About the Journal

Journal Name: Journal of Computational Analysis and Applications
Journal's ISSN: 1521-1398 (Paper),1572-9206 (Online)

The main purpose of "J.Computational Analysis and Applications" is to publish high quality research articles from all subareas of Computational Mathematical Analysis and its many potential applications and connections to other areas of Mathematical Sciences. Any paper whose approach and proofs are computational,using methods from Mathematical Analysis in the broadest sense is suitable and welcome for consideration in our journal, except from Applied Numerical Analysis articles. Also plain word articles without formulas and proofs are excluded.
The list of possibly connected mathematical areas with this publication includes, but is not restricted to:

- Applied Analysis
- Applied Functional Analysis
- Approximation Theory
- Asymptotic Analysis
- Difference Equations
- Differential Equations
- Partial Differential Equations
- Fourier Analysis
- Fractals
- Fuzzy Sets
- Harmonic Analysis
- Inequalities
- Integral Equations
- Measure Theory
- Moment Theory
- Neural Networks
- Numerical Functional Analysis
- Potential Theory
- Probability Theory
- Real and Complex Analysis
- Signal Analysis
- Special Functions
- Splines
- Stochastic Analysis
- Stochastic Processes
- Summability
- Tomography
- Wavelets
- Any combination of the above, e.t.c.

"J.Computational Analysis and Applications" is a peer-reviewed Journal. See the instructions for preparation and submission of articles to JoCAAA.

Call for Papers

2024-08-20

Call for Papers for the New Issue.

Last Date of Submission: September 30th, 2024

More Citation Formats

Issue

Vol. 33 No. 08 (2024): JOCAAA

Section

Articles

License

Make a Submission

Information

For Readers

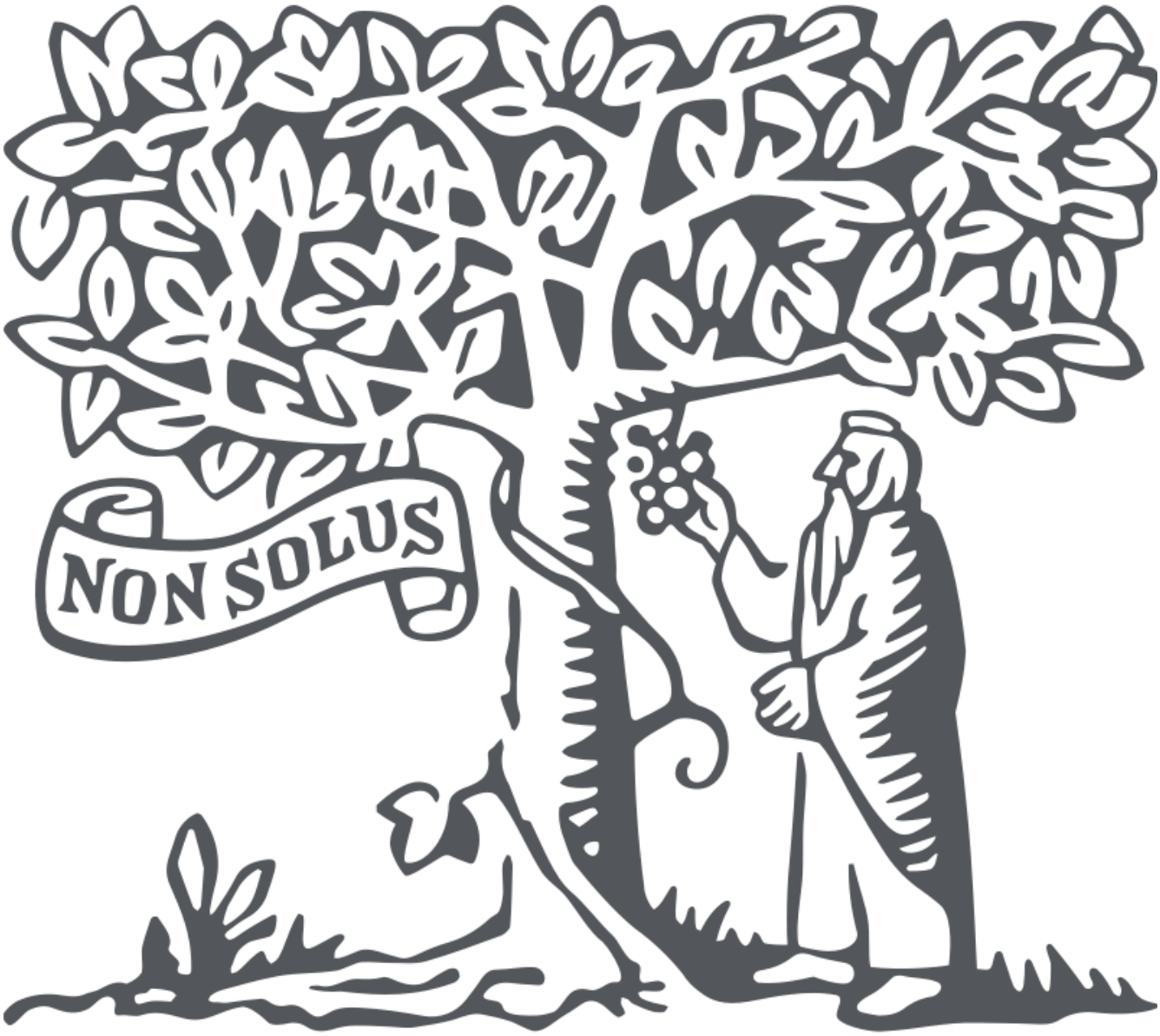
For Authors

For Librarians

Announcements

Call for Papers
August 20, 2024
Call for Papers for the New Issue.

Last Date of Submission: September 30th, 2024



ELSEVIER

Scopus

Most Read Articles

The Impact of AI-Driven Personalization on Customer Satisfaction in E-Commerce: Balancing Technology, Transparency, and Control
493

Two step Newton's method with multiplicative calculus to solve the non-linear equations
457

Stability Analysis of Linear Systems Using the Routh-Hurwitz Criterion: Theory and Applications
429

SIMULATION ANALYSIS OF TRAFFIC CONGESTION AT UNSIGNALIZED CIRCULAR ROUNDABOUT USING MICROSCOPIC TRAFFIC FLOW MODEL
301

Enhancing Transparency in Data Analytics Through Explainable Artificial Intelligence
265

Keywords

child, narcissist, parent, behavior

Journal Hosting, Support, and Customization by | OJS-Services.com

Email: editorialjcaa@gmail.com

Technical Support: editor@eudoxuspress.com

Journal of Computational Analysis and Applications (JoCAAA)

USING SOCIAL MEDIA AND PASSWORD MANAGEMENT ON CYBER SECURITY AWARENESS OF PROSPECTIVE TEACHERS

Mrs. Tamil Selvi P

Keywords: Cyber security, Password Management, Social media, Prospective teachers

Abstract

Social media is a growing platform for student interaction and communication. Thepassword is considered a basic and important security aspect that protects data and informationand provides access to authenticated systems. The study aimed at presenting

References

• Abomhara, M., & Koien, G. M. (2015). Cyber security and the internet of things: Vulnerabilities, threats, intruders and attacks. Journal of Cyber Security and Mobility, 4(1), 65-88.

• Ali ŞENOL, Tarık TALAN, Cemal AKTÜRK(2021) A RESEARCH ON UNIVERSITY STUDENTS' AWARENESS OF CYBER SECURITY: CASE STUDY OF PASSWORD USAGE, Research Gate,pp.46 – 56.

PDF

Published
2024-08-15

How to Cite

Mrs. Tamil Selvi P. (2024). USING SOCIAL MEDIA AND PASSWORD MANAGEMENT ON CYBER SECURITY AWARENESS OF PROSPECTIVE TEACHERS. *Journal of Computational Analysis and Applications (JoCAAA)*, *33*(08), 3244–3257. Retrieved from https://eudoxuspress.com/index.php/pub/article/view/2443

USING SOCIAL MEDIA AND PASSWORD MANAGEMENT ON CYBER SECURITY AWARENESS OF PROSPECTIVE TEACHERS

Author

Mrs. Tamil Selvi P, Full time Research Scholar,

Vels Institute of Science, Technology & Advanced Studies, Pallavaram, Chennai- 600117.

Email Id : p.tamil251988@gmail.com

Co-author and Corresponding author

Dr. K. Sheeba, Associate Professor,

Vels Institute of Science, technology & Advanced Studies, Pallavaram, Chennai- 600117.

Email Id : sheebakarpagam.k@gmail.com

ABSTRACTS

Social media is a growing platform for student interaction and communication. The password is considered a basic and important security aspect that protects data and information and provides access to authenticated systems. The study aimed at presenting a proposed model to raise awareness of cybersecurity among prospective teachers in education. The descriptive analytical approach was used to achieve the goal of the study, based on the nature of the study and its questions. Data is collected from the student teachers of both the course B.Sc. B. Ed and B. Ed student teachers of the final year were chosen for the study. Nearly 80 student teachers were taken for the study as a population. The tool was constructed by the investigator and the research supervisor. Result revealed that using different brand of social media namely Whats app, Instagram, Twitter and Others type had significant difference in social media, password management and cyber security awareness. Moreover it is also reported that laptop user and B.Ed final year students have better usage of social media, password management which directly enable the positive approach towards the cyber security awareness among the prospective teachers. Recommendation were made to the teacher educators, stack holders and academician.

Keywords: Cyber security, Password Management, Social media, Prospective teachers

USING SOCIAL MEDIA AND PASSWORD MANAGEMENT ON CYBER SECURITY AWARENESS OF PROSPECTIVE TEACHERS

INTRODUCTION

In the present day, social media profiles are exceedingly prevalent among students, educators, and other members of society. These social media platforms have a more significant impact on the daily activities of all types of users. On occasion, individuals' social media accounts may be exploited to obtain their personal information and deceive them. Social media encompasses electronic communication channels (e.g., microblogging platforms, social networking websites) that allow users to establish online communities for the purpose of exchanging private messages, information, or ideas. Teachers and students are increasingly utilizing social media platforms for communication and engagement. This investigation, which investigated the manner in which prospective educators employ their laptops and mobile devices for the teaching and learning process, raises concerns regarding privacy and cyber security in the context of social media usage.

Social media, which encompasses a variety of modes of interaction, is the collective term used to describe the creation, sharing, and/or interchange of ideas and information in virtual communities and networks. Password management is the process of safeguarding and supervising passwords from the instant they are generated until they are terminated by adhering to a set of sustainable practices. This is achieved through the utilization of password managers, which incorporate encrypted repositories to store sensitive credentials. The password is a fundamental and essential element of security that provides access to systems that have been validated and protects data and information. It is recommended that passwords be at least 12 characters in length, contain a combination of uppercase and lowercase letters, and include at least one symbol or special character. Consequently, the investigation examines the extent to which prospective educators comprehend the fundamentals of password security and how they manage their credentials.

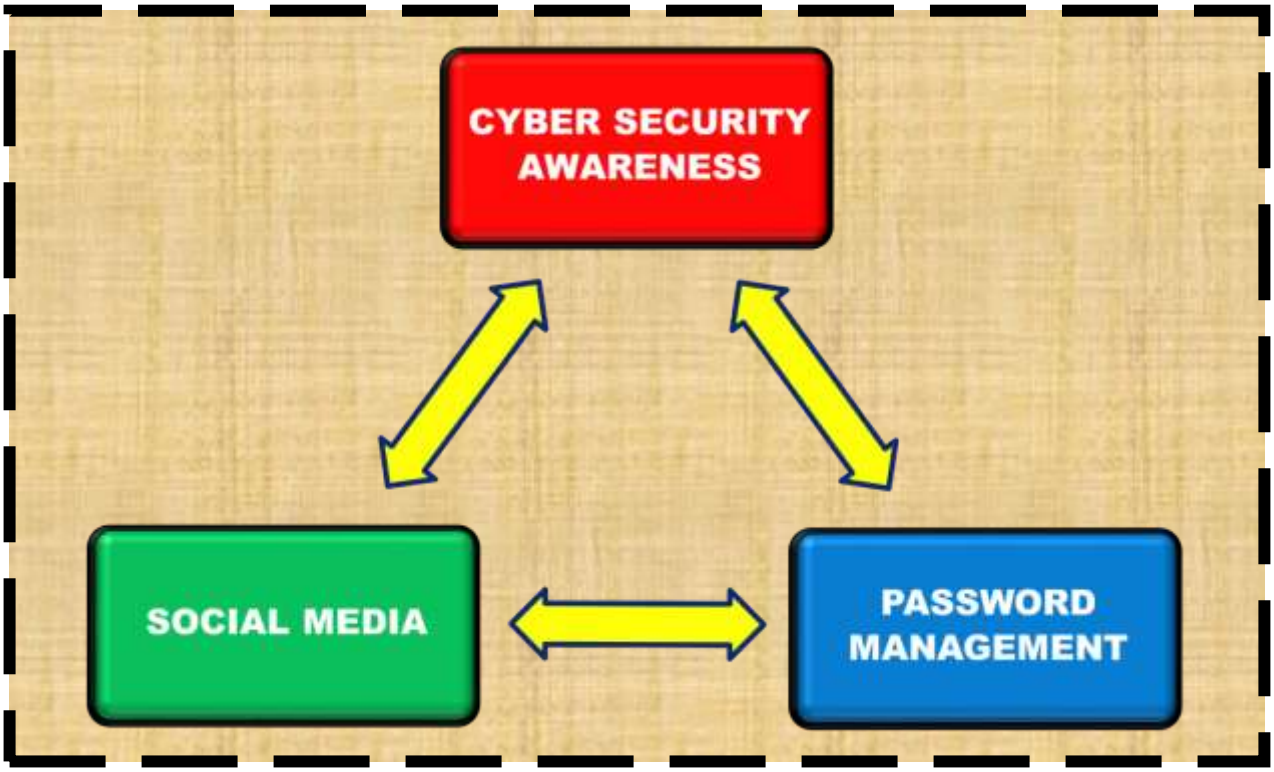
The purpose of cybersecurity awareness is to inform technology consumers about the potential risks they may encounter when utilizing internet communication tools, including social media, chat, online gaming, email, and instant messaging. Cyber security is designed to protect the information and resources of individuals and organizations that are accessible online (Prasad & Rohokale, 2020; Van Schaik et al., 2017; von Solms & von Solms, 2018). Mack (2018) defined the term as follows: cyber security: techniques for preventing unauthorized access to or attempts at exploitation of data, software, networks, and computers. Cybersecurity is also defined as the activity, process, ability, or state that safeguards information and communication systems and the information they contain from and/or defends against harm, unauthorized use or modification, or exploitation. It is imperative that prospective educators, who are the makers of the next generation, possess cybersecurity awareness, as cybercrime incidents can occur in any location, regardless of the location, organization, or individual. Consequently, prospective educators should adhere to cybersecurity awareness in order to safeguard against the illicit or unauthorized use of electronic data, or to implement the necessary measures to ensure the proper teaching and learning process.

Diagrammatic representation of Social media and Password Management is needed for Cyber Security Awareness

REVIEW OF RELATED LITERATURE

In their 2021 study, **Asifa Tassaddiq and Talal Alharbi** try to gauge how well people understand cybersecurity and An academic survey covering various topics of online safety was administered to undergraduates at Majmaah University in order to gauge user compliance. Researchers objectively evaluated students' knowledge of cybercrime and protection in order to show that user awareness, education, and training are necessary. In this study, the researcher used a quantitative research strategy and tested and examined the hypotheses with a battery of statistical tools, including analysis of variance (ANOVA), Kaiser-Meyer-Olkin (KMO), and Bartlett's tests. Clickbait ads, pop-up windows, computer viruses, phishing, electronic emails, and further internet outbreaks were all carefully examined in this study.

As mobile internet infrastructure expands across the globe, more and more people are accessing the internet through their mobile devices, especially those with 4G and 5G capabilities. Once limited to desktop computers, mobile devices like smartphones and tablets now allow users to



access online banking, e-mail, and shopping. In the wake of the global COVID-19 epidemic, which broke out at the tail end of 2019, several countries have swiftly moved away from traditional classroom settings and toward online learning. This has coincided with an uptick in internet use among college students. University students' knowledge of cyber security and the proper use of passwords in online apps and mobile devices was examined in a study by **Ali Şenol1, Tarık Talan, and Cemal Aktürk (2021).** In the fall of 2020–2021, students at a university in southeastern Turkey provided the data. Students participated in the research by filling out online surveys about their awareness of cyber security and password usage. The survey included 608 students; 410 were female (67.4% of the total) and 198 were male (32.6%). The bulk of the students (72.5%) were between the ages of 19 and 21. The results showed that 35.7% of students didn't use any special characters in their passwords, 54.4% didn't use any combination of uppercase and lowercase letters or numbers, and 64.3% used patterns of consecutive or repeating numbers or letters. Also, almost 20% of students saved their credit card details on e-commerce sites, and the majority of students (80.3%) had personal information in their passwords. Additionally, research showed that 29.8% of students had their accounts hacked or passwords stolen. The good news is that research shows that the majority of students (around 70%) recognize the significance of password security.

When it comes to cybersecurity awareness in schools, **Ganesh Talpe (2023)** delves into the research. The primary objective was to test the pupils' understanding of cyberthreats and their ability to be safe in an environment containing high-tech devices. Despite the widespread use of computers, smartphones, and other digital devices in everyday life, it has come to light that many students lack knowledge of even the most fundamental concepts related to cybersecurity. The majority of kids don't know about typical risks.The purpose of this survey question was to gauge respondents' feelings about the digital possessions they own. Nearly half of the people who took part were very confident in the accuracy of the data stored on their devices. A further one-third were unsure but were open to the possibility that there might be useful details. Nonetheless, twelve percent of people who took the survey were certain that their gadgets were useless. These results demonstrate the need of digital security methods in safeguarding sensitive information, given the majority of consumers seem to think that their PCs and mobile devices store essential documents. The purpose of this survey question was to gauge respondents' feelings about the digital

possessions they own. Nearly half of the people who took part were very confident in the accuracy of the data stored on their devices. A further one-third were unsure but were open to the possibility that there might be useful details. Nonetheless, twelve percent of people who took the survey were certain that their gadgets were useless. These results demonstrate the need of digital security methods in safeguarding sensitive information, given the majority of consumers seem to think that their PCs and mobile devices store essential documents. While most people are aware of the concept of cybersecurity, a sizeable minority expresses doubt about their own competence in the area (22%). Results show that people's may be a need for cybersecurity awareness or education initiatives given the wide range of self-reported cybersecurity competence.

As more and more of our daily activities, including the transfer and storage of personal information, are conducted online, the significance of cybersecurity measures is growing. According to research, a key component of any comprehensive cybersecurity strategy should include a robust security awareness program. College students' present levels of security awareness were the focus of the study by **Yesem Kurt Peker et al. (2016),** which aimed to build a module to increase this degree of awareness. Our module stands out due to its interactive nature and the fact that it shows the shocking effects of ordinary people's reckless web behaviors. In order to achieve the objectives of our investigation, our researchers created a survey with pre- and post-tests and gave it to students here on campus. The findings of the poll show that the module was successful overall, but especially for students who did not major in computer science. Their knowledge of cybersecurity in general, as well as the module's particular subjects, has increased as a result.

PURPOSE OF THE STUDY

In today's digital world, instructors not only impart knowledge to students, but also fulfill many tasks to support students in both their academic and non-academic endeavors. As technology advances, it is increasingly becoming incorporated into all aspects of our lives, including the mental health of instructors and students, amidst classroom management and teaching and learning objectives. However, the utilization of social media for educational purposes, gaming, and other activities has led to a rise in cybercrime, particularly targeting schools where both teachers and students are the primary victims. Therefore, it is imperative for modern student teachers to possess

a deep understanding of cybersecurity awareness. This entails being mindful of cybercrime and other cyber threats, and assisting students in utilizing social media applications with heightened security measures. Encouraging the use of strong passwords will enable students to engage with online and social media platforms in a safer environment.

Given that students will comprise the future workforce, their current digital habits and expertise will undeniably impact the future cybersecurity landscape. Hence, enhancing the consciousness of aspiring educators regarding cybersecurity is crucial not only for their individual well-being but also for educational institutions, policymakers, and the cybersecurity community at large. In order to enhance the comprehension of cyber security among college students in the field of Education, the implementation of a cyber security program is necessary. Cybersecurity may seem daunting, but there are basic components that may be integrated into the classroom. Moreover, instructing kids on cybersecurity is a crucial measure in fostering the cultivation of secure and accountable online behaviors.

Social media refers to the methods by which individuals establish connections with one other through the creation, sharing, and/or exchange of information inside online communities and networks. Prospective teachers must exercise caution when using social media apps during their pedagogical teaching for school children during their internship. It is important to use these applications with care in order to ensure an effective teaching and learning process. Password management refers to the systematic implementation of sustainable procedures to safeguard and handle passwords when using social media apps, from their creation until their closure. Password managers employing

Utilizing integrated encrypted vaults for storing critical credentials can facilitate this process. In order to gain access to a specific area or system, potential teachers are required to possess knowledge of a password, which is a confidential word, phrase, or code. Technically speaking, it refers to a sequence of characters or numbers that must be inputted into a computer or computer system prior to its usage. Teachers and students who utilize technology, including smartphones, should possess knowledge of prevalent forms of criminal activity and fraudulent schemes, as well as strategies for safeguarding themselves, their data, and their gadgets. Teachers should remain vigilant about the most recent forms of attacks in order to safeguard themselves, pupils, and the institution. For instance, implementing password protection and activating

multifactor authentication are straightforward measures that will provide significant results. For aspiring teachers, it is crucial to prioritize cybersecurity awareness by staying updated and acquiring knowledge about the most effective methods to safeguard themselves and their students. Therefore, the researcher concluded that it is crucial for potential instructors to have a strong understanding of cyber security awareness in order to safely utilize social media and effectively manage passwords online.

METHODOLOGY OF THE PRESENT STUDY

The poll method is being used for this study. A random sampling method is used to get information from people who want to become teachers and are in their second year of the B.Ed. program at the Vels Institute of Science, Technology, and Advanced Studies in Pallavaram, Chennai. Nearly, the information came from about 80 student teachers. The researcher put together the tool with help from the boss.

RESEARCH QUESTIONS

1. Is there is any significant difference among the brand of social media like Whats app, Instagram, Twitter and Others in all the selected variables?
2. Is there is any significant difference between the usage of the device like Laptop or desktop in all the selected variables?
3. Is there is any significant difference among the Course of the students like B.Sc. B. Ed and B. Ed in all the selected variables?
4. Is there is any significant relationship among all the selected variables?

ANSWER TO THE RESEARCH QUESTIONS

1. ***Is there is any significant difference among the brand of social media like whats app, Instagram, Twitter and Others in all the selected variables?***

Variable	Brand of social media										
	Whats app (N= 21) (1)		Instagram (N=32) (2)		Twitter (N= 20) (3)		Others (N = 7) (4)		'F' Value	Level of Significance	Groups differed significantly
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D			
Social Media	10.52	2.294	11.03	1.892	10.60	2.415	7.00	.000	4.305	0.001	**(2,3) (2,1) (2,4)**
Password Management	20.43	5.016	21.00	5.442	18.65	5.824	15.00	.000	2.024	NS	None
Cyber security Awareness	18.33	3.812	20.56	3.232	18.00	3.713	14.00	.000	5.753	0.001	**(2,1) (2,3) (2,4)**

The foregoing suggests that future teachers who use Instagram have a higher level of social media and cyber security awareness compared to Twitter and WhatsApp users, as well as users of other social media platforms. Furthermore, it has been noted that they exhibit statistical significance at a 1% level. Additionally, it has been noted that the password management variables used by prospective teachers are comparable across other social media platforms such as WhatsApp, Instagram, Twitter, and others.

2. ***Is there is any significant difference between the usage of the device like Laptop or mobile in all the selected variables***?

Variable and Dimensions	Usage of the device				't' Value	Level of Significance
	Laptop (N = 53) (1)		**Mobile (N =27) (2)**			
	Mean	**S. D**	**Mean**	**S. D**		

Social Media	10.85	2.437	9.96	1.654	21.376	0.001**
Password Management	21.40	5.586	16.67	3.266	49.323	0.001**
Cyber securi tyawareness	**19.96**	**3.340**	**16.71**	**3.782**	**1.070**	**NS**

Based on the information provided, it appears that prospective teachers who use laptops are more adept at managing their passwords and social media accounts than those who use mobile devices. Their significance at the 1% level has also been noted. Additionally, it is worth mentioning that potential teachers who use mobile devices and laptops have comparable levels of cyber security awareness.

3. ***Is there is any significant difference between the Course of the prospective teachers likeB.Sc. B. Ed and B. Ed year and in all the selected variables?***

Variable	**Course details**				**t' Value**	**Level of Significance**
	B.Sc. B. Ed (N= 40) (1)		**B. Ed (N=40) (2)**			
	Mean	**S. D**	**Mean**	**S. D**		
Social Media	9.88	2.166	10.92	2.361	1.785	NS
Password Management	17.80	5.196	20.76	4.994	3.009	NS
Cyber security awareness	16.68	2.996	19.36	3.604	9.029	**0.001**

The above suggests that B. Ed prospective teachers possess a higher level of cyber security awareness compared to B.Sc. B. Ed prospective teachers. Furthermore, it is noted that they exhibit statistical significance at a 1% level. Additionally, it has been noted that the social media and password management are identical for all the chosen potential professors.

4. Is there is any significant relationship among all the selected variables?

Variables	SocialMedia	Password Management	Cyber Security
Social media	1	0.642**	0.561**
Password Management	X	1	0.630**
Cyber Security	X	X	1

The table clearly demonstrates a strong favorable correlation between social media, password management, and cyber security awareness. Furthermore, it is clear that they have a high level of significance at the 1% level.

CONCLUSION

Teachers and students in this digital age are heavily reliant on the newest approaches, using a variety of technologies into their instruction. According to the results of this study, student instructors need to be more cautious when using various social media platforms, such as Instagram, Twitter, and WhatsApp, and they should always keep their passwords private by utilizing secure password management. According to a recent survey, aspiring teachers who use mobile phones should be more vigilant about scams and cybercrime and take precautions to avoid them. Therefore, the current study concludes that aspiring educators should be knowledgeable about cyber security so they can help adolescent students who are at danger.

REFERENCES

• Abomhara, M., & Koien, G. M. (2015). Cyber security and the internet of things: Vulnerabilities, threats, intruders and attacks. Journal of Cyber Security and Mobility, 4(1), 65-88.

• Ali ŞENOL, Tarık TALAN, Cemal AKTÜRK(2021) A RESEARCH ON UNIVERSITY STUDENTS' AWARENESS OF CYBER SECURITY: CASE STUDY OF PASSWORD USAGE, Research Gate,pp.46 – 56.

• Alharbi, T.; Tassaddiq, A. (2021), Assessment of Cybersecurity Awareness among Students of Majmaah University. Big Data Cognitive Computing. Vol.5(23).pp. 1 – 15, https://doi.org/10.3390/bdcc5020023

• Arwa A. Al Shamsi (2019). Effectiveness of Cyber Security Awareness Program for young children: A Case Study in UAE, International Journal of Information Technology and Language Studies (IJITLS) Vol. 3(2), pp. 8- 29.

• Aslay, F., (2017), Siber Saldırı Yöntemleri ve Türkiye'nin Siber Güvenlik Mevcut Durum Analizi, [Cyber Attack Methods and Current Situation Analysis of Turkey's Cyber Safety] International Journal of Multidisciplinary Studies and Innovative Technologies, 1(1), 24-28.

• DHS. (2014). A glossary of common cybersecurity terminology. National Initiative for Cybersecurity Careers and Studies: Department of Homeland Security. [Online]. Available: http://niccs.uscert.gov/glossary

• Feray Küçükbaş Duman(2022), Determining Cyber Security-Related Behaviors of Internet Users: Example of the Faculty of Sport Sciences Students, European Journal of Education, Volume 5(1),PP.114 – 131.

• Ganesh Talpe (2022), Cyber Security Awareness among College Students, International Research Journal of Modernization in Engineering Technology and Science (Peer- Reviewed, Open Access, Fully Refereed International Journal) Volume:05(10) , pp-2117 - 2121 Factor-7.868 www.irjmets.com

• Misbah Ahmed Al-Sahafi and Abdullah Mohammed Al-yateem(2020) A Suggested Model to Raise Awareness of Cybersecurity Among Computer Teachers in Public Education: An Analytical

Study on Education Department in Jeddah Governorate, Technological Communication, Vol 13 No (4) Oct-Nov-Dec 2020 Pp 2271-2276

• Mack, M. (2018). Cyber security. UK: ED-Tech Press.

• Nabin Chowdhury1 · Vasileios Gkioulos1(2023), A personalized learning theory-based cyber-security training exercise, International Journal of Information Security Volume 22:1531–1546.

• Oxford University Press. (2014). Oxford Online Dictionary. Oxford: Oxford University Press. [Online]. Available: http://www.oxforddictionaries.com/definition/english/Cybersecurity

• Prasad R., Rohokale V. (2020): Cyber Security: The Lifeline of Information and Communication Technology, Springer Series in Wireless Technology, Springer Nature Switzerland AG 2020. DOI: 10.1007/978-3-030-31703-4_16.

• Van Schaik, P., Jeske, D., Onibokun, J., Coventry, L., Jansen, J., & Kusev, P. (2017). Risk perceptions of cybersecurity and precautionary behaviour. Computers in Human Behavior, 75, 547-559.

• Von Solms, B., & Von Solms, R. (2018). Cybersecurity and information security–what goes where? Information & Computer Security, 26(1), 2-9.

• Yigit, M. F., & Seferoğlu, S. S. (2019). Investigating students' cyber security behaviors in relation to big five personality traits and other various variables. Mersin University Journal *of the Faculty of Education*, 15(1), 186-215.

- **Yesem Kurt Peker, Lydia Ray, Stephanie Da Silva, Nathaniel Gibson, Christopher Lamberson(2016),** Raising Cybersecurity Awareness among College Students, Journal of The Colloquium for Information System Security Education (CISSE), pp 01- 17.