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Learning Summary Report

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Learning Summary Report/Self-Assessment Overview

Learning Summary Report for SIT313 - Full Stack Development: Secure Frontend Applications

Overview

Throughout this unit, I have successfully completed multiple practical tasks that introduced me to full-stack development concepts, focusing on the secure development of frontend applications. The tasks allowed me to build upon my knowledge of frontend technologies, integrating back-end services, and ensuring user data security. My work covered essential areas like email notifications, user registration, post creation, and subscription management, all within the framework of a real-world application, the DEV@Deakin app. I am applying for a distinction grade based on my consistent performance across these tasks.

Task Completion Summary

- **Task 1.1P (Personal Website - Pass Task):**
  I started by creating a personal website, which gave me hands-on experience with frontend development fundamentals. This task helped reinforce key concepts such as HTML, CSS, and responsive design, laying the foundation for more advanced tasks later in the course.

- **Task 2.1P (Welcome Email - Pass Task):**
  This task introduced me to transactional emails. I implemented a feature that automatically sends a welcome email to new subscribers using an email API. This was crucial in understanding asynchronous communication between the frontend and backend systems.

- **Task 4.1P (Home Page - Pass Task):**
  In this task, I developed the home page of the DEV@Deakin app, which acts as a landing page for users. This helped me improve my ability to manage layouts and incorporate dynamic content into a frontend project.

- **Task 5.1C (New Post Page - Credit Task):**
  I created a new post page where users can submit questions. I also integrated Firebase to store user-submitted data, providing a solid introduction to using databases in full-stack applications. This task required careful handling of user input and ensuring data validation for security purposes.

- **Task 7.1P (Login and Registration Page - Pass Task):**
  I developed a login and registration system that stores user data in Firebase. Users could register with their name, email, and password, and the system securely

stored this information. This task also involved working with Firebase authentication and password encryption to enhance security.

- **Task 8.1D (Find Question Page - Distinction Task):**
  In this task, I developed the Find Question page, which displays a list of questions. Users can filter questions by various criteria, add new questions, and view detailed information about each question. This task strengthened my skills in managing dynamic content with React and Firebase and provided insight into advanced filtering and search features.

- **Task 9.1C (Deploy DEV@Deakin App - Credit Task):**
  I successfully deployed the DEV@Deakin application, learning how to host and manage web applications on platforms like Netlify. This task was essential in understanding how to ensure a smooth user experience while handling the deployment of secure, full-stack applications.

- **Task 10.1P (Newsletter - Pass Task):**
  I implemented a newsletter subscription feature, building on the welcome email functionality from Task 2.1P. When a user subscribed to the newsletter, a welcome email was automatically sent. This task helped me further understand asynchronous processes and how to connect front-end components with backend services like email APIs.

- • **Task 9.2D (Subscription - Distinction Task)**:
  I added a pricing plan page to the DEV@Deakin app, implementing both free and premium subscription plans. By using Stripe and the React Stripe.js package, I created a seamless payment system for users choosing the premium plan, which provides additional customization features like messages, banners, themes, and analytics dashboards. When users select a plan, they are redirected to the payment page, ensuring a smooth and user-friendly experience. Additionally, I completed the post feature using react-codemirror2 and react-markdown packages, allowing users to write and format code in the post question section. This task deepened my understanding of serverless functions, front-end and payment integration, and how to effectively enhance user interactions within a full-stack application.

Key Learnings & Reflections

- **Email Notifications:**
  The tasks involving email notifications deepened my understanding of how to implement backend functionality that interacts with frontend services. I learned to use APIs like Mailgun and SendGrid for handling emails.

- **User Authentication & Data Security:**
  Through the login and registration tasks, I became more familiar with Firebase Authentication, data encryption, and ensuring that user data is stored securely.

- **Post Management & Data Handling:**
  Developing the new post and Find Question pages taught me to efficiently handle dynamic data with Firebase. It also improved my ability to implement CRUD (Create, Read, Update, Delete) operations in React.

- **Frontend & Backend Integration:**
  The course emphasized the connection between frontend React applications and backend services. Deploying the app and connecting it to databases and third-party APIs was a valuable experience that will directly apply to real-world projects.

Personal Development

- **Problem-Solving Skills:**
  The tasks required constant problem-solving, especially when integrating various APIs and handling asynchronous operations. I feel much more comfortable tackling full-stack development issues.

- **Technical Proficiency:**
  My technical skills, particularly in React, Firebase, and secure application development, have significantly improved. I can now confidently implement secure, functional, and user-friendly full-stack applications.

Future Applications

The skills I gained in SIT313 will be indispensable as I move forward in my career as a software engineer. Understanding how to secure frontend applications, manage user data, and integrate backend services has given me a solid foundation for building professional, real-world applications in the future.

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