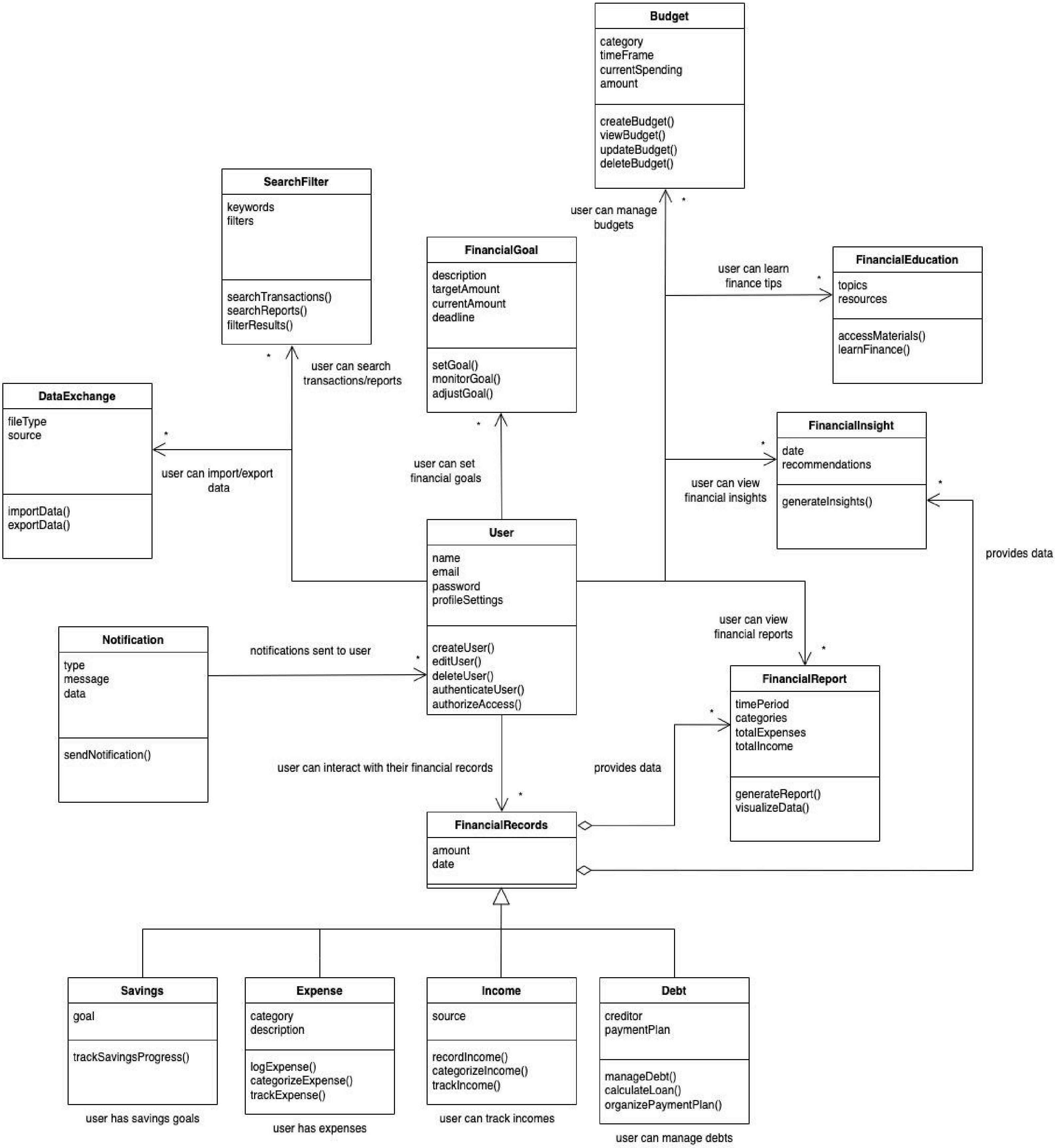
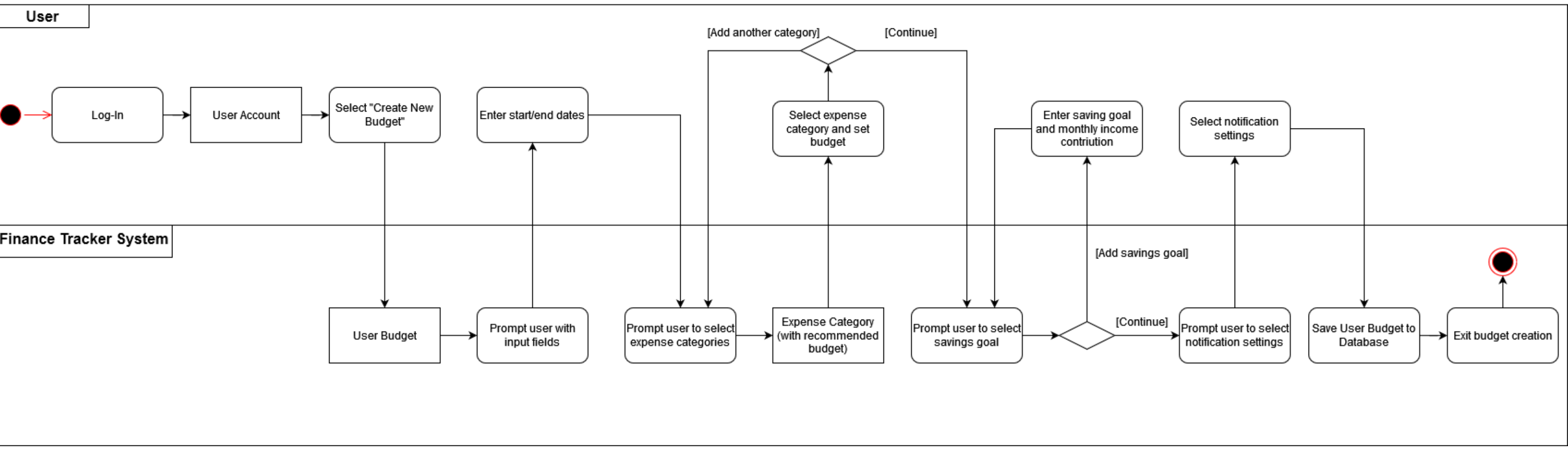
Erasto Omolo, Mitch Radvansky, Hannah Harhai, Mark Bosco

## 1. Analysis Object Model - Hannah

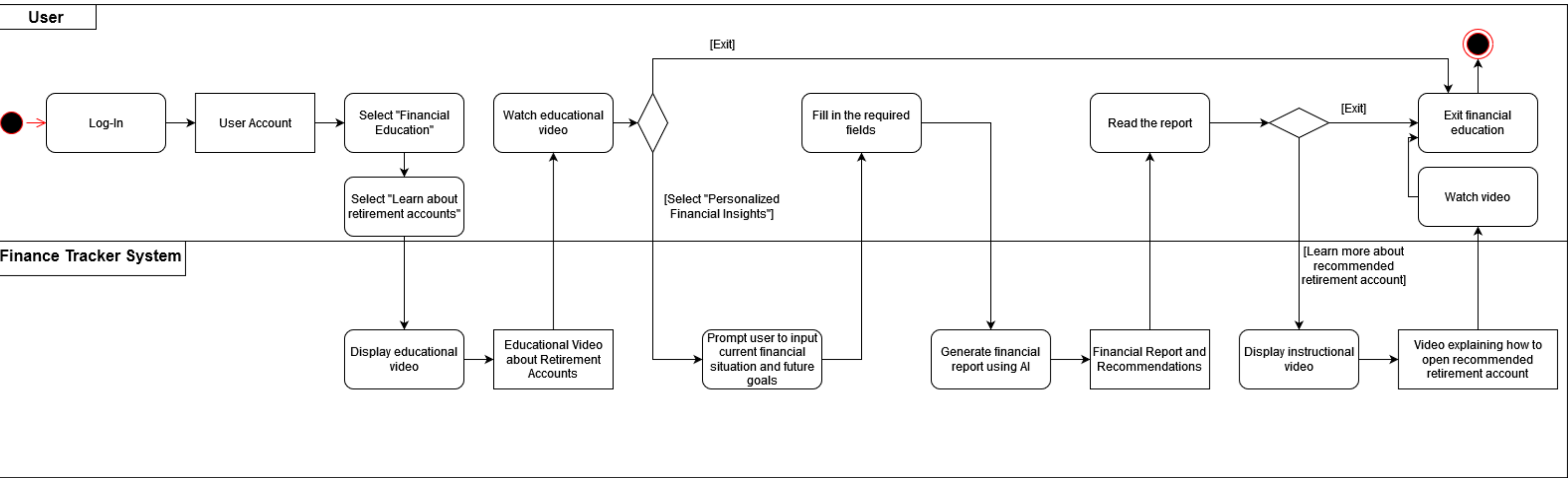


## 2. Dynamic Models - Mark

Creating a Budget


User
Finance Tracker System
Log-In
User Account
Select "Create New Budget"
Enter start/end dates
[Add another category]
[Continue]
Select expense category and set budget
Enter saving goal and monthly income contriution
Select notification settings
[Add savings goal]
User Budget
Prompt user with input fields
Prompt user to select expense categories
Expense Category (with recommended budget)
Prompt user to select savings goal
[Continue]
Prompt user to select notification settings
Save User Budget to Database
Exit budget creation

Learning about a Retirement Account


User
Finance Tracker System
[Exit]
Log-In
User Account
Select "Financial Education"
Watch educational video
Fill in the required fields
Read the report
[Exit]
Exit financial education
Select "Learn about retirement accounts"
[Select "Personalized Financial Insights"]
Watch video
[Learn more about recommended retirement account]
Display educational video
Educational Video about Retirement Accounts
Prompt user to input current financial situation and future goals
Generate financial report using AI
Financial Report and Recommendations
Display instructional video
Video explaining how to open recommended retirement account

## 3. Design Goals - Erasto

**DG1:** Availability - Implement the application across different platforms, ensuring users can access their financial data anytime, anywhere.
*Potential trade-offs:*
- Increasing resources to develop and maintain cross-compatibility for varying devices and operating systems may be necessary.

**DG2:** Security - Design a secure system that protects users' financial information from unauthorized access or breaches.
*Potential trade-offs:*
- Increasing budget allocation for implementing robust encryption techniques and security protocols.

**DG3:** Reliability - Guarantee the app's stability, ensuring it remains operational without frequent downtime.
*Potential trade-offs:*
- Investing in reliable hosting services or infrastructure to minimize server downtime.

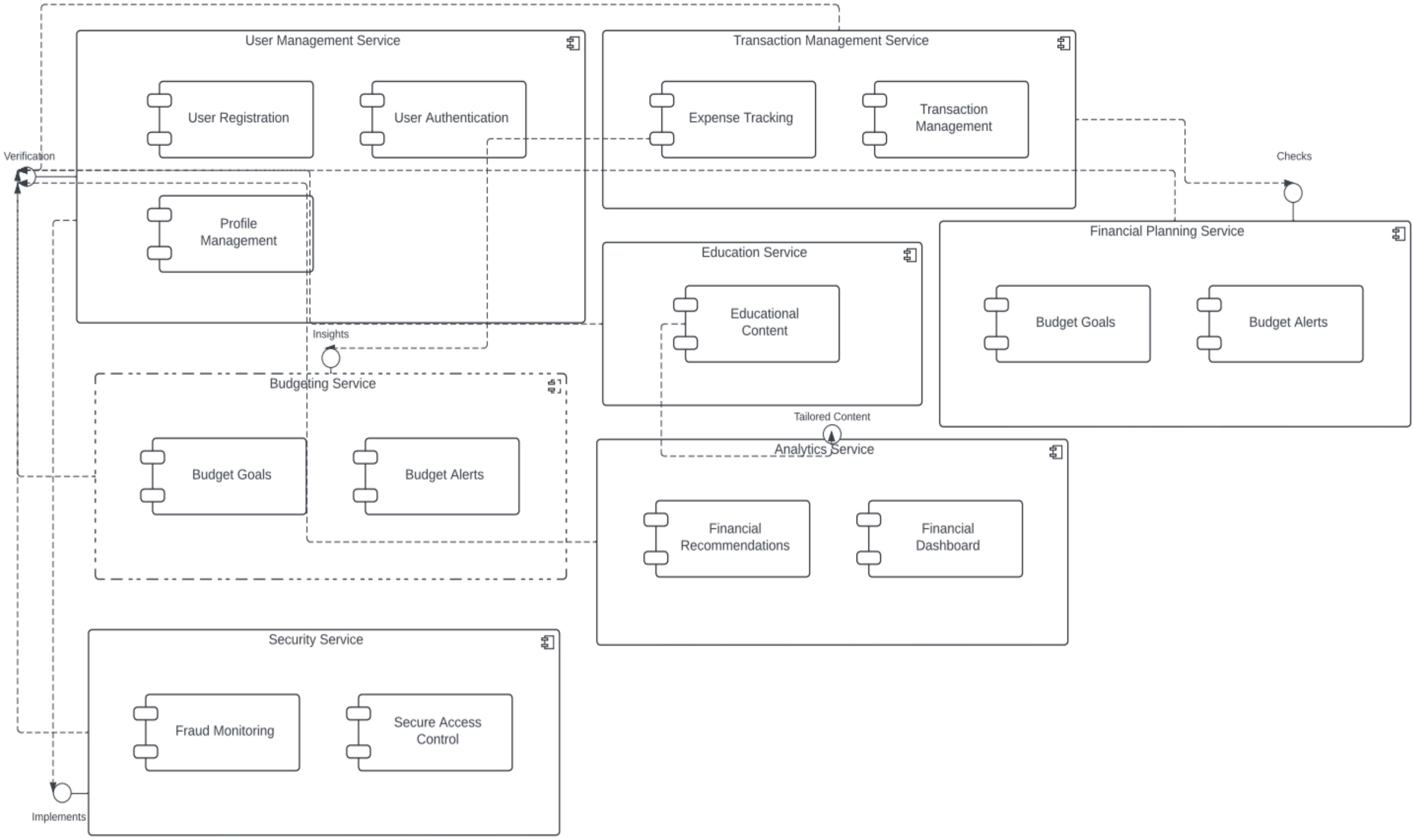
**DG4**: Usability - Create an intuitive interface that allows users to navigate the app effortlessly and understand their financial data easily.
*Potential trade-offs:*
- Conducting user testing and feedback sessions to refine usability could require time and resources.

**DG5:** Scalability - Ensure the app can accommodate an increasing number of users and data without performance degradation.
*Potential trade-offs:*
- Investing in scalable architecture and cloud infrastructure to handle growing user bases.

## 4. Subsystem Decomposition - Mitch

### Architectural Style : Microservices

- **Scalability**: Microservices architecture allows for different components of the finance tracking app to scale independently based on demand, especially important for varied user activities like transaction tracking and financial planning.
- **Flexibility in Development**: Enables parallel development and deployment of features by different teams, which is crucial for a comprehensive app that includes budgeting, expense tracking, financial planning, and educational components.
- **Resilience**: Fault isolation improves overall system resilience. A failure in one service, such as expense tracking, does not necessarily bring down the entire system, ensuring continuous operation of critical functions like security and user management.
- **Technological Diversity**: Different microservices can be developed using the most appropriate technologies for their specific requirements, such as different database systems for transactional data and analytical processing.


User Management Service
User Registration
User Authentication
Profile Management
Transaction Management Service
Expense Tracking
Transaction Management
Verification
Checks
Financial Planning Service
Budget Goals
Budget Alerts
Education Service
Educational Content
Insights
Budgeting Service
Budget Goals
Budget Alerts
Tailored Content
Analytics Service
Financial Recommendations
Financial Dashboard
Security Service
Fraud Monitoring
Secure Access Control
Implements