IST607 – Topics 2025/2026

Proposed Topics

- National surveillance and security (Grp2 – Veluyen, Nancy, Neweai)

- Automated Hysacam Management System

- Gym Management System (Grp1- Tikun, Manga, Bih)

- **Library Management System (Case study)**

- Food Processing System

- Disaster Management System

- Bus station Management System (Grp3 – Elonge, Tabot, Oben)

Library Management System (Case study)

- What are the requirements.
  - Books management (buy, classification, borrowing)
  - HR management (users (enrollment in the library, borrowing, returning), staff(Buying resources,))
- Objectives
  - Efficiently organize and manage relevant or UpToDate resources
    - Cataloging and archiving of resources
    - ……
  - Enhance users access to resources
  - Efficiently keeping track of user access, borrow and return resources of the library
  - Tracking of staff activities on borrow and return of resources

Library Management System (Case study)

- Requirement gathering
  - Categories of resources
  - Categories of human resources (staff + users)
  - Processes and procedures (Existing, to improve and automate)
  - Policies and regulations
  - Scalability of the library
- Feasibility study
  - Technical feasibility
    - Yes, we have laptops, internet connection, opensource applications, existing library management systems
  - Economic feasibility
    - Cost hard+soft+HR (engineer, analyst, designers, managers, finance+training) = Yes, it is feasible.
  - Operational feasibility
    - Good users of ITS (Software users)

Library Management System (Case study)

- Requirements specifications
  - Technical
    - Laptops, Network, Servers, barcode scanner, Camera, Software Systems, Software applications
  - Functional requirements
    - Users' registration (user ID, Fee, Address, Phone number)
    - Resources registration
    - Resource acquisition
    - Authentication
    - Resource borrowing
    - Resource returning
    - System administration

Library Management System (Case study)

- Requirements specifications
  - Non-Functional requirements
    - Security (Local, doors, … etc)
    - Staff recruitment
    - Documentations: analysis, design, tutorial or training doc, admin doc, financial doc, …..
- Analysis (Structured)
  - User registration
    - Creation of user account (roles are different-employee vs user)
    - New user authentication
    - ~~Transaction authentication (Use to borrow a book, and the process to follow the book until it is returned)~~
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Library Management System (Case study)

- Analyses
  - Resources registration
    - Creation of resource code
    - Registration of the resource in the system
  - Resource acquisition
    - Identification of the resource (resource, publisher, bookshop, author, e-books)
    - Creation of the list of resources to acquire
    - Validation (budget vs needs/priorities, ….)
    - Command passing (deadlines, follow the process)
    - Order the resource
    - Reception of the resource (It closes the process of acquisition).

Library Management System (Case study)

- Analysis
  - Authentication
    - User authentication (if the user have access to the system, role)
    - Employee authentication (to be able to work in the system and record users transactions, role)
    - Admin authentication
  - Resource borrowing
    - Request to borrow (resource, the user id)
    - Validation of request (availabilities VS possibilities)
    - Borrow (date (in-out), recording in the system)
    - Recall from the system (If we agree there is a deadline for return)
    - Recall to a user (if resource were not available at the requested date)

Library Management System (Case study)

- Analysis
  - Resource returning
    - User identification and resource identification
    - Updating the system (validate the fact that the resource is returned0
    - Close the borrowing transaction)
  - System Administration
    - Validate user's registration (at the creation or modification)
    - Maintenance of the system (Updates of the system, …)
    - Backups of the system
    - Monitoring the system (availability, performance, security, …)

Library Management System (Case study)

- Analysis