Taylor Stapus  
CS 499  
Module 6  
10/09/2025

**6-1 Journal: Emerging Technology and Artifact Update**

Technology continues to evolve at a fast pace, redefining the field of computer science through innovations such as Artificial Intelligence (AI) and Cloud Computing. AI enables machines to simulate human intelligence by processing data, learning, and adapting autonomously. As stated by Your Team in India (2024), AI is now central to automation, real-time analytics, and personalized customer experiences across industries like healthcare and finance, allowing systems to perform complex analysis once limited to humans. Similarly, cloud computing has transformed how data and applications are stored and managed, supporting advanced integrations like remote collaboration tools that became vital in the hybrid work era. Cloud infrastructure allows developers to deploy scalable and cost-effective systems while maintaining accessibility and efficiency. Together, these technologies expand opportunities for innovation in computer science but also introduce new challenges in ethics, data security, and responsible design. In my coursework, I have applied these principles by developing secure full-stack applications that integrate APIs, databases, and authentication systems, and I am now focusing on refining authorization processes to strengthen reliability and data protection.

For this module, I focused on implementing authentication and security for The Wild Oasis admin dashboard. The admin login feature was built using Express, MongoDB, and JSON Web Tokens (JWT) to secure access for authorized users only. On the backend, a ‘User’ schema was added to store encrypted credentials using hashing and salting methods. Two main API routes allow admins to create accounts and securely log in. Successful login generates a JWT, which validates user sessions and protects private routes. On the front end, I developed an Angular Authentication Service that manages login sessions and securely stores tokens. The interface now dynamically changes between “Login” and “Logout,” and access to sensitive pages like Add Trip or Edit Trip is limited to authenticated users. This structure mirrors the professional standards used in secure web applications.

All my updates can be tracked on my GitHub at: <https://github.com/taylorstapus/Wild-Oasis-Fullstacks>

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Status Checkpoints for All Categories**   |  |  |  |  | | --- | --- | --- | --- | | Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases | | Name of Artifact Used | Wild Oasis Website and Fullstacks application | Wild Oasis Website and Fullstacks application | Wild Oasis Website and Fullstacks application | | Status of Initial Enhancement | 90% | 70% | 80% | | Submission Status | Nearly Completed | In Progress | Nearly Completed | | Status of Final Enhancement | 99% | 90% | 99% | | Uploaded to ePortfolio | yes | yes | yes | | Status of Finalized ePortfolio | Almost Complete | Almost Complete | Almost Complete | |