The Three Wise Men Corp has hired ISW to develop a system for managing the process of delivering toys to children. The system has a Web interface and every user must register himself/herself and login in order to use it. The three wise men require parents to notify any misbehavior by stating the id of the child who misbehaved, the description of the incident, the severity level and the date it occurred. Moreover, if the misbehavior is targeted against another child, then the parents must also provide the information of the victim (name, age and address). Whenever a misbehavior is registered, the wise man on duty that day is notified. Every day, the system automatically selects who the wise man on duty is and notifies him about it.

Parents may also use the system to register good behaviors by providing the id of the child, the description, the date and the goodness level. In this case the wise man on duty is also notified. When registering a misbehavior or a good behavior, if the child does not exist, then the parent records the child information. Parents may also record children information at any other moment using the system. There is a special type of children registration for children with disabilities who have additional information for each disability such as the type of disability and its severity. This information is taken into account by the three wise men when elaborating the final list of toys to deliver.

Children may also use the system to add a toy request by providing the toy description and the priority level. Any toy request may also be cancelled and modified (to change its priority level). If in the process of requesting a toy the requested toy is out of stock, then the system informs the child about it and suggests and alternative similar toy.

Any wise man may use the system to order toys. To do so the system has a functionality to search toys by name, type of toy and age range. Once the search is run, the system shows the list of toys and the number of units in the stock for each toy. Then, the wise man may select a toy and the system shows the stores where the toy is available. Then the wise man selects a store and the number of units requested. Once the order is recorded, the store is notified. Later, once the toys are received any wise man may use the system to record the new toys received to update the stock.

Any wise man may use the system to elaborate the final list of toys to deliver for every child. To do so, the system provides a list of pending children whose list of toys is not finalized, then a child in the list is selected. Then, the system displays the list of behaviors, the list of disabilities of the children and the list of requested toys. Based on this information, the wise man selects the toys to deliver and saves the final list of toys to be delivered.

On January 4th if there are any pending children without their list of toys finalized, the system automatically generates a warning message that is received by the wise man on duty so that he knows there are pending children.

The system also generates on January 5th a toy delivery plan which is a sequence of homes to visit. Once the delivery process is started any wise man may use the system at any time to know which toys must be delivered at a given home address. Once a delivery is made, any wise man uses the system to record the delivery and the system then informs him about the delayed minutes. At any moment during the delivery process, once a delay is over 10 minutes the three wise men are notified by the system to let them know they are late.

Question (5 points): Obtain the Use Cases Model (Context and Structured diagrams) for the proposed system.

Unregistered User

Three Wise Men Management System

Clock

Registered User

Wise Man

Parent

Child

Store

Unregistered User

Register

Registered User

LogIn

LogOut

Use Case Diagram

Actors: Clock, Wise Man, Parent

Top diagram

- **Clock** (actor)
- **Wise Man** (actor)

Use Cases:
- Select Wise Man on Duty
- Generate Pending Children Warning
- Generate Delivery Plan
- Generate 10 min delay Alarm

Bottom diagram

- **Parent** (actor)
- **Wise Man** (actor)

Use Cases:
- Register Handicaped Child
- Register Child
- Register Behavior
- Register MisBehavior
- Register GoodBehavior
- Add Victim

Relationships:
- Register Handicaped Child → Register Child
- Register Child --- *extends* ---> Register Behavior
- Add Victim --- *extends* ---> Register MisBehavior
- Register MisBehavior → Register Behavior
- Register GoodBehavior → Register Behavior

Child — Request Toy, Cancel Toy, Change Toy Priority

- Request Toy *extends* Out of Stock Toy
- Request Toy *includes* Search Toy
- Cancel Toy *includes* Search Toy
- Change Toy Priority *includes* Search Toy

Wise Man — List Toys Deliver to Address, Search Toys, Search Pending Children, Update Toy Stock, Register Toys Delivery

- List Toys Deliver to Address *includes* Search Toys
- Order Toy *extends* Search Toys
- Order Toy *includes* Search Stores
- Finalize List Toys *extends* Search Pending Children

Store — Order Toy