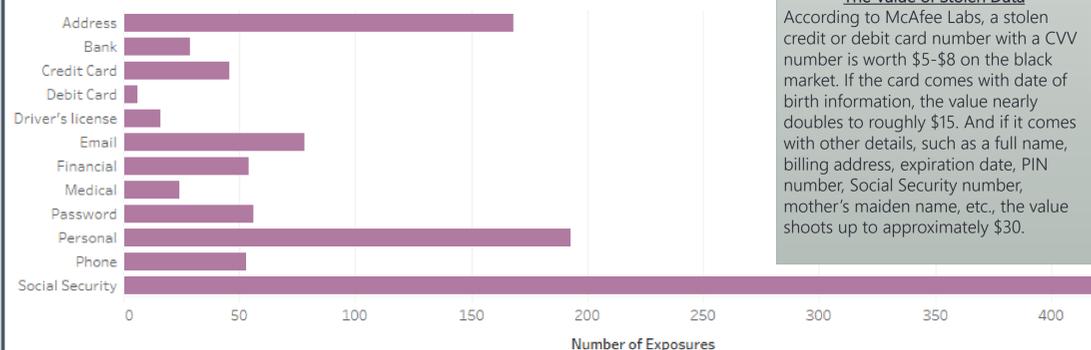
California has had 90 data breaches in the last 13 years.
 Virginia has the largest number of records breached at 353,923!

The Breach Leader Board

University	Number of Breach Incidents
University of Florida	10
University of Virginia	8
Purdue University	8
Cornell University	6
Stanford University	6
University of South Carolina	6
Columbia University	6
University of Iowa	6
Texas A&M University	6

What Type of Data Gets Breached

Type of Data Exposed

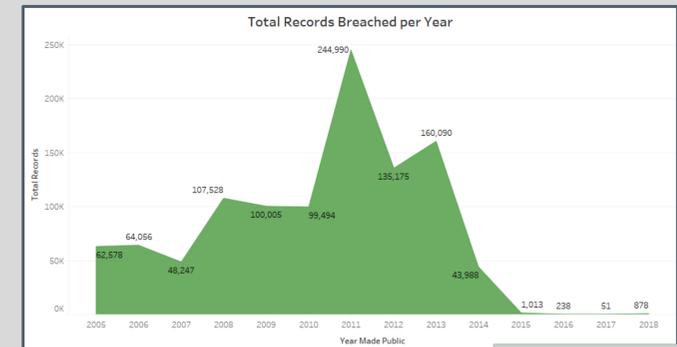


The Value of Stolen Data

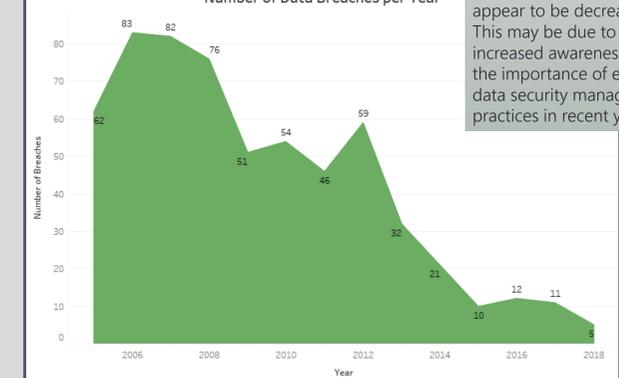
According to McAfee Labs, a stolen credit or debit card number with a CVV number is worth \$5-\$8 on the black market. If the card comes with date of birth information, the value nearly doubles to roughly \$15. And if it comes with other details, such as a full name, billing address, expiration date, PIN number, Social Security number, mother's maiden name, etc., the value shoots up to approximately \$30.

FINDINGS: WHEN

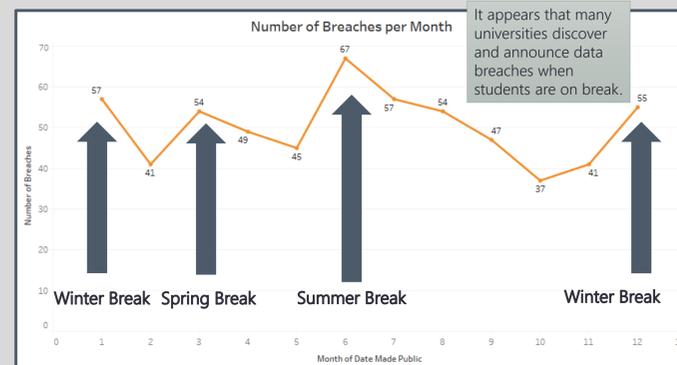
When the Breach Occurs



Number of Data Breaches per Year



The number of breach incidents at universities appear to be decreasing. This may be due to an increased awareness, of the importance of effective data security management practices in recent years.



It appears that many universities discover and announce data breaches when students are on break.

IMPLICATIONS

- ✓ A university is more likely to be breached if it is a larger university. Perhaps due to their well-known image or the immense amount of data held within large universities.
- ✓ Many data breaches at universities stem from poor data management practices. Training of university employees, on best practices for data management, is essential.
- ✓ Social Security numbers are the most stolen pieces of personal data. Inferring that identify theft is what malicious hackers are after. Universities should seek effective ways of protecting Social Security numbers.
- ✓ While breaches at universities seem to be decreasing, there are still multiple breaches that occur every year. Universities must remain vigilant.

REFERENCES

College Scorecard Data. (n.d.) <https://collegescorecard.ed.gov/data/>
 Data Breaches. (n.d.). Retrieved December 12, 2017, from <https://www.privacyrights.org/data-breaches>
 NCES Fast Facts Tool (2017a). <https://nces.ed.gov/fastfacts/display.asp?id=372> Date Accessed: December 12, 2017
 McAfee Labs. The hidden data economy. Retrieved April 12, 2018, from <https://www.mcafee.com/us/resources/reports/rp-hidden-data-economy.pdf>