

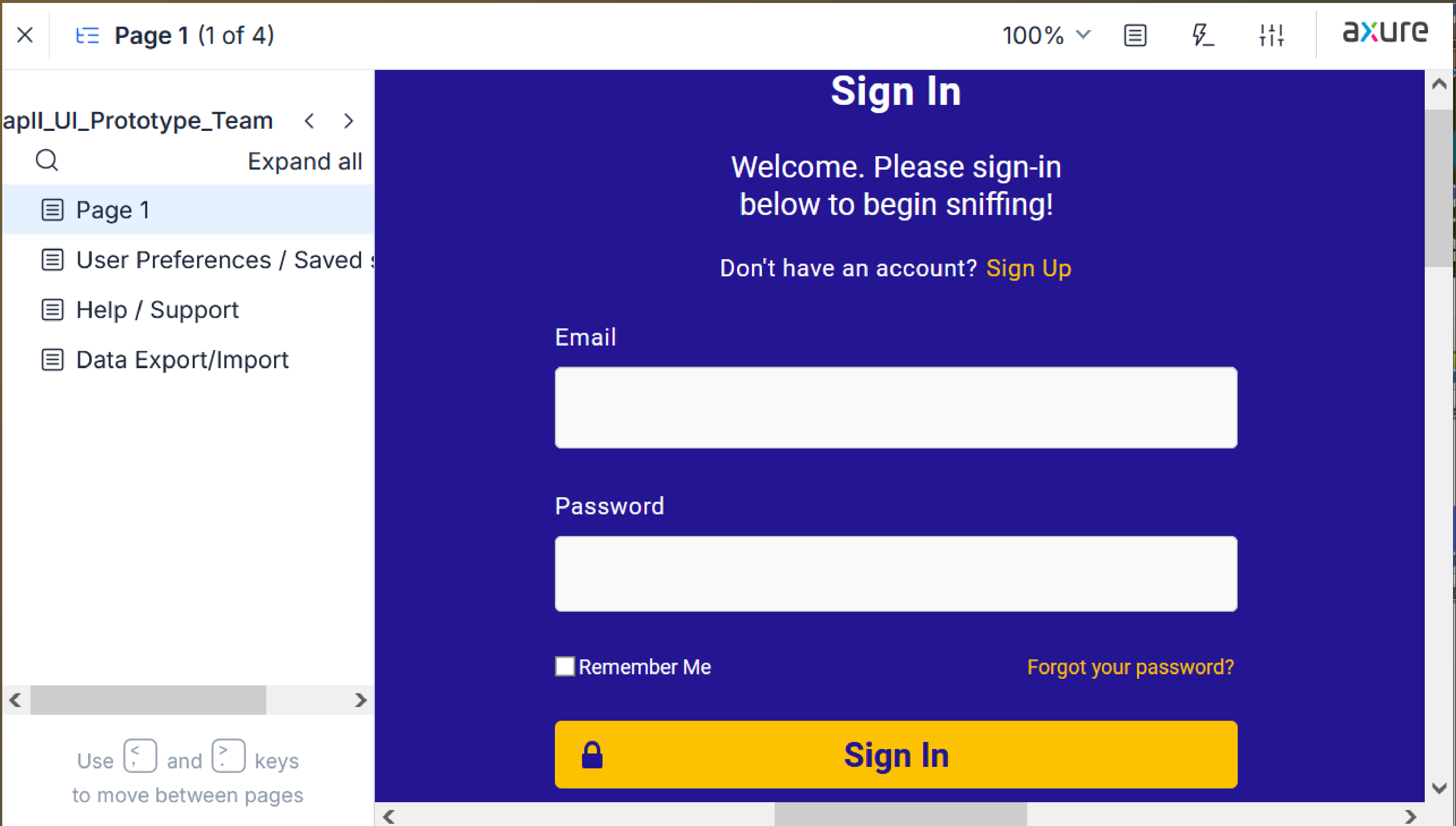
Problem

Security professionals and network admins often depend on tools such as Wireshark to monitor and analyze packet traffic. However, these tools typically lack user-based session management, posing challenges such as:

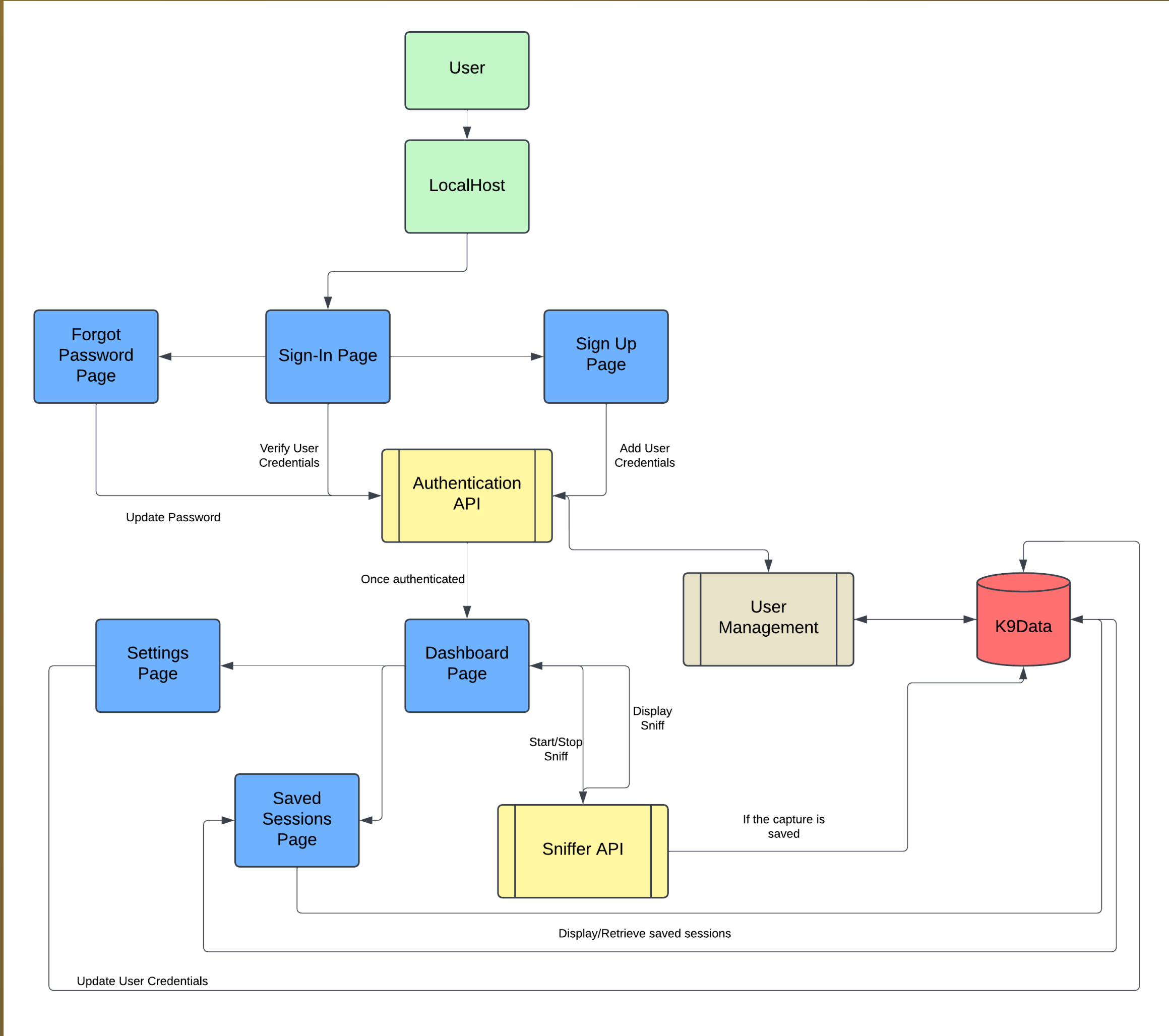
- **Data Loss/Security Risks:** Without some structure or organization regarding session data, sensitive data might be mishandled. This poses a threat to the CIA Triad (Confidentiality, Integrity, and Availability).
- **No User Accountability/Authentication:** When users cannot be authenticated, they cannot have sessions associated with them. This severely limits user access control.
- **Inefficient File Management:** Since capture files must be saved, organized, and tracked manually, the probability for user error is high. In other words, this can result in errors or loss.

Implementation

Before creating the K-9 webpages, we needed to develop a rough draft of how we wanted our website to look. While this is not a requirement listed and changes were still made along the way during the coding process, taking the time to draft the project first proved effective. For this, we used Axure RP, as seen below.



System Design



Summary

Several of the tools security and network admin professionals use, such as Wireshark, prioritize what is important—the confidentiality, integrity, and availability of data, as well as the safety and security of the user. However, they often require a steep learning curve, as their user interfaces often lack the intuitiveness even for intermediate users. K-9 seeks to address these issues, prioritizing functionality and attractiveness as well as security.

Requirements

- JavaScript
- CSS
- React
- Python
- Scapy
- SQL

Current System

Current Tools:

- Wireshark is a popular tool used to monitor and capture packets in real-time.

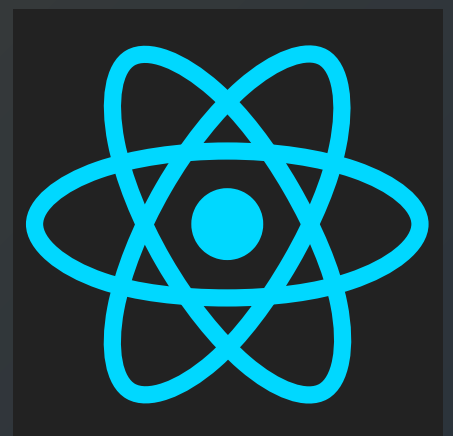
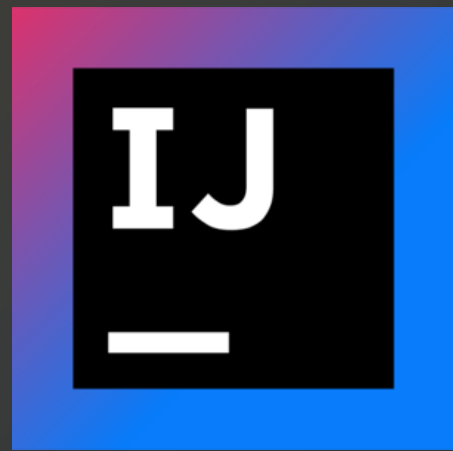
Current Issues:

- **Disorganization:** Manual management of capture files increases the likelihood of inefficiencies and data mishandling.
- **Lack of User-Based Access Control:** Anyone with system access and view or manipulate saved session files, posing a threat to the CIA Triad.
- **Scalability Concerns:** Managing large and ever-growing amounts of files, especially in enterprise or collaborative environments, will quickly become impractical and frustrating.
- **Lacks Intuitive User Interface:** The interface may feel overwhelming for beginners and even intermediate users, making it difficult to navigate simplistic and complex tools alike and making the learning curve steep.

JavaScript/CSS Code Snippets

```
return (  
  <div className="container">  
    <div className="title">  
      <h1>Sign In</h1>  
    </div>  
  
    <div className="welcome">  
      <p> Welcome! Please sign-in below to begin sniffing.</p>  
    </div>  
  
    <div className="signup">  
      <p>Don't have an account? <Link to="/sign-up">Sign Up</Link></p>  
    </div>  
  </div>  
)
```

Tools



```
/* #081E3F for navy blue and #B6862C for gold. */  
/* Centering all content on the page */  
.container {  
  background-color: #081E3F; /* navy blue */  
  display: flex;  
  flex-direction: column;  
  align-items: center; /* Horizontally center the elements */  
  height: 100vh; /* Full height of the viewport */  
}  
  
/* Styling for the title */  
.title h1 {  
  font-family: Roboto;  
  margin-bottom: 0px;  
  font-size: 3rem;  
  color: #FFFFFF;  
}  
  
/* Styling for the welcome message */  
.welcome p {  
  font-family: Roboto;  
  font-size: 1.5rem;  
  margin-bottom: 0px;  
  color: #FFFFFF;  
}  
  
/* Styling for the sign-up message */  
.signup p {  
  font-family: Roboto;  
  font-size: 1.2rem;  
  color: #FFFFFF;  
}
```