Presentation

On

Use Case Diagram & It's Application

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Use case diagrams

In UML, use case diagrams model the behavior of a system and help to capture the *requirements* of the system.

Use case diagrams describe the high-level functions and scope of a system.

These diagrams also identify the interactions between the system and its actors.

The use cases and actors in use case diagrams describe what the system does and how the actors use it, but not how the system operates internally.

Use case diagrams are helpful in the following situations:

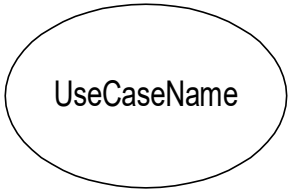
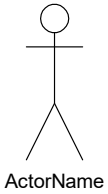
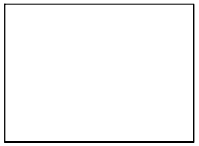
❖Before starting a project, you can create use case diagrams to model a business so that all participants in the project share an understanding of the workers, customers, and activities of the business.

❖While gathering requirements, you can create use case diagrams to capture the system requirements and to present to others what the system should do.

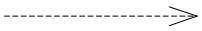
❖During the analysis and design phases, you can use the use cases and actors from your use case diagrams to identify the classes that the system requires.

❖During the testing phase, you can use use case diagrams to identify tests for the system.

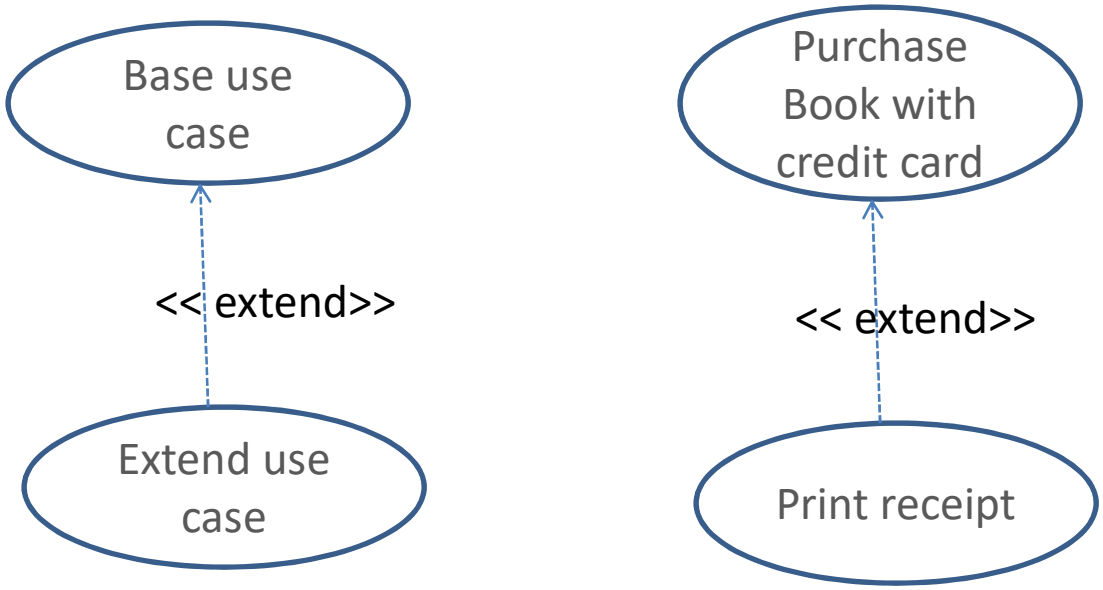
Use Case Modeling: Core Elements

Construct	Description	Syntax
use case	use cases tell us what the system should do? Use cases capture the functional requirements of a system. Use cases describe the interactions between various actors and the system.	
actor	someone and something have a goal in using the system, can be a person, system or an organization. A coherent set of roles that users of use cases play when interacting with these use cases.	
system boundary	Represents the boundary between the physical system and the actors who interact with the physical system.	

Use Case Modeling: Core Relationships

Construct	Description	Syntax
association	The participation of an actor in a use case. i.e., instance of an actor and instances of a use case communicate with each other.	
extend	A relationship from an *extension* use case to a *base* use case, specifying how the behavior for the extension use case can be inserted into the behavior defined for the base use case.	<<extend>> 
generalization	A taxonomic relationship between a more general use case and a more specific use case.	

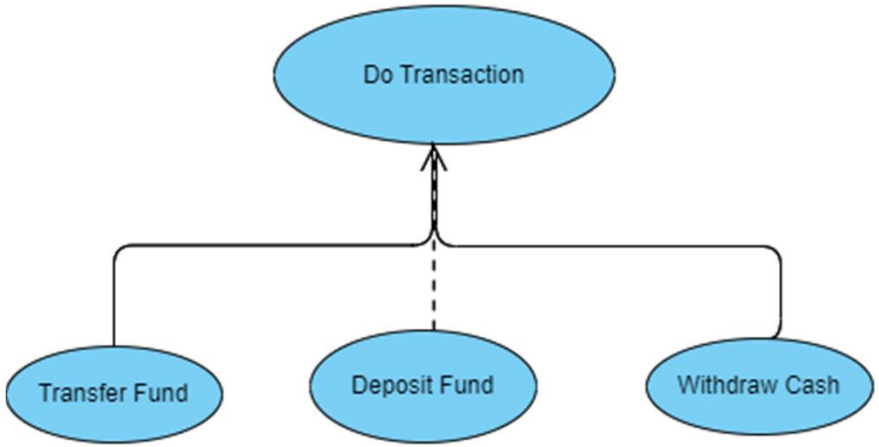
Extend dependency Example

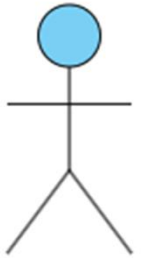


Another kind of relationship between use case is called extend dependency, and extend dependency indicates optional relationship between use case. Extended use case expand the behavior of base use case, u have an option to extend the behavior of base use case any some point.

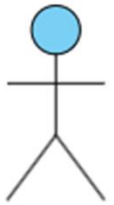
Extend use case depend on the base use case, also, the extending use case expand behavior of the base use case by addition new sequence of steps to the steps that are already exist to the base use case.

Generalization Examples



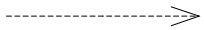


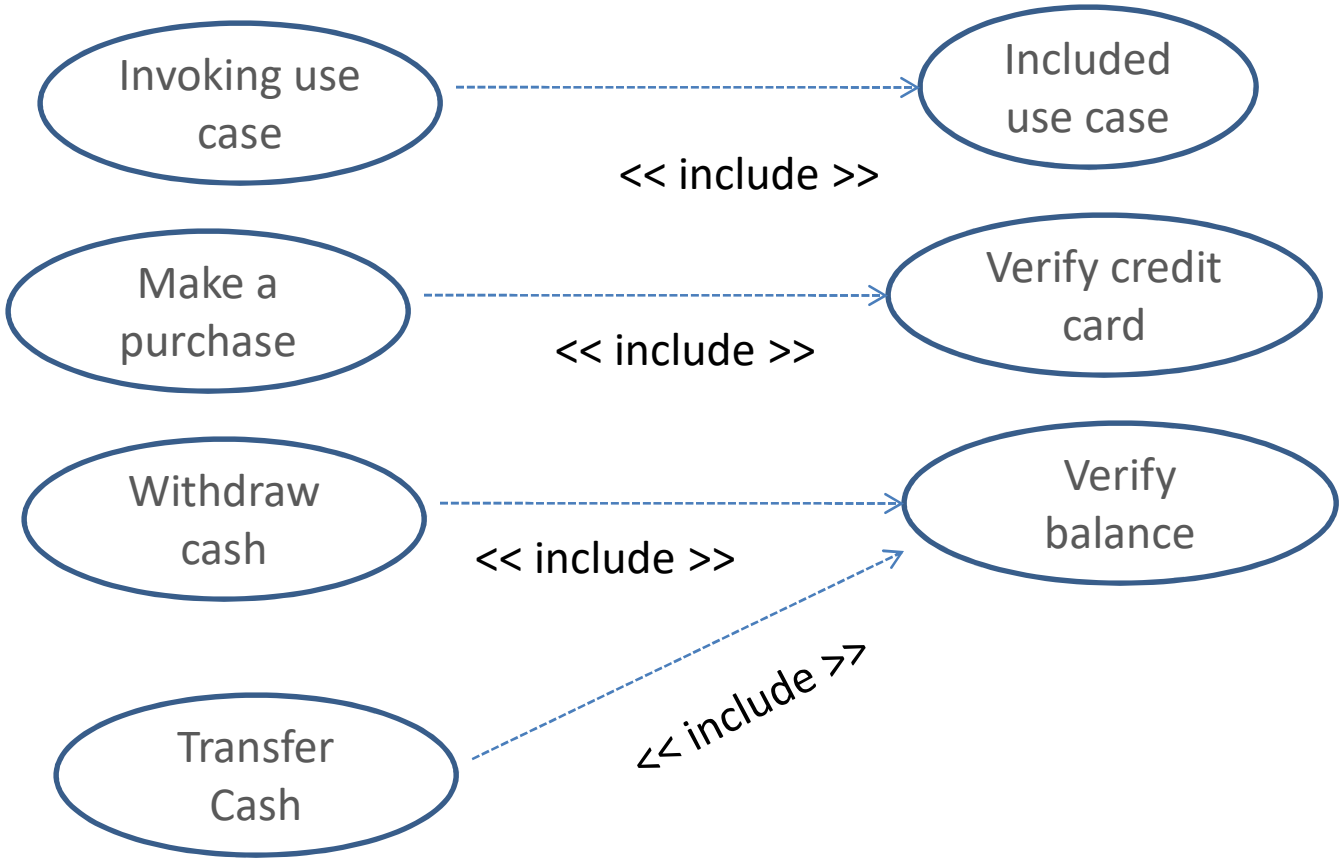
Customer



Corporate Customer

Use Case Modeling: Core Relationships (cont'd)

Construct	Description	Syntax
include	In UML modeling, an include relationship is a relationship in which one use case (the base use case) includes the functionality of another use case (the inclusion use case). The include relationship supports the reuse of functionality in a use case model.	<<include>> 



include dependency

Shows necessary relationship between two use cases, the invoking use case depend on included use case in order to complete.
include use case usually drawn on the right side of the invoking use case just a convention.

Example 1: Automatic Teller Machine (ATM)

Actor: customer (primary actor) left side of diagram

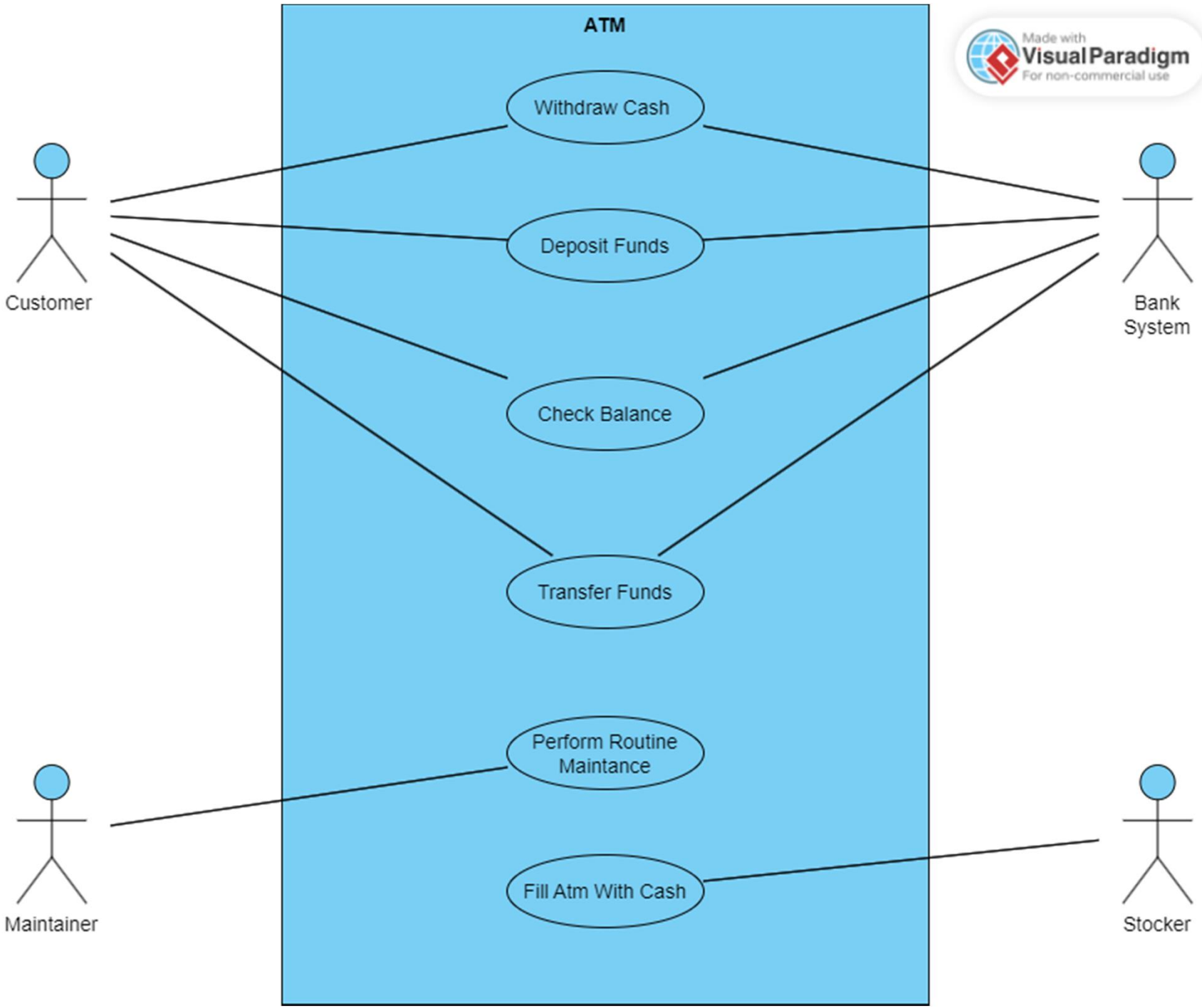
goals (use cases) : withdrawn cash, deposit funds, check balance, transfer funds

who else interact .. some one perform maintenance

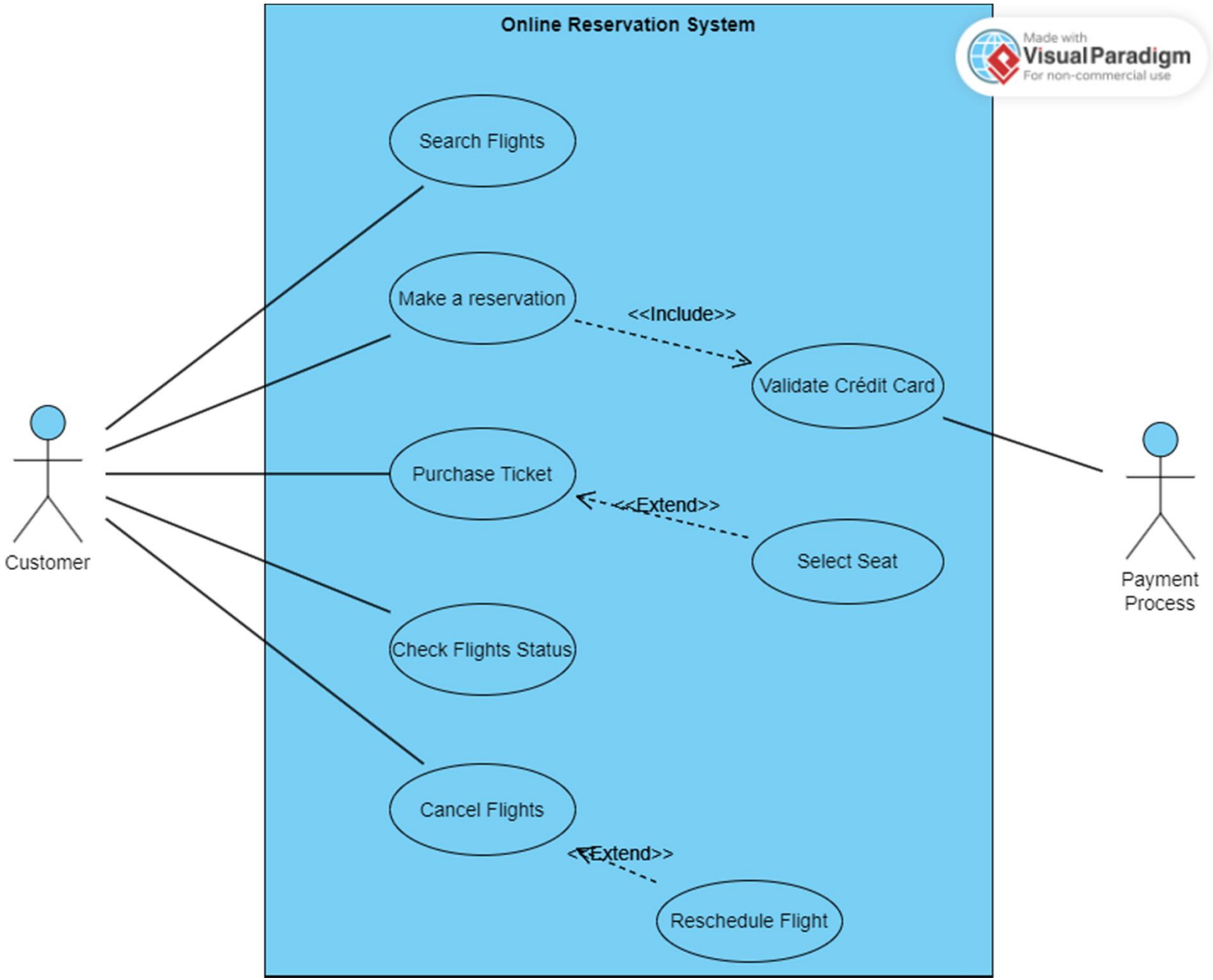
actor -- Maintenance (initiator)
goal (use cases) -- perform routine maintenance

Actor -- Stocker (initiator)
goal (use cases) : Fill ATM with cash

Secondary actor (mostly right side of the diagram)
Bank <<System>> to answer the goals ...


ATM
Withdraw Cash
Deposit Funds
Check Balance
Transfer Funds
Perform Routine Maintance
Fill Atm With Cash
Customer
Bank System
Maintainer
Stocker
Made with VisualParadigm
For non-commercial use

UML Use Case Diagram Example

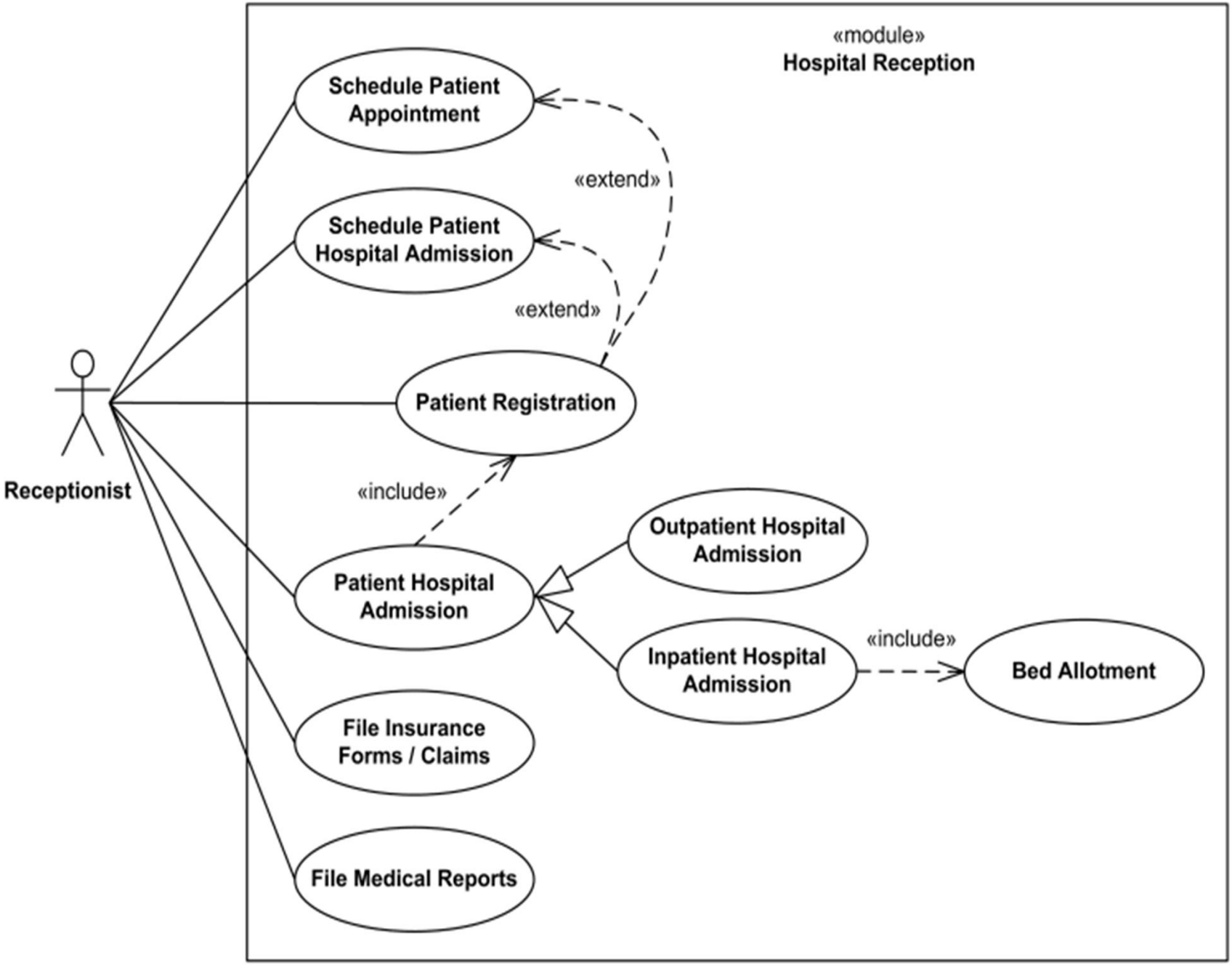


UML Use Case Diagram Example

Hospital Management System is a large system including several subsystems or modules providing variety of functions. UML use case diagram example below shows actor and use cases for a hospital's reception.

Purpose: Describe major services (functionality) provided by a hospital's reception.

Hospital Reception subsystem or module supports some of the many job duties of hospital receptionist. Receptionist schedules patient's appointments and admission to the hospital, collects information from patient upon patient's arrival and/or by phone. For the patient that will stay in the hospital ("inpatient") she or he should have a bed allotted in a ward. Receptionists might also receive patient's payments, record them in a database and provide receipts, file insurance claims and medical reports.



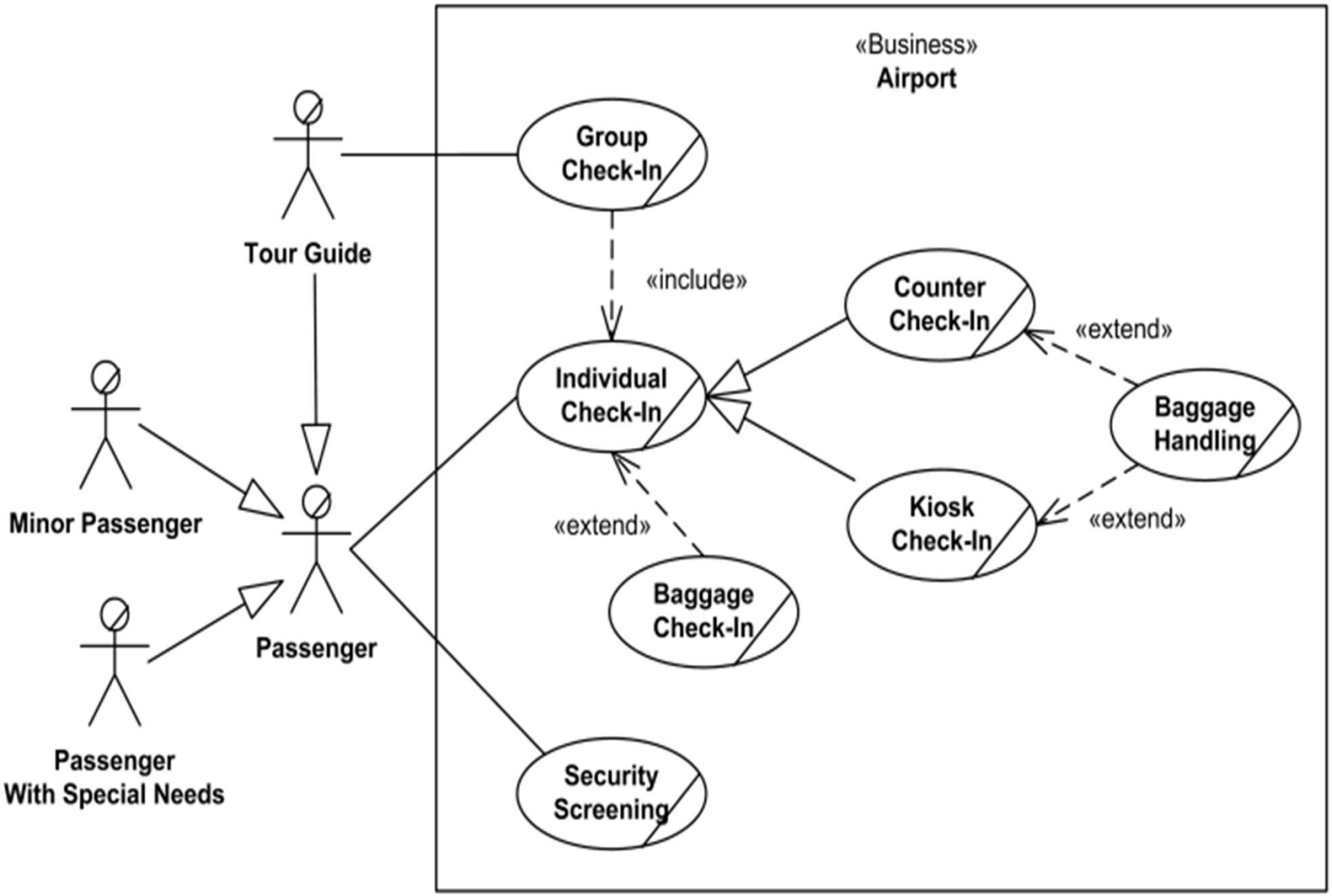
An example of use case diagram for Hospital Reception.

UML Use Case Diagram Example — Airport Check-In and Security Screening

Actors are Passenger, Tour Guide, Minor (Child), Passenger with Special Needs (e.g. with disabilities), all playing external roles in relation to airport business.

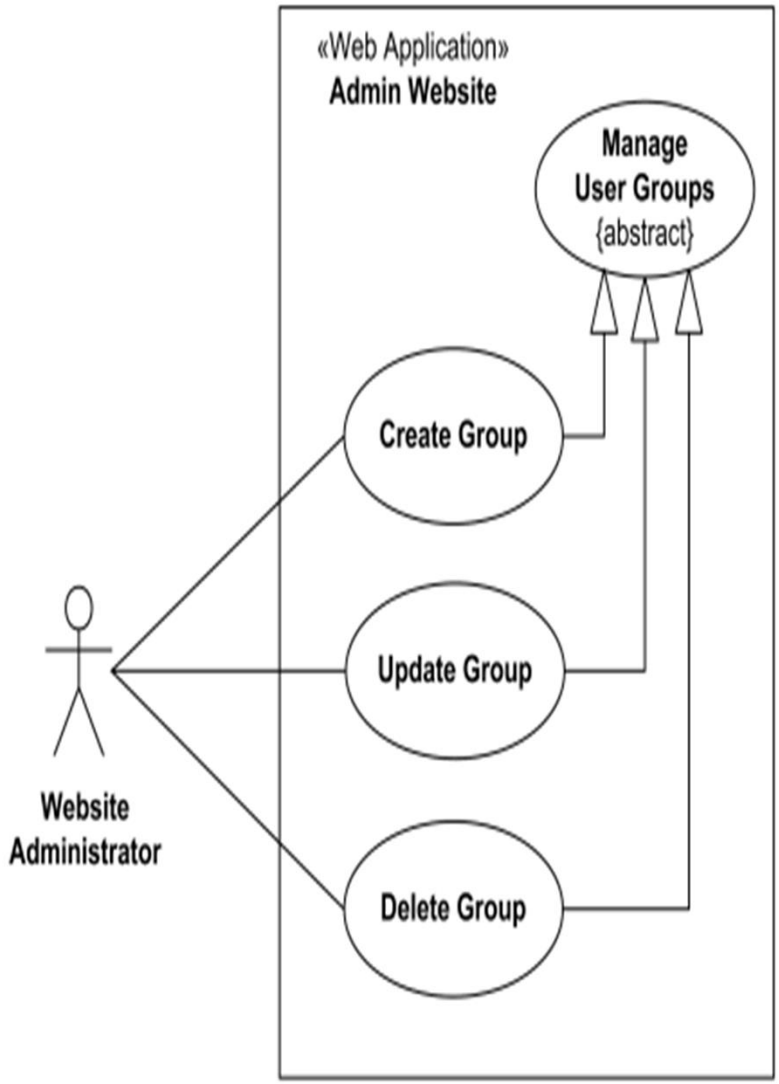
use cases are Individual Check-In, Group Check-In (for groups of tourists), Security Screening, etc. - representing business functions or processes taking place in airport and serving the needs of passengers.

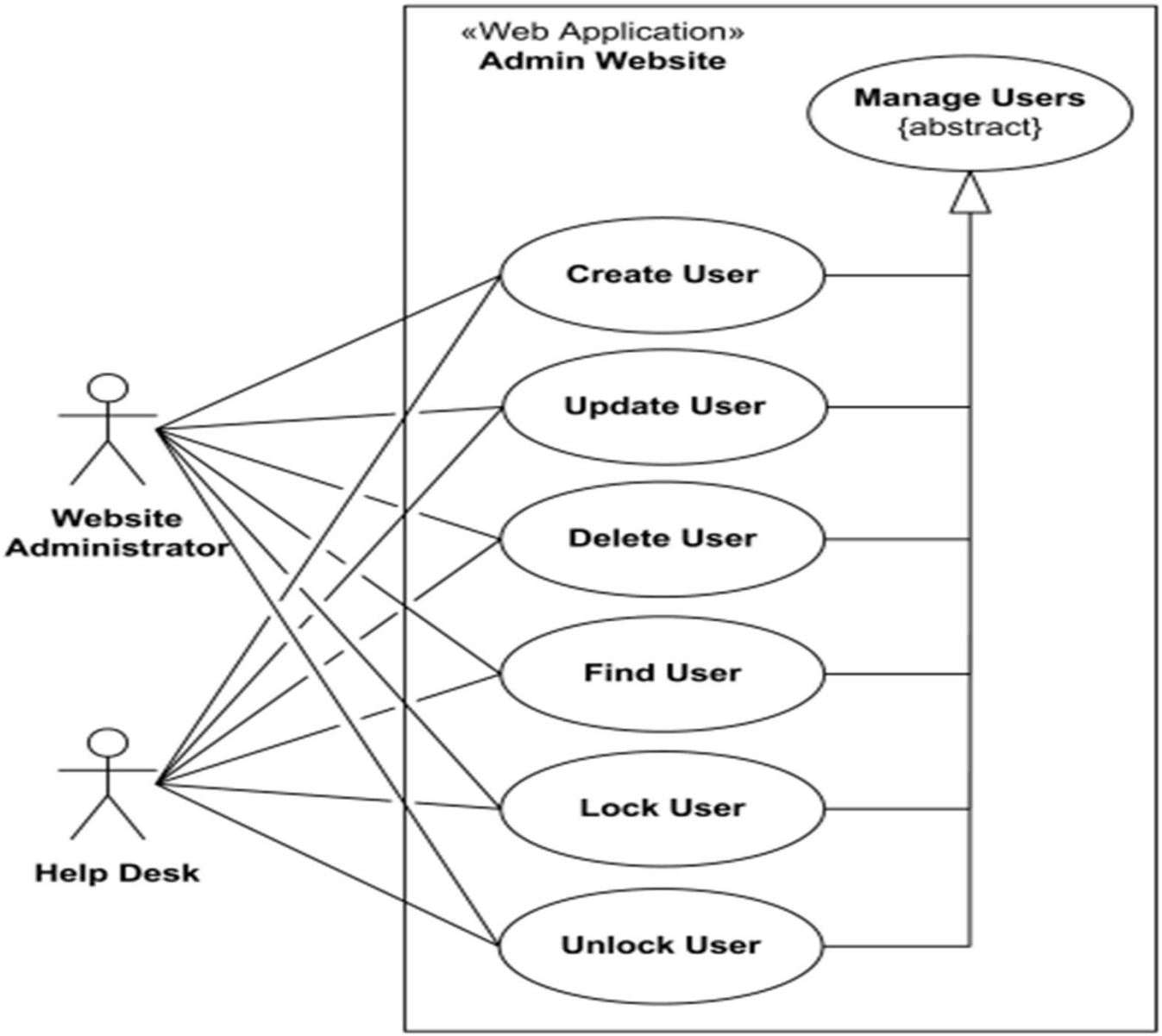
use cases Baggage Check-in and Baggage Handling extend Check-In use cases, because passenger might have no luggage, so baggage check-in and handling are optional.



An example of use case diagram for airport check-in and security screening

Manage User Groups abstract use case is specialized by **Create Group**, **Update Group**, and **Delete Group** use cases. The idea is that website administrator could create different user groups, for example, having different privileges or options, and later some user groups could be modified or even deleted.





User management use case diagram for the administration website.