BEYOND THE SPREADSHEET: DIVING INTO THE WORLD OF ASSOCIATION MANAGEMENT SYSTEMS (AMS)

Muhammad Umair*, Muhammad Umar*

*Undergraduate Student, Department of Software Engineering, Mehran University of Engineering & Technology, Jamshoro, Pakistan.

Abstract- This document introduces the Association Management System (AMS) concept and outlines its purpose and scope in streamlining and automating association operations. The AMS encompasses member and event management, financial tracking, communication, and reporting functionalities. While it offers comprehensive solutions, certain functionalities like website development, e-commerce, social media management, accounting, and project management are excluded. The AMS aims to enhance efficiency, reduce costs, and improve member satisfaction through self-service capabilities and targeted communication. The system caters to various user roles, including administrators, members, and event planners. The document elaborates on functional and non-functional requirements, system interfaces, and additional considerations such as security, reliability, performance, and maintainability. It emphasizes the importance of user research.

Index Terms- Association Management System (AMS), Member Management, User Interface (UI), Integration.

I. INTRODUCTION

An Association Management System (AMS) aims to streamline and automate the operations of an association. It provides a central platform to manage members, events, finances, communication, and other core functionalities. An AMS helps associations improve efficiency, reduce costs, and better serve their members.

An AMS typically focuses on the core functionalities required to manage an association and its members. Here's a breakdown of what an AMS generally includes and excludes:

Included functionalities:

o Member Management:

• Member registration and profile management

• Dues collection and payment processing

• Communication (email, announcements)

• Directory of members (configurable privacy settings)

o Event Management:

• Online event registration and ticketing

• Event scheduling and logistics management

• Communication with attendees

o Content Management:

• Create and publish news articles, announcements, and other content for members.

• Manage website content (may require integration with a separate CMS)

o Financial Management:

• Track transactions related to membership fees, events, and other activities.

• Generate reports on income, expenses, and budgets.

o Reporting:

• Generate reports on member activity, event attendance, financial data, and other relevant metrics.

Excluded functionalities:

o Website development and hosting: An AMS may provide basic content management functionalities, but full-fledged website development and hosting is typically a separate service.

o E-commerce platform: While some AMS may offer built-in e-commerce functionalities for selling merchandise or publications, a dedicated e-commerce platform may be required for more complex needs.

o Social media management: Social media management tools are specialized platforms not typically included in an AMS.

o Accounting software: An AMS may integrate with accounting software but won't replace the need for dedicated accounting software.

o Project management tools: Project management tools are used for managing tasks and workflows, which may not be the core focus of an AMS.

Abbreviations:

AMS: Association Management System (defined earlier in the document).

UI: User Interface.

II. General Description

The Association Management System (AMS) is a web-based software application designed to streamline and centralize the operations of an association. It provides a comprehensive suite of tools to manage members, events, finances, communication, and other critical functions.

The AMS aims to:

o Increase efficiency: Automate manual tasks associated with member management, event planning, and financial tracking.

o Reduce costs: Eliminate the need for multiple software programs and simplify administrative processes.

o Enhance member experience: Provide members with a self-service portal to manage their profiles, register for events, and access resources.

o Improve communication: Facilitate targeted communication with members through email, announcements, and online communities.

o Empower decision-making: Generate reports and gain insights into member activity, event performance, and financial health.

The AMS caters to various user roles within an association, including:

o Administrators: Manage the overall system configuration, user permissions, and security settings.

o Members: Access their profiles, renew memberships, register for events, and connect with other members.

o Event planners: Create and manage events, process registrations, and communicate with attendees.

Product Perspective:

The Association Management System (AMS) is designed to serve the needs of various stakeholders within an association. Here's an overview of the product perspective for each key user group:

Association Administrators:

o Responsibilities: Manage the overall system configuration, user permissions, security, and backups. Oversee system health and integrations with other platforms.

o Needs: User-friendly interface for administration, role-based access control, robust security features, comprehensive system logs, reporting tools for usage analysis, and data import/export capabilities.

Association Members:

o Responsibilities: Manage their profiles, renew memberships, register for events, access resources, and connect with other members (optional).

o Needs: Self-service portal for profile management, secure online payment processing, event registration and ticketing system, access to event information and materials, communication tools (email, forums), and searchable member directory with privacy controls.

Event Planners:

o Responsibilities: Create and manage events (schedules, speakers, registration), process registrations, communicate with attendees, track attendance, and generate reports, manage event budgets and expenses.

o Needs: Event creation tools with customization options, online registration and ticketing system, speaker management tools, communication tools for event updates, event analytics, reporting, and integration with accounting systems (optional).

Additional Considerations:

o External Users: The AMS may also need to cater to external users who interact with the association but aren't members. This could include event attendees, non-member vendors, or the public. Their needs will be determined by the specific functionalities they require (e.g., event registration and content access).

o Scalability: The AMS should be scalable to accommodate the growth of the association and its membership base.

o Integrations: The ability to integrate with existing software used by the association (e.g., accounting, email marketing) is crucial for streamlining workflows and data exchange.

III. Specific Requirements

Functional Requirements:

Enhancing the User Stories:

o Break down functionalities further: Consider outlining specific user stories for each function. A user story describes a functionality from a user's perspective and includes elements.

o Define acceptance criteria: Specify the conditions a function must meet to succeed. This ensures clarity and avoids misunderstandings.

Additional Considerations:

o Security Features: Include user authentication, authorization, and data security functionalities. This could involve:

- Secure login protocols (e.g., two-factor authentication)
- Role-based access control (RBAC) to restrict access to sensitive data.
- Data encryption for storing member information and

financial data.

- Audit trails to track user activity.

o Integrations: If the AMS will integrate with other systems, outline the functionalities related to data import/export and API access

Non-Functional Requirements:

o Define specific response time targets: Instead of a generic "promptly," establish concrete time limits (e.g., search results returned in under 3 seconds, page loads in under 5 seconds).

o Consider load testing: Outline plans for testing the AMS to ensure it can handle peak traffic periods (e.g., event registrations).

o Data encryption standards: Specify the standards (e.g., AES-256) used to protect data at rest and in transit.

o User authentication protocols: Define the specific protocols (e.g., password complexity requirements, two-factor authentication options) used for user login.

o Regular security audits: Include a requirement for regular security audits to identify and address potential vulnerabilities.

o User interface design principles: Mention specific design principles (e.g., consistency, simplicity, clear labeling) for the user interface.

o Accessibility compliance standards: Specify the web accessibility standards (e.g., WCAG 2.1 Level AA) the AMS should comply with.

o Define acceptable downtime thresholds: Establish a good percentage of uptime (e.g., 99.5%) to minimize service disruptions.

o Disaster recovery recovery time objective (RTO): Specify the maximum tolerable downtime (e.g., 4 hours) in case of a disaster before full recovery is expected.

- 2.5 Maintainability

o Version control system: Specify using a version control system (e.g., Git) to track code changes and facilitate rollbacks if needed.

o Automated testing: Consider including a requirement for automated testing to ensure new features and updates don't introduce regressions.

IV. System Interfaces

User Interfaces:

o User Interface Design Principles:

- User Research: Emphasize the importance of conducting user research to understand the needs and expectations of different user groups. This will inform the UI design decisions.
- User Interface (UI) responsiveness: While you mentioned responsive design, consider elaborating on the importance of the UI adapting to various screen sizes and devices (desktops, tablets, smartphones) to ensure optimal usability across platforms.

o Usability Testing:

- Briefly mention the importance of conducting usability testing with target users to identify any issues with the UI and ensure it is intuitive and user-friendly.

o UI Mockups and Wireframes:

- If you have mock-ups or wireframes that illustrate the UI concepts for each user role, mention them here and include them in an appendix for reference. Mockups and wireframes are visual representations of the UI that can help stakeholders understand the system's layout, functionality, and overall look and feel.

o Member Interface

- Dashboard: Provide a personalized dashboard displaying relevant information like upcoming events, membership renewal status, and communication updates. The design should prioritize clarity and ease of information access.
- Profile Management: A dedicated section for members to edit their contact information, preferences, and access membership details. Ensure a user-friendly interface that facilitates intuitive profile updates.
- Event Registration: A streamlined process for members to register for events, view schedules, and access event materials. Focus on a transparent and efficient registration flow to minimize steps and frustrations.
- Mobile Compatibility: The member interface should be accessible and usable on mobile devices for on-the-go access. Responsiveness is crucial for a seamless mobile experience.

Hardware Interfaces:

The Association Management System (AMS) is a web-based application, so it typically doesn't require specific hardware beyond what users already possess to access the internet. However, here are some general hardware considerations:

Client Devices:

The AMS should be accessible on various devices with standard web browsers, including desktops, laptops, tablets, and smartphones.

Minimum hardware specifications (e.g., processor speed, RAM) may be defined if certain functionalities require significant computing power (e.g., complex reporting).

Internet Connectivity:

Users will need a reliable internet connection to access the AMS. The specific bandwidth requirements will depend on the functionalities (e.g., downloading large files, video conferencing).

Software Interfaces:

The Association Management System (AMS) will interact with various external software applications to streamline workflows and data exchange. Here's an overview of the software interfaces to be considered:

- Integrations

The AMS will integrate with the following software

applications (replace with specific applications relevant to your association):

Accounting Software: The AMS may integrate with accounting software (e.g., QuickBooks, Xero) to automate tasks like:

- Syncing member data (e.g., for invoicing)
- Recording membership fees and event payments
- Tracking event expenses
- Generating financial reports (integrated with AMS data)
- Email Marketing Platform: The AMS may integrate with an email marketing platform (e.g., Mailchimp, Constant Contact) to:
- Manage email subscriber lists (segmented by member groups)
- Design and send targeted email campaigns (e.g., event announcements, newsletters)
- Track email open rates and click-through rates.

API Integration

The AMS will utilize APIs (Application Programming Interfaces) to facilitate communication with external systems. APIs allow controlled data exchange between the AMS and other software applications. Here's a breakdown of the API functionalities:

- Data Exchange Protocols: The AMS will leverage industry-standard API protocols (e.g., RESTful APIs) to ensure secure and reliable data exchange.
- Data Model: A well-defined data model will specify the format and structure of data exchanged between the AMS and integrated software. This ensures compatibility and minimizes data errors.
- Authentication & Authorization: Secure authentication and authorization mechanisms will be implemented to control access to API functionalities and protect sensitive data.

V. Other Considerations

Security:

o User Authentication & Authorization: The AMS should implement secure login protocols (e.g., strong passwords, two-factor authentication) to verify user identities. Enforce role-based access control (RBAC) to restrict access to sensitive data based on user roles.

o Data Security: Member information, financial data, and other sensitive information should be encrypted at rest and in transit. Regularly update security software and conduct vulnerability assessments.

o Data Backups & Disaster Recovery: Implement a robust data backup and disaster recovery plan to ensure data integrity and minimize downtime in case of system failures.

Reliability:

o System Stability: The AMS should operate consistently and reliably with minimal downtime or errors.

o Error Handling & Recovery: The AMS should gracefully handle errors and provide informative messages to users. Implement mechanisms for data recovery in case of errors.

Performance:

o Response Time: The AMS should respond to user actions promptly, with minimal delays (e.g., page load times, search results). Define acceptable response time thresholds for different functionalities.

o Scalability: The AMS should be able to handle increasing user loads and data volumes as the association grows. This includes supporting a growing number of members, events, and transactions.

o Uptime: The AMS should usually be available to users. Define an acceptable uptime target (e.g., 99.5%).

Maintainability:

o Modular Design: The AMS should be built with a modular architecture to facilitate future updates, bug fixes, and new feature development.

o Code Documentation: Clear and concise code documentation should be maintained to simplify maintenance and future modifications.

o Configurability: The AMS should be configurable to allow for easy customization to meet the association's specific needs.

Figures:

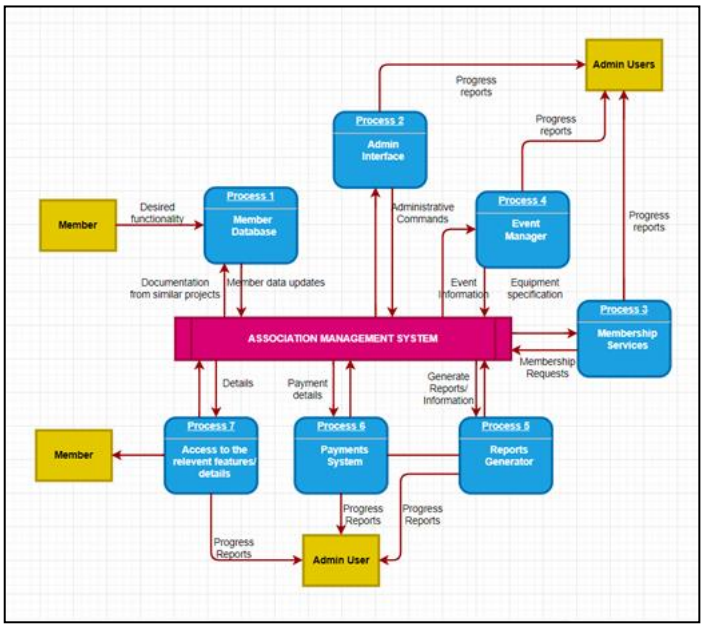

Fig 1. Data Flow Diagram

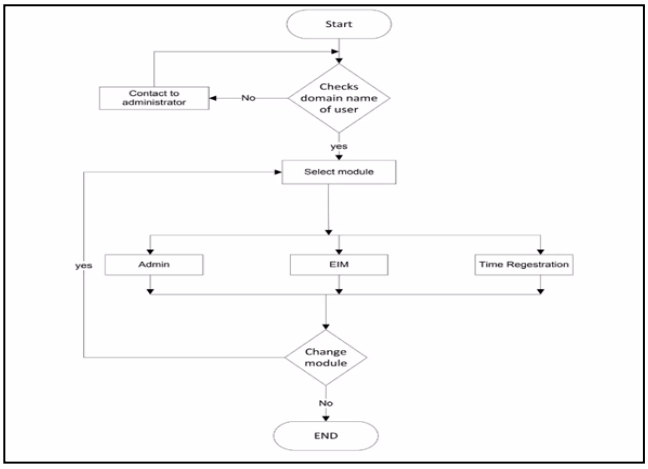

Fig 2. Flow Chart Diagram

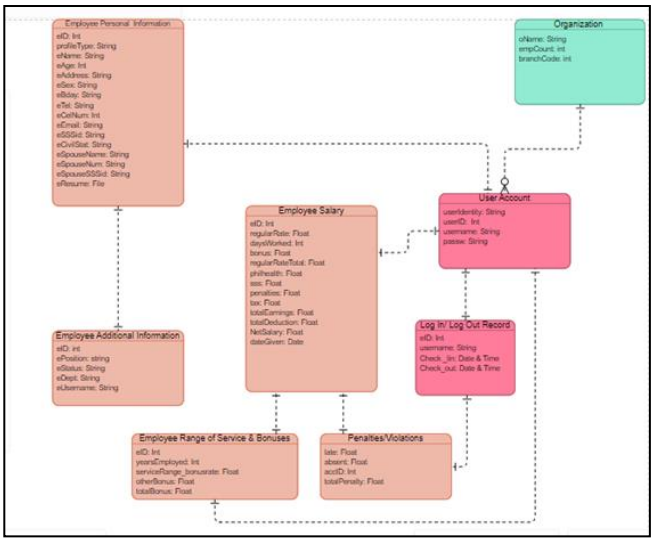

Fig 3. Class Diagram

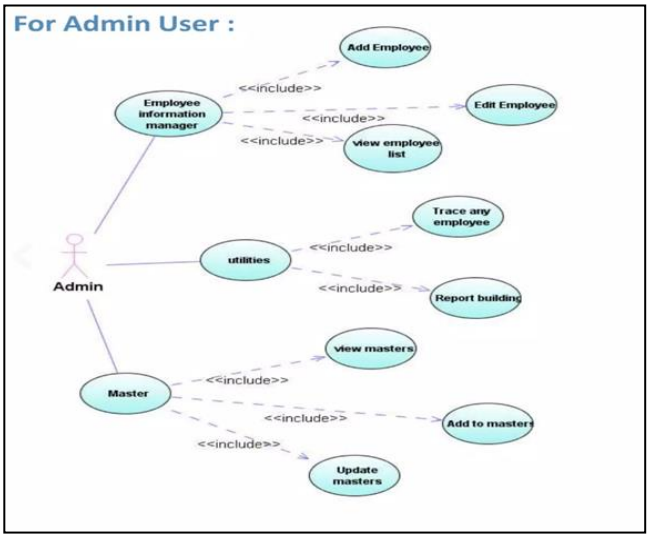

Fig 4. Use Case Diagram

VI. Conclusion

Association Management Systems (AMS) offer a comprehensive suite of tools to streamline and automate core association operations. By automating tasks like member management, event planning, communication, and financial tracking, AMS can significantly improve efficiency and reduce administrative costs. Additionally, self-service capabilities and targeted communication features can enhance member satisfaction and engagement. However, it's important to remember that AMS solutions may not encompass all functionalities, requiring integration with other systems for website development, e-commerce, social media management, or advanced accounting/project management needs. To ensure successful implementation, careful consideration should be given to user research, functional and non-functional requirements, system interfaces, and security, reliability, performance, and maintainability aspects.

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Authors

First Author – Muhammad Umair, (Undergraduate Student) Software Engineering Department, Mehran University of Engineering and Technology Jamshoro, Pakistan.
Second Author – Muhammad Umar, (Undergraduate Student) Software Engineering Department, Mehran University of Engineering and Technology Jamshoro, Pakistan.

Correspondence Author – Muhammad Umair