DEAKIN UNIVERSITY

APPLIED SOFTWARE ENGINEERING

ONTRACK SUBMISSION

Software Engineering Ethics

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Outcome	Weight
ULO1	♦♦♦♦♦
ULO2	♦♦♦♦♦
ULO3	♦♦♦♦♦
ULO4	♦♦♦♦♦

Good Ethics = Better Software

March 31, 2025

SIT725 – Applied Software Engineering

Task 4.1P – Software Engineering Ethics

Ethics Principles:

1. Public
   - Ensure the application provides accurate and reliable information about charging stations to serve public interest
   - Protect user privacy while collecting location data
   - Consider how the application promotes environmental sustainability by facilitating EV adoption

2. Client and Employer
   - Ensure all resources used for development are properly approved
   - Maintain confidentiality of business relationships with charging station operators
   - Provide transparent information about system capabilities and limitations

3. Product
   - Understand specifications fully through thorough requirements gathering
   - Ensure comprehensive testing of location accuracy, route planning, and payment systems
   - Maintain high standards for data accuracy about charging stations

4. Judgment
   - Maintain neutrality when displaying charging stations (avoid bias toward certain networks)
   - Base decisions on user needs rather than commercial pressures

5. Profession
   - Contribute to knowledge about EV infrastructure applications in the software community
   - Be accurate about the application's capabilities and limitations
   - Report and fix issues promptly, especially those affecting driver safety or charging access

Software Quality Characteristics:

1. Maintainability
   - Design for easy updates as new charging stations are added to the network
   - Create modular code structure for independent updates to mapping, payment, and user profile features
   - Implement clear documentation for future maintenance by other developers

2. Correctness
   - Ensure precise location data for charging stations
   - Validate charging station availability information in real-time
   - Verify payment processing works correctly and securely
   - Ensure route planning algorithms consider vehicle range correctly

3. Reusability
    - Design mapping components that could be reused in other location-based applications
    - Create payment modules that could be integrated with other services
    - Develop user profile management that could be repurposed for related applications
4. Reliability
    - Minimize app crashes particularly during navigation
    - Implement offline functionality for areas with poor connectivity
    - Ensure critical functions (like finding nearby stations in an emergency) are highly reliable
5. Portability
    - Ensure the application works across multiple platforms (iOS, Android, web browsers)
    - Support various screen sizes and device capabilities
    - Design interfaces that work well on both mobile and in-car display systems
6. Efficiency
    - Optimize battery usage on mobile devices during navigation
    - Minimize data usage for map loading and updates
    - Implement efficient route calculations to minimize energy consumption