32144 Technology Research Preparation

Week 4 Tutorial 3 Overview	
Topics Covered:	Critical Reading
	Critical Evaluation of Sources
	Literature Review
Points:	6
Date Due:	Week 4 – In Class
Submission	In-class contribution to discussions during Week 4 tutorial session

Week 4 Tutorial Preparation

1. **IDENTIFY AND READ 3-5 PAPERS** – Identify at least three to five relevant research article from the academic and/or industry databases. You should use academic or industry databases (such as ProQuest Central, Google Scholar, *Scopus* (Elsevier) *Web* of Science, and Discovery (EBSCO)) or industry report databases (Gartner.com, IBIS Industry World Reports), which are available via the UTS Library website (Refer to Week 3 Lecture).

2. **CRITICAL READING FOR YOUR RESEARCH TOPIC** – Select the **most relevant paper sourced to date**, read your selected conference paper, journal article or industry report in preparation for the Week 4 in-class activities.

3. **REGISTER THE DETAILS OF YOUR ARTICLE** – Please use APA Referencing (Authors, Date, Title, etc.) for your selected conference paper, journal article or industry report.

   INSERT APA REFERENCE BELOW:

4. **SCAFFOLDING FOR CRITICAL READING & WRITING** – Complete as much as possible of the of 'Scaffolding for Critical Reading & Writing' - Parts 1 and 2. See over page for Parts 1 and 2 of the form.

   NB: During the in-class tutorial in Week 4 you can continue working on Parts 3 and 4.

5. **SUPPORTING TUTORIAL TEXTS**: Refer to Canvas Week 4 **Lecture *and* Tutorial Preparation documents**. Please be sure to read the material provided in this module prior to your tutorial.

   NB: In addition to the resources, you may also wish to refer back to Week 2's Preparatory Reading List to catch up on any previous readings you have miss.[1]

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1 Refer to 'What is Research? And Week 2 & 3 Lecture Slides – both available on TRP Canvas site. Also refer to types of Research - https://www.scribbr.com/methodology/types-of-research/

4. SCAFFOLDING FOR CRITICAL READING & WRITING - PART 1

1. Evaluating your Source/Article		Your Evaluation
Relevance to Your Topic	**Title**	Cloud Computing Security Breaches and Threats Analysis
	Abstract	"Cloud solutions deliver a powerful computing platform which enables individuals and Cloud users to perform variety levels of responsibilities such as - use of online storage system, embracing of business applications, growth of customized computer software, and formation of a realistic network environment. In recent years, the number of people using cloud services has been intensely increased and plenty of data has been put away in cloud computing environments. In consequences, data breaches of cloud services are also increasing every year due to hackers, who are always trying to exploit the security vulnerabilities of the architecture of cloud. In this paperwork, we investigate and analyse real world cloud attacks to demonstrate the techniques that hackers used against cloud computing systems and prevention against such malicious activities."
	Keywords	Cloud security, Data breaches, Cloud service model security analysis, Cloud vulnerability assement.
Reliability/ Authority	***Authors:*** • Names? • Roles/Workplace? • Credentials? • Can contact?	Deba Prasead Mozumder , Md. Julkar Nayeen Mahi ,and , Md Whaiduzzaman are members of the Institute of Information Technology (IIT), Jahangirnagar University, Bangladesh that can be contacted via Research gate.
	Publication Type: • Peer-reviewed journal/ conference paper? • Published book or chapter?	Article that appears in a peer-reviewed journal called "International Journal of Scientific and Engineering Research"
	Publisher: • Reputable?	Md Whaiduzzamanhas published over 80 articles and more importantly, **has been cited 2501 times**, adding to his credibility. 2 of 3 authors are associated with University of Technology Queensland (one as professor and the other as a doctoral student). There seems to be a discrepancy with references and the mentions of case studies however.
	Timeliness • Up-to-date?	The article was published in 2017, which although not rendering the article obsolete, possibly contains **knowlegde gaps** in regards to advancements in technology inaccessible at the time (notably modern AI developments)
References contained within the paper	• Quantity? • Quality?	A reference sheet has a majority of articles of which Md Whaiduzzamanhas himself has published, which could lead to **unreliability and bias** due to a lack of diversity of information sources. Despite many references to case studies, they are not mentioned in the references.

	Why would you, at this stage,	The article serves as a strong candidate for the Literature review due to it having the highest range of relevant discussion in comparison to other literature analysed; it discusses the effects of 'relatively' recent data breaches by a cost analysis and also discusses the technical aspects relating to how such attacks occur in computer science terminology and how they can be prevented.
Overall Evaluation	• Include this article in your Literature Review? • What level of significance would you place on this article? Why?	The article has room for ideas to be expanded and for ideas of cyberattacks to be interpreted in a more mathematical sense (flaws of bayesian filters, vulnerabilities in MD5 and other failings of mathematical models that have notably been contributors to the Yahoo! Breaches). Its age allows for more recent data breaches to be examined and contrasted alongside the article, such as the Medicare breach. Due to the articles strong ideas yet large potential for improvement by development by filling in knowledge gaps, it is appropriate for the literature review.

Week 4 Tutorial Preparation

4. SCAFFOLDING FOR CRITICAL READING & WRITING - PART 2

2. Preparing to Read		What is the main gist of the article?
Skim/read quickly	Abstract	Analysis of both the techniques used in cyberattacks on cloud solutions and proposes solutions and the cost that data breaches have on susceptible cloud solutions.
	Introduction	- Discusses the context of cloud solutions and their convenience - Provides statistics regarding use of cloud solutions as botnets or for identity masking - Describes cloud service model
	Section Headings	- Dissect which class of data breach has highest cost and frequency (Human error, system failure,

| | | cyberattack) |
		- Gives more statistics and case studies on the cost for various companies to recover from data breaches
		- Discusses various possible techniques and case studies of implementing such techniques in cyberattacks (notably SQL injection, however also mentions Dos, cracking of WPA-PSK WiFi encryption, XSS)
		- Conducts a penetration test on an OwnCloud server to demonstrate such attacks in practice
		- Provides countermeasures for the aforementioned attacks
	Conclusion	- Comments on the results of experiment
	Key References	- References are primarily by self-referential despite many secondary statistics mentioned; the reference is probably omitting sources of information, strong example of what not to do -

In-Class Tutorial Activities

1. DISCUSS YOUR CRITICAL READING & WRITING SCAFFOLD – PART 3

ACTIVITY 1 – In breakout groups, discuss your selected research paper relative to the following.

3. Critical Reading & Review	Page #	Notes
Main topic?	2,6	Cost of data breaches, how they occur, and how they are prevented
Research questions(s)?	10,11	Which techniques hackers used against cloud computing systems? What measure in nature of prevention can be taken?
What are the relevant issues raised in the Literature Review/Background?		Salient issue raised when reviewing secondary source statistics is the proportion of human error related databreaches which can be easily managed yet account for 25% of all databreaches.
What is the Research Method?		Secondary quantitative statistics which are analysed to highlight. A local cloud system is using OwnCloud is used to demonstrate these attacks, which is an attempt of forming a method of research to validate claims of which techniques organisations are susceptible to. This research method could be improved upon.
What are the Results/Findings? How are they relevant to your research?		Many statistics related to databreaches are collated and analysed, which can be referenced in the literature review. They are relevant as they can be used as evidence of claims made as well as providing a description of how databreaches have occur in the past decade.
What are the significant issues that emerge from the Discussion?		
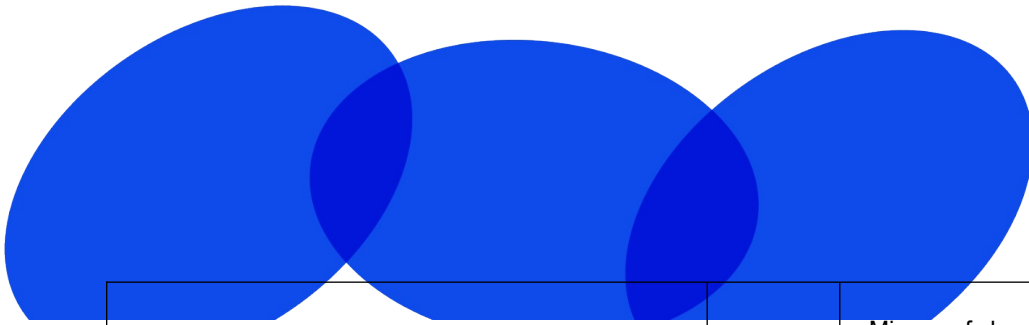
		- Misuse of cloud computational resources to facilitate such attacks
		- Malicious users from within the organisation
		- The various injection attacks common software is still susceptible to

2. DISCUSS YOUR CRITICAL READING & WRITING SCAFFOLD – PART 4

ACTIVITY 2 – In breakout groups, discuss your selected research paper relative to the following areas.

4. Critical Evaluation & Analysis	Page	Notes
Is the article well organized and written logically?	7	Grammar errors and typos are present, however the general structure is sound.
Is the Literature Review complete?		The article delves into most ideas of the chosen topic into adequate depth such that by the aid of other articles and original contributions, can be expanded further by discussing cyberattacks on a more technical level and demonstrating their relation to known data breaches
Are the Research Methods appropriate?	2,11	The research method used is characterised by being: - Mainly quantitative - Secondary (many published statistics on data breaches have been mentioned) - Primarily descriptive, demonstrated by experimental means; analyses the state of cybersecurity in great depth accompanied by a cloud penetration experiment, for demonstration purposes rather than for data collection however.
Are the results of the analysis validated? How? Is the analysis of the Results valid?		Experimental demonstration of cyberattack methods used to validate
Is the Discussion logically derived from the Results?	6,5,4	Refering to results as the mentioned statistics, the article makes close references to these throughout all subtopics, relating the relevance of each discussion point to a real case study.

Does the Discussion relate to the literature?		The article delves into most ideas of the chosen topic into adequate depth such that by the aid of other articles and original contributions, can be expanded further by discussing cyberattacks on a more technical level and demonstrating their relation to known data breaches
Overall?		Factors of the article that contain knowledge gaps and further development include: - Improving validity of proposed solutions by demonstrating positive case studies where solutions have been applied rather than a basic experiment - More depth of technical discussion of technical aspects of cyberattacks and a perspective from a mathematical point of view - Proposition of more modern solutions - Reference possibly omits sources for statistics However the following are inspiring qualities for the literature review: - Strong range within topic of databreaches discussed - Various references to case studies throughout article to validate analysis