# Figure 3.1: Use Case Diagram for Module Interaction

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| Pro Mood Tracker Module Interaction |  
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| | User | |  
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| +--v-----------------------------------+ |  
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| | Authentication Module | |  
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| | | | | | | | | |  
| | User Profile|<-->| Theme Module |<-->| Notifications |<-->| Rewards | |  
| | Module | | | | Module | | Module | |  
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| | Data Management Module | |  
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| | | | | | | | | |  
| | Mood |<------->| Visualization|<---->| Analytics |<->| Reporting| |  
| | Tracking | | Module | | Module | | Module | |  
| | Module | | | | | | | |  
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This use case diagram illustrates the interactions between the nine core modules of the Pro Mood Tracker application. The User interacts with the system primarily through the Authentication Module, which serves as the entry point to the application. Once authenticated, the User interacts with the User Profile Module which manages user preferences and settings.

The central Data Management Module serves as the data persistence layer, connecting with all other modules to provide storage and retrieval services. The core mood tracking functionality is delivered through a cluster of interconnected modules:

1. The Mood Tracking Module captures the user’s mood data
2. The Visualization Module transforms this data into meaningful visual representations
3. The Analytics Module processes the data to identify patterns and generate insights
4. The Reporting Module prepares data for export and sharing

Supporting modules enhance the user experience: the Theme Module manages visual customization, the Notifications Module provides reminders and alerts, and the Rewards Module implements gamification elements to encourage engagement.

The bidirectional arrows indicate two-way communication and dependency between modules, with data flowing throughout the system to provide a cohesive user experience. This modular architecture promotes separation of concerns while ensuring effective integration between components.