Chapter 3
Assessing User Authentication and Authorization in Mobile Apps Ensuring Secure Access Control

Siva Raja Sindiramutty
https://orcid.org/0009-0006-0310-8721
Taylor's University, Malaysia

Noor Zaman Jhanjhi
https://orcid.org/0000-0001-8116-4733
Taylor's University, Malaysia

ABSTRACT

Mobile app security hinges on effective user authentication and authorization, yet we constantly see breaches due to weak safeguards. The chapter explores various methods to protect apps, from traditional password systems—often plagued by weak passwords and reuse—to advanced techniques like multi-factor and biometric authentication. But it's not just about getting people in; it's about making sure they access only what they should. Role-based and attribute-based access controls offer different ways to manage permissions, but if misconfigured, they can create loopholes. Throughout, smart tools play a big part in assessing these systems, catching flaws that developers may miss. Case studies drive home the risks, with real-world examples of fitness apps mishandling tokens or banking apps failing to secure biometric data. The chapter doesn't stop at the present; it also looks forward, examining how authentication and authorization will change with innovations like

DOI: 10.4018/979-8-3693-6925-8.ch003

password-less access and decentralized identities.

1. INTRODUCTION

Overview Of the Importance of Authentication and Authorization in Mobile Apps

Authentication and authorization play a huge role in keeping mobile apps secure. Without them, your data is out there for anyone to grab, especially considering how often we rely on apps for banking, communication, and even health monitoring (Nanda et al., 2023; Ananna et al., 2023). Imagine if someone had full access to your health app just because the security wasn't tight. I once downloaded an app that didn't require any serious login — I got a little paranoid and deleted it the same day. That's exactly why developers are always talking about how important it is to verify who's accessing the app, and then decide what they're allowed to do. Both authentication and authorization help to protect users from identity theft and other forms of attacks (Olabanji et al., 2024; Kiyani et al., 2024). Even small gaps in security can have devastating consequences. It's not just about keeping out hackers; it's about making sure legitimate users can trust the apps they use.

In recent times, apps have often targeted because they store so much sensitive data (Kanungo et al., 2024). A strong authentication process ensures that only verified users can log in, while proper authorization makes sure they only have access to what they're supposed to (Aboukadri et al., 2024; Kizza, 2024). This is especially important for apps handling financial transactions or personal health data, where the stakes are particularly high (Upadrista et al., 2023; Linqiang et al., 2024). We've all heard those stories about people losing everything to a simple app hack. No one wants to be that person. Honestly, I'm a lot more cautious now when I download apps.

A brief explanation of authentication (verifying user identity) vs. authorization (granting access to resources).

When I started using online services, I often got confused between authentication and authorization. It felt like they were the same thing, but they weren't. Authentication is all about confirming who you are. Think of it like entering your house — you use your key to prove it's your place. Whether you're logging into a social media account or accessing your work email, your password or fingerprint is your "key" (Alothman et al., 2023; Alferidah & Jhanjhi, 2020). On the other hand, authorization decides what you can do once you're inside. Imagine being at a party — you might

Enhancing Higher Education With a Mobile Application: Leveraging Advanced Technologies for Personalized Learning, Career Guidance, and Accessibility

C. V. Suresh Babu, Anjana Priya S. S., A. Benzenand A. Vignesh (2026). *Cutting-Edge Mobile Applications for Higher Education (pp. 91-136).*
www.irma-international.org/chapter/enhancing-higher-education-with-a-mobile-application/403129