



# THE EFFECTS OF SOCIAL MEDIA USERS BEHAVIOURS ON SECURITY AND PRIVACY THREATS.

<sup>1</sup>N Sairam, <sup>2</sup>D Murali

<sup>1</sup>Research Scholar, <sup>2</sup>Assistant Professor

<sup>1</sup>Computer Science and Engineering,

<sup>1</sup>Quba College of Engineering and Technology, Nellore, Andhra Pradesh, India

**Abstract :** -As the ubiquity of social media continues to reshape the digital landscape, this study investigates the intricate relationship between users' behaviors on social media platforms and the ensuing security and privacy threats. A comprehensive analysis is conducted to understand the patterns, trends, and implications of user actions, encompassing information sharing, online interactions, and privacy settings. Through surveys, behavioral analysis, and case studies, the research unveils the multifaceted impact of user behaviors on the vulnerability of personal information to security breaches and privacy invasions. Additionally, the study explores the role of platform policies, user awareness, and technological safeguards in mitigating these threats. The findings underscore the need for a holistic approach, combining user education, platform enhancements, and regulatory measures to foster a secure and privacy-respecting social media environment. This research contributes valuable insights to the ongoing discourse on digital security and privacy, providing a foundation for future strategies and interventions in the rapidly evolving landscape of social media.

**IndexTerms - Social Media, User Behaviors, Security Threats, Privacy Threats, Digital Landscape**

## I. INTRODUCTION

### 1.1 - System Overview:

The paragraph provides an overview of Online Social Networks (OSNs) and their widespread global influence. Mentioning platforms like Facebook and Twitter, it emphasizes the diverse activities users engage in, from posting photos to commenting. Statistics from 2019 highlight the significant number of Internet and social media users globally. The paragraph underscores the integral role of social media in people's lives but acknowledges the rising security concerns. Citing an incident with Facebook, it highlights the potential impact of user behavior on information security. The study introduced aims to analyze the behavior of OSN users, specifically in terms of information security and privacy, considering cultural differences between Turkish and Iraqi users. The paragraph outlines the paper's structure, including related work, the study's methodology, results, and the conclusion with future work.

### 1.2 - Company Profile:

This section introduces Sun Square Technologies Pvt. Ltd., a prominent Software Training and Development Organization located in Nellore. Specializing in IT training, the organization has gained recognition across various sectors. Sun Square has diversified its focus to include Retail, IT&ES, Banking, Finance, Telecom, and Electronic Sector courses, reflecting the current market's employment trends.

The success of Sun Square is attributed to its commitment to qualitative education, constructive thinking, and positive actions, making it a preferred choice for students. The organization adheres to Total Quality Management (TQM) principles, ensuring excellence in both faculty and infrastructure. Innovation is highlighted as a core strength, enabling Sun Square to stay competitive and lead in the industry. Over a million students have benefited from the institution's computer knowledge programs.

The company's vision is centered around transforming the education system by providing services to enhance career prospects through skill training in various sectors, utilizing Information Technology and communication tools. The ultimate goal is to bridge industry demands by producing a quality skilled workforce and contributing to building a skilled nation.



## Quality Measures

- Every day attendance is taken twice through Bio Metric device and cross checked.
- Absentees are called up by our PRO on weekly thrice and further intimation to their parents via letters and emails
- Leave letters are being maintained
- In case the students don't turn up as per given time frame immediate message is sent to them for safety measures
- On weekly basis exams are conducted and day wise schedules are checked
- Mock assessment and mock placement drives will be organized periodically to enhance confidence levels of students.
- Identified irregular / Weak students will be provided intensive training for 100% compliance
- On daily basis movement registers are checked and duly signed
- Course duration and time table are displayed on the notice board
- Food quality is being monitored at regular intervals
- Any feedbacks or suggestions dropped in suggestion box are looked out in a perspective way



## II. SYSTEM STUDY AND ANALYSIS

### 2.1 Problem Statement:

The study focuses on the level of trust in social networking sites, particularly noting that users older than 30 are the least trusting group. Surprisingly, low trust levels do not significantly impact the information shared by users. The youngest group (18-21 years) discloses the most information, while those aged 26-29 exhibit higher caution in using security tools. However, the study finds that users neglect security for social interaction, emphasizing the joint responsibility of both users and social media tools for privacy protection.

### 2.2 Existing System:

Existing research notes that users are aware of privacy concerns on social media but often reveal extensive personal information to construct their identities. The age-related differences in behavior, security settings management challenges, and the impact of privacy attitudes on self-disclosure are explored. Some users, particularly young ones, actively update privacy settings against threats, while others struggle with default settings. The dynamic nature of online social network (OSN) behavior, coupled with concerns about managing privacy controls, is highlighted. Several studies delve into the duration of OSN usage, the number of friends, and the reasons for connecting with new people.

### 2.3 Proposed System:

The study adopts the field research method and employs a questionnaire technique to collect data on user behavior. The research methodology encompasses population definition, sampling, data collection tools, data analysis, and research hypotheses. The focus is on identifying user behaviors through the investigation of classical attacks used by attackers, including Classic Threats (Internet Fraud attacks, Phishing, XSS), Modern Threats (Information Leakage attacks), and Threats Targeting Children (Cyber Bullying attacks). Each attack group aims to find open channels to access OSN users, victimizing them. The proposed system aims to understand these behaviors and enhance privacy/security attitudes.

#### Advantages of Proposed System:

**Parental Follow-up:** The proposed system incorporates techniques for parents to actively follow their children's activities on OSN.

**User Behavior and Privacy/Security:** The system employs robust techniques to analyze the behaviors of OSN users and their attitudes towards privacy/security.

**Feasibility Study:**

The feasibility study is conducted to determine the viability and benefits of the proposed system. Three essential tests are performed:

**Technical Feasibility:** Assessing whether the planned system is technically possible.

**Economic Feasibility:** Evaluating the cost-effectiveness of resolving the problem and determining if the problem is worth solving.

**Operational Feasibility:** Analyzing whether the proposed system is operationally feasible in terms of functionality and practicality.

**Introduction to UML:**

UML (Unified Modeling Language) serves as a method for detailed system architecture description, functioning as a blueprint for software development. It incorporates best engineering practices effective in modeling large and complex systems. Utilizing graphical notations, UML facilitates the illustration of software project designs. It fosters communication, exploration of potential solutions, and validation of software architectural designs within project teams.

**Definition:**

UML is a general-purpose visual modeling language employed to specify, visualize, construct, and document software system artifacts.

**UML as a Language:**

UML provides a vocabulary and rules for communication and function on conceptual and physical representation, making it a modeling language.

**UML Specifying:**

Specifying in UML involves building precise, unambiguous, and complete models that address important analysis, design, and implementation decisions in software-intensive system development.

**UML Visualization:**

UML encompasses both graphical and textual representations, enhancing system visualization for better understanding.

**UML Constructing:**

UML models can be directly connected to various programming languages, offering expressiveness and freedom from ambiguity for direct model execution.

**UML Documenting:**

UML provides a range of documents, in addition to raw executable codes, facilitating comprehensive documentation for software systems.

**III. DEVELOPMENT ENVIRONMENT****3.1 Hardware Requirements:**

For the successful execution and performance of this Java project, careful consideration of hardware specifications is essential. The following are the main hardware requirements:

Processor: Pentium-IV

RAM: 4 GB (minimum)

Hard Disk: 20 GB

Keyboard: Standard Windows Keyboard

Mouse: Two or Three Button Mouse

Monitor: SVGA

**3.2 Software Requirements:**

The software requirements are crucial for the functioning of the project. The software requirements specification is developed after the analysis task is completed. It undergoes testing to ensure it aligns with the project's needs. The software requirements include:

Operating System: Windows XP

Coding Language: Java/J2EE

Frontend: J2EE

Backend: MySQL

### 3.3 Programming Environment:

#### 3.3.1 About Front-End: Java Technology

Java technology serves as both a programming language and a platform. The Java programming language is characterized by several key features:

- Simple
- Architecture Neutral
- Object-Oriented
- Portable
- Distributed
- High-Performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

In Java, a program is unique in that it undergoes both compilation and interpretation. Initially, a program is compiled into an intermediate language known as Java byte codes. These byte codes are platform-independent and are interpreted by the Java platform. The interpreter parses and executes each Java byte code instruction on the computer. Compilation is a one-time process, while interpretation occurs each time the program is executed.

The following figure provides an overview of how this compilation and interpretation process works:

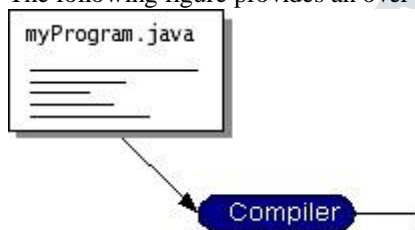


Fig 3.1 java programming

#### 3.3.2 About Back-End:

##### ODBC (Open Database Connectivity):

Microsoft Open Database Connectivity (ODBC) stands as a standard programming interface that facilitates application developers and database system providers. Before ODBC, programmers had to use proprietary languages for each database they wanted to connect to. ODBC has made the choice of the database system almost irrelevant from a coding perspective, allowing developers to focus on more critical aspects of their applications. Through ODBC, databases are associated with data sources, acting like doors with specific names leading to particular databases. The ODBC system files are installed when setting up a separate database application. ODBC drivers are transparent to the application, handling many network issues in a client/server environment. While ODBC has been criticized for potential inefficiency compared to direct database interfaces, Microsoft argues that driver software quality is the critical factor influencing performance.

##### JDBC (Java Database Connectivity):

JDBC was developed by Sun Microsystems to establish an independent database standard API for Java. It offers a generic SQL database access mechanism with a consistent interface to various Relational Database Management Systems (RDBMS). JDBC uses "plug-in database connectivity modules" or drivers for different database vendors. To gain broader acceptance,

JDBC is based on the structure of ODBC. JDBC goals include providing a SQL Level API, SQL conformance, implementability on common database interfaces, consistency with the Java system, simplicity, and strong, static typing wherever possible. JDBC aims to keep common cases simple while allowing flexibility for more complex SQL statements. JDBC integrates seamlessly with the Java system, aligning with its principles of simplicity, portability, and robustness.

#### **Java:**

Java serves as both a programming language and a platform, emphasizing simplicity, architecture-neutrality, object-oriented design, portability, distribution, high performance, interpretation, multithreading, robustness, dynamism, and security. The compilation and interpretation process of Java programs involve compiling them into intermediate language Java byte codes, which are interpreted by the Java platform during execution. Java's widespread acceptance in the user community has led to the consistent design of the core Java system. The language's strong, static typing enhances error checking and simplifies the common cases, making it suitable for a variety of applications.

## **IV. DESIGN AND DEVELOPMENT**

### **4.1 ARCHITECTURAL DESIGN:**

In the architectural design phase, the specifications are understood and designed. Multiple technical approaches are proposed, and the final decision is made based on technical and financial feasibility. This phase involves breaking down the system design into modules, also known as High-Level Design (HLD). It includes the design of data transfer and communication between internal modules and external systems.

#### **4.1.1 System Structuring:**

The design aims to determine how the output is produced and in what format. Input data and database files are designed to meet the requirements of the proposed output. The processing phase is handled through program construction and testing. The design includes justification of the system and an estimate of its impact on users and the organization.

#### **4.1.2 Control Modeling: Process V-Shape Model:**

The V-Model is an extension of the waterfall model, where processes occur sequentially in a V-shape. It's also known as the Verification and Validation model. Each development phase has a corresponding testing phase, making it a highly disciplined model. Coding joins the two sides of the V-Model. Verification phases are on one side, and validation phases are on the other.

#### **4.1.3 Modular Decomposition: Admin:**

The admin module involves the service provider logging in with valid credentials.

Operations include viewing all users, authorizing users, viewing friend requests and responses, viewing user datasets, viewing datasets by blockchain, viewing reviews, attackers, behavior type results, and attacker results.

View and Authorize Users:

Admin can view and authorize users who have registered.

End User:

End users need to register before performing any operations.

After registration, users can log in, view profiles, search friends, view friend requests and friends, upload datasets, view datasets, find attack types, and view friend reviews.

### **4.2 INTERFACE DESIGN:**

In the implementation stage, the theoretical design is transformed into a working system. It involves careful planning, investigating the existing system, designing changeover methods, and evaluating those methods. The system framework outlines the responsibilities of entities and steps for initiating a permission activation request, including revocation and verification phases.

System Framework:

Describes the responsibilities of entities.

Steps Involved for Initiating a Permission Activation Request:

Revocation

Verify



Verification Phases:

Business Requirement Analysis: Understanding customer expectations and needs.

System Design: Detailed design of the complete system.

Architectural Design: Designing architectural specifications.

Module Design: Specifying detailed internal designs for system modules.

Coding Phase: Actual coding of system modules based on the design.

#### 4.3 COMPONENT DESIGN:

V-Model Application:

Similar to the waterfall model, the V-Model application is of a sequential type.

Suitable scenarios to use V-Model include well-defined, stable requirements, fixed product definition, known technology, and a short project duration.

Pros:

Highly disciplined and suitable for smaller projects with well-understood requirements.

Simple, easy to understand, and manage.

Cons:

High risk and uncertainty.

Not suitable for complex, object-oriented, or long-term projects.

#### 4.4 DATABASE DESIGN:

Database and Tables:

A Database Management System (DBMS) manages databases and runs operations on structured data.

Examples of DBMS include Oracle, DB2, MySQL, etc.

Description:

DBMS controls organization, storage, management, and retrieval of data.

It includes a modeling language, data structures, a query language, report writer, transaction mechanism, and maintains data integrity.

DBMS accepts requests for data from application programs and ensures data security.

#### SQL (Structured Query Language):

SQL is used to manipulate relational databases tied closely with the relational model.

SQL statements include data definition (DDL) for creating, altering, and dropping schema objects, and data manipulation (DML) for inserting, updating, deleting, and querying data.

### V. SYSTEM TESTING AND IMPLEMENTATION

#### 5.1 TESTING

The goal of testing is to acquire errors. Testing is that the technique of trying to get each possible error or weakness in an extremely work product. It provides the way to observe the practicality of parts, sub-assemblies, assemblies and or a finished product it is the technique of effort code with the concentrating of guaranteeing that the software meets its requirements and user hopes and does not fail in an undesirable manner. There are numerous sorts of check. Every check sort reports a designated testing demand.

#### Testing objectives:

The key objective of testing is to determine a mass of errors, systematically and with minimum effort and time. Stating formally, we can say, testing is a process of executing a program with resolved of discover an error.

- A successful test is one that determines an as however undiscovered error.
- A good test case is one that has possibility of discover an error, if it exists.
- The test is insufficient to detect possibly present errors.
- The software more or less approves to the quality and unswerving standards.

**5.1.1 Unit Testing & Test Cases:**

**Unit Testing:** A unit is the smallest piece of source code, also known as a module.

The purpose of unit testing is to expose non-compliance with functional requirements and ensure the structural implementation aligns with the design.

**5.1.2 Integration Testing & Test Cases:****Integration Testing:**

Tests integrated software components to verify they run as one system.

It focuses on revealing problems that arise from the combination of components.

**5.1.3 User Acceptance Testing & Test Cases:****User Acceptance Testing (UAT):**

A crucial phase requiring significant input from end users.

Ensures the system meets functional requirements.

**5.1.4 Output Testing & Test Cases:****Test Strategy and Approach:**

Ground testing done manually, and functional tests documented in detail.

Test Objectives:

Ensure all field submissions work properly.

Pages are activated from identified links.

Entry screen, messages, and responses are not delayed.

Features to be Tested:

Validate correct format for accesses.

Disallow duplicate entries.

Verify all links redirect to the correct page.

**5.1.5 Validation Testing & Test Cases:**

Test Objectives: Functional tests confirm that the tested functions align with business and technical requirements.

**Functional Testing Focus:**

Valid Input: Accept known categories of valid input.

Invalid Input: Reject known categories of invalid input.

Functions: Exercise identified functions.

Output: Exercise identified classes of application outputs.

Systems/Procedures: Invoke interfacing systems or procedures.

Association and Arrangement:

Scope is based on requirements, key functions, or unique experiments.

Identifies additional tests and determines the effective value of current tests before completing functional testing.

**5.2 SYSTEM SECURITY:**

System testing guarantees that the entire coordinated programming framework meets prerequisites. It tests a design to guarantee known and unsurprising results. A sample of framework testing is the arrangement situated framework combination test. Framework testing depends on procedure portrayals and streams, stressing pre-driven procedure connections and mix focuses.

**White Box Testing**

It is a testing in which the product analyzer has information of the internal workings, structure and dialect of the product, or if nothing else its motivation. It is reason. It is utilized to test ranges that can't be gotten a handle on from a discovery level.

**Black Box Testing**

It is the testing the product with no information of within workings, structure or dialect of the part being tried. Discovery tests, as most different sorts of tests, must be composed from a complete source report, for example, prerequisite or necessities archive, for example, determination or necessities record. It is a trying in which the product under test is dealt with, as a discovery you can't "see" into it. The test gives inputs and reacts to yields without considering how the product functions.

**Unit Testing:**

Unit testing is by and large appeared as a major aspect of a joined code and unit test period of the product lifecycle, in spite of the fact that it is not exceptional for coding and unit testing to be directed as two unmistakable stages.

## Integration Testing

Software integration testing is the incremental combination analysis of two or more joint software components on a single platform to generate failures created by boundary faults. The task of the integration test is to design those components or s/w applications, e.g. modules in a software system or – one step up – software presentations at the company level

– interact without faults.

Test Results: All the test cases stated above passed effectively. No defects met.

## 5.3 SYSTEM ENHANCEMENT

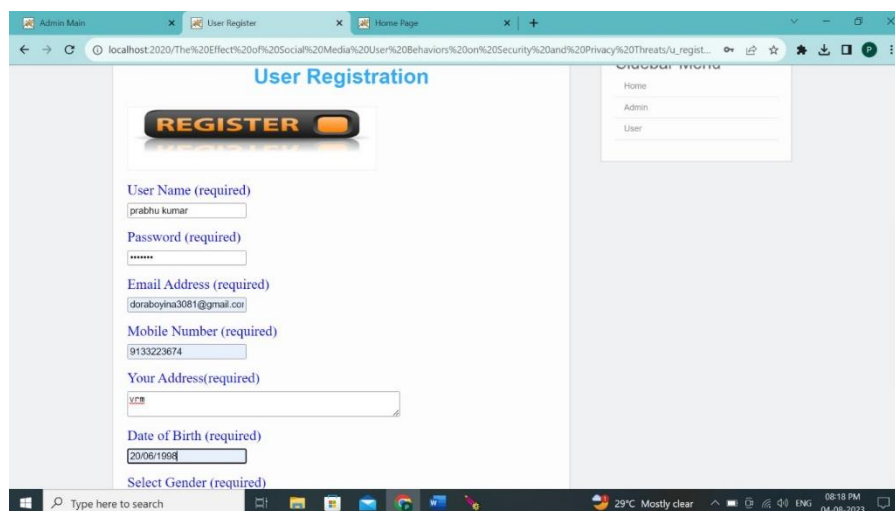
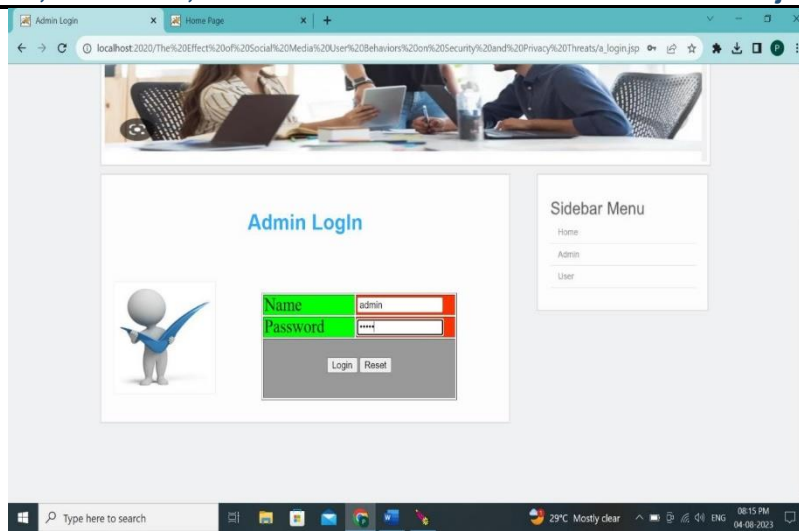
Test case id	Test case description	Actual value	Entered value	Status
1	Register user details in registration page	Fill all the fields while registering user	All the fields are filled	Pass
2	Give user name in text box	User name must be given in alphabets	User name given in alphabets and numeric values	Fail
3	Password to be entered in password box	Password must be given correctly	Password is entered wrongly	Fail
4	Phone number must be entered in phone number box during registration	Phone number must be given in 10 digits	Phone number given in 10 digits	Pass
5	Validating the functionality of Browse button	System should select the corresponding file	selected the file what we expected	Pass

Fig : Testcase Template

## OUT SCREENS:







## VI. CONCLUSION:

This paper focused on analyzing social media user behaviors related to security and privacy, particularly in the context of Internet Fraud, Information Leakage and Behavior, and Cyber Bullying attacks. Surveys were conducted in Turkey and Iraq to understand cultural differences in user behaviors. The results indicated that Iraqi social media users have a higher vulnerability level compared to Turkish users in all types of attacks considered in the study. Cultural differences were found to significantly impact social media usage habits, with variations in the frequency of activities like parental follow-up.

The study highlighted the relationship between user behavior and exposure to security threats, emphasizing that increased awareness of security correlates with improved privacy awareness. The findings suggested that security specialists and software developers should consider user behaviors in designing security and privacy solutions. Additionally, recommendations were made for both governments and the private sector to establish and continually update robust social media communication systems, incorporating enhanced security and privacy measures.

### Future Work:

As a part of future work, the study aims to include more diverse cultures for analysis and comparison. The investigation will extend to explore the influence of user profiles, such as education and age, on user behaviors. This expansion will contribute to a deeper understanding of the results. The paper provides valuable insights into security and privacy in terms of user behaviors, laying the groundwork for further research and enhancements in security measures.

### Recommendations:

**Security Specialists and Coders:** It is crucial for security specialists and software developers to carefully consider the study results. They should adapt new security and privacy solutions based on user behavior and develop treatment strategies after security attacks.

**Governments and Private Sector:** Both governmental bodies and the private sector are encouraged to establish and continually update robust social media communication systems. This should involve enhancing security and privacy rules to create a competent and secure environment for social media users.

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