E-Commerce Applications Development

Software requirements

Software requirements

- Requirements are descriptions of services that a software system must provide and the constraints under which it must operate.
- Requirements can range from high level abstract statements of services to detailed descriptions of individual module.
- There are different types of requirements that should be written down before development of any software/ product.
  - Functional requirements.
  - Non-functional requirements.
  - User-requirements.
  - System requirements.

Software requirements

Functional requirements:

Statements of services the system should provide, how the system should react to particular inputs and how the system should behave in particular situations.

These requirements describe what the software does.

Describe functionality or system services.

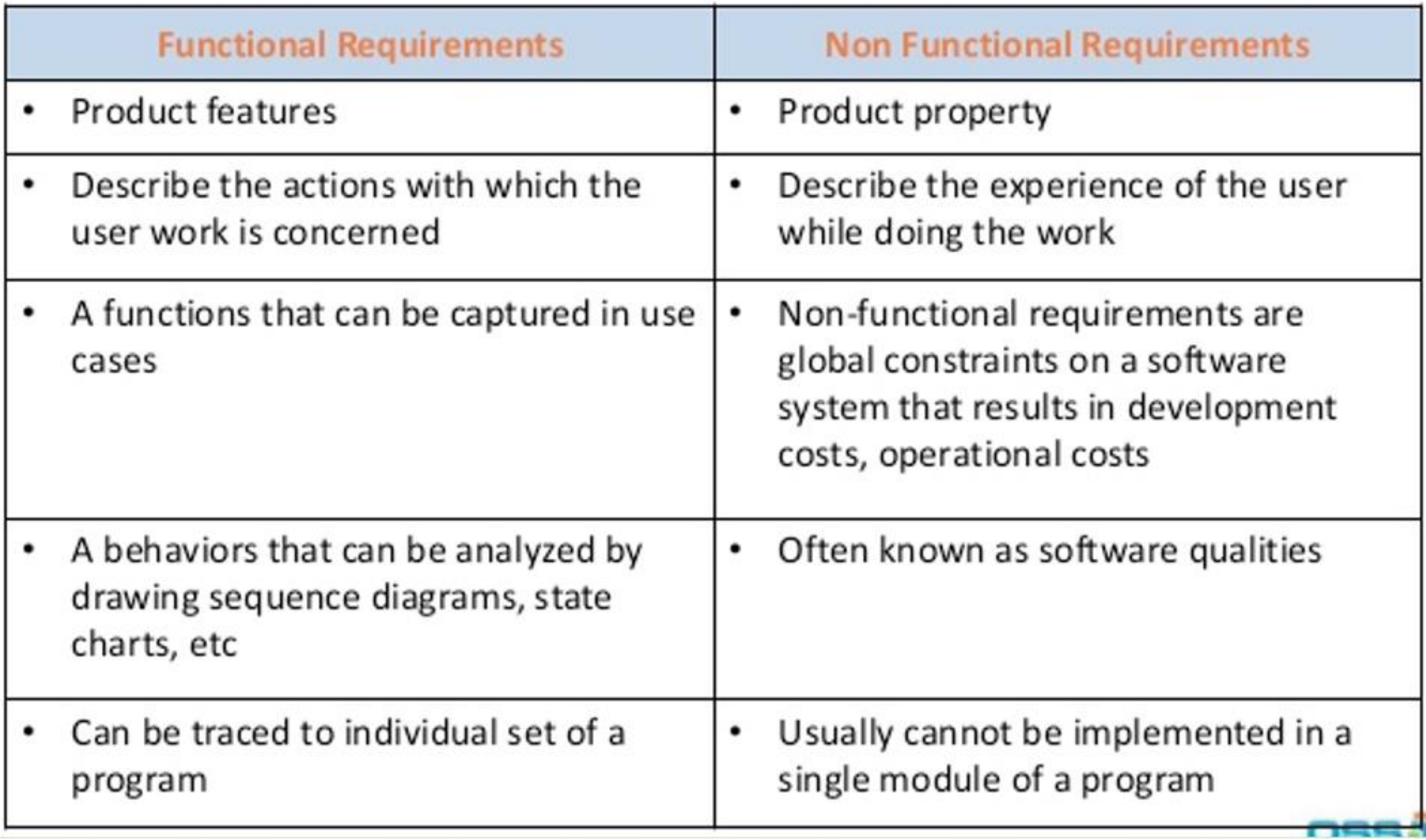
Software requirements

Non- Functional requirements:

- Constraints on the services or functions offered by the system such as timing constraints, constraints on the development process, standards, etc

- Often apply to the system as a whole rather than individual features or services.

Software requirements



Functional Requirements	Non Functional Requirements
• Product features	• Product property
• Describe the actions with which the user work is concerned	• Describe the experience of the user while doing the work
• A functions that can be captured in use cases	• Non-functional requirements are global constraints on a software system that results in development costs, operational costs
• A behaviors that can be analyzed by drawing sequence diagrams, state charts, etc	• Often known as software qualities
• Can be traced to individual set of a program	• Usually cannot be implemented in a single module of a program

Software requirements

User requirements:

- User requirements are written for customers in simple text explaining about the system in easy manner.
- These are statements in natural language and along with some diagrams , of what services the system is expected to provide and constraints under it must operate.
- These are generally abstract.

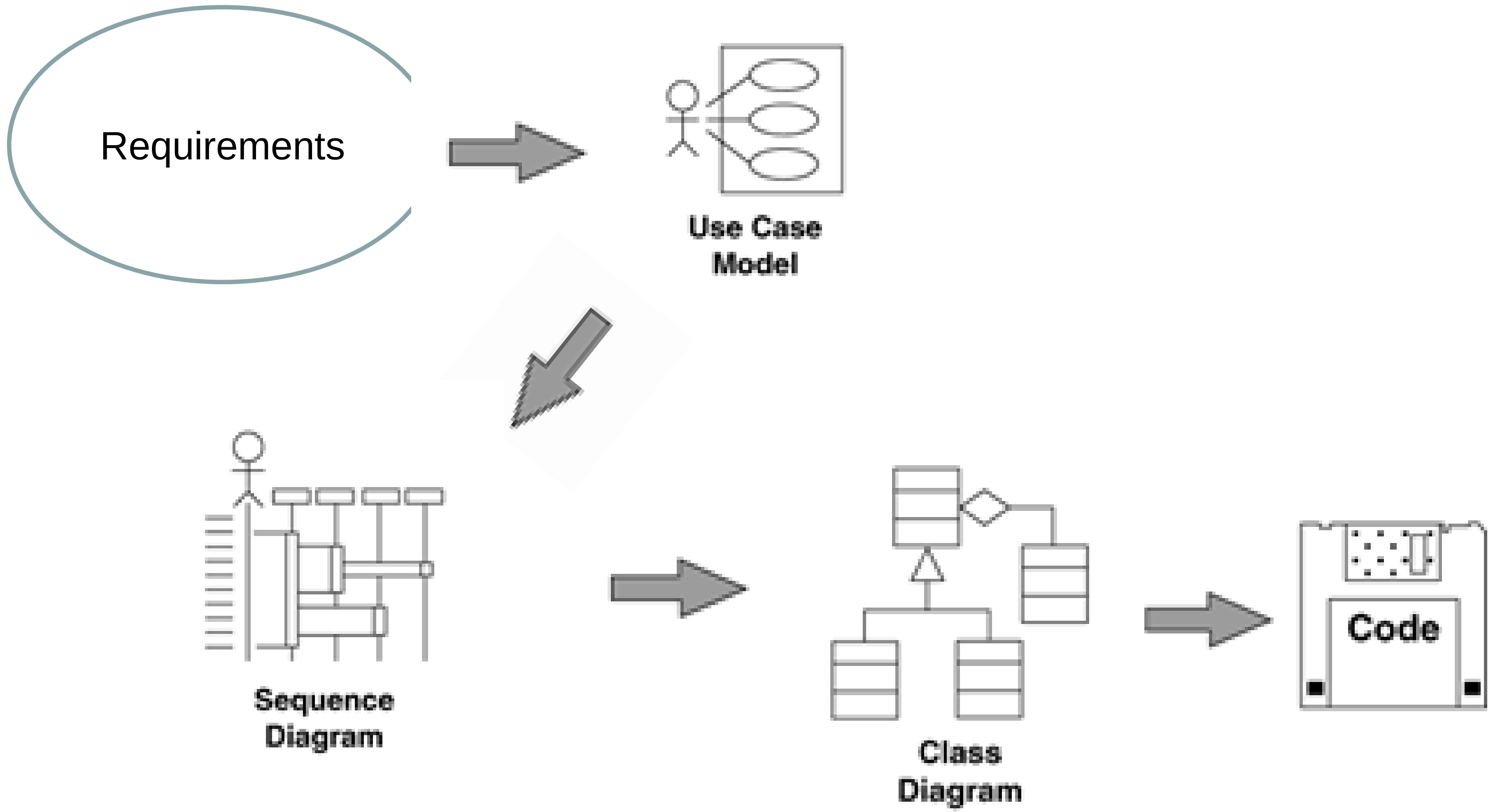
Software requirements

System requirements:

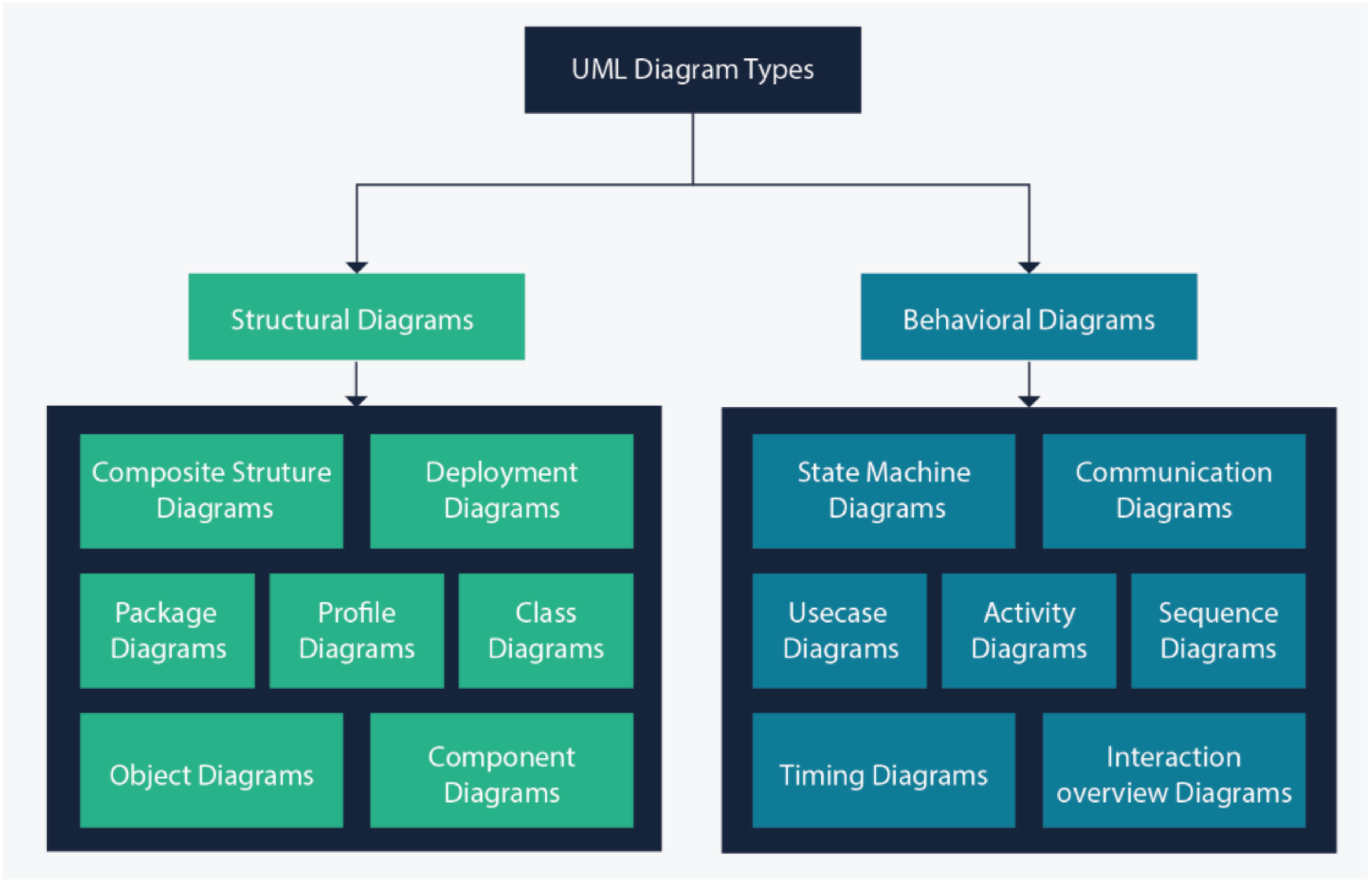
- System requirements are written for developers.

- These are detailed descriptions about the system and they include all the technical details to help the developers in understanding system and development.

Beginnings of a Method



Types of Diagrams



Types of Diagrams

- Structural Diagrams – focus on static aspects of the software system
  - Class, Object, Component, Deployment

- Behavioral Diagrams – focus on dynamic aspects of the software system
  - Use-case, Interaction, Activity

Structural Diagrams

- Class Diagram – set of classes and their relationships. Describes interface to the class (set of operations describing services)

- Object Diagram – set of objects (class instances) and their relationships

- Component Diagram – logical groupings of elements and their relationships

Behavioral Diagram

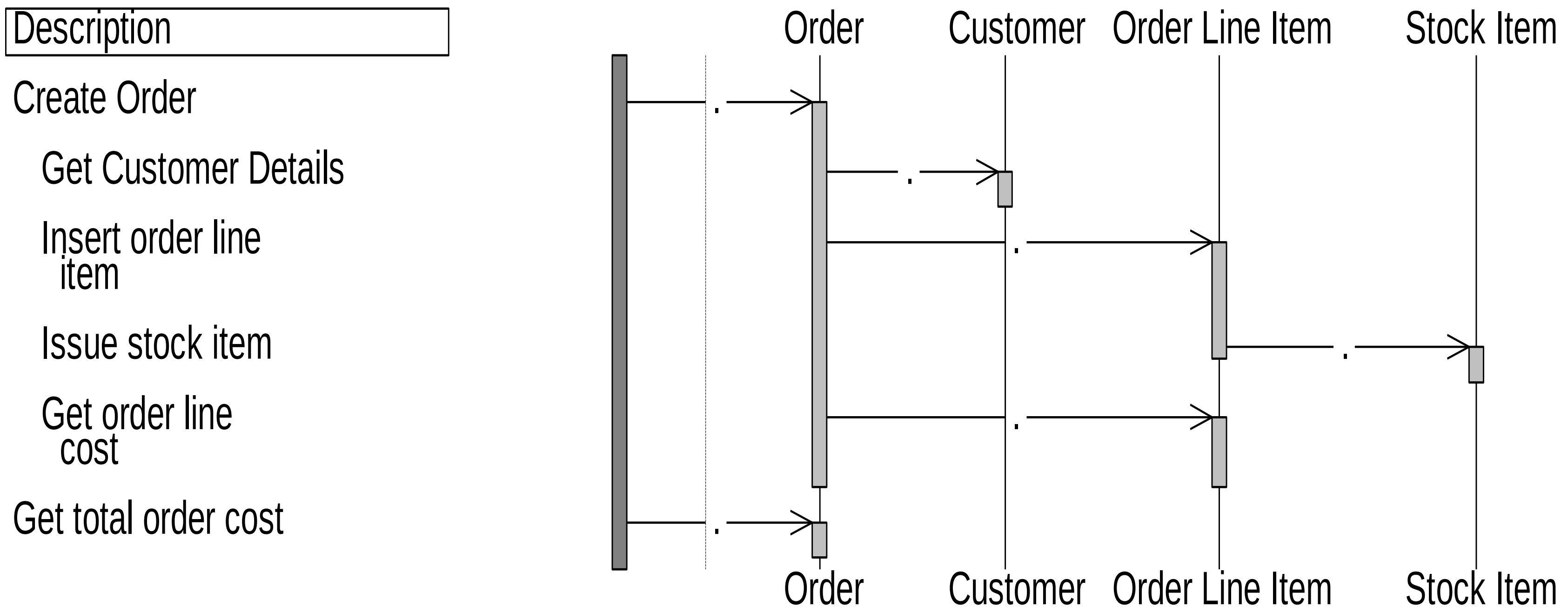
- Use Case Diagram – high-level behaviors of the system, user goals, external entities: actors
- Sequence Diagram – focus on time ordering of messages
- Activity Diagram – flow of control between activities

Systems Activities

- The systems functionality is represented as a number of Use Cases
- The functionality of each use case will be realised through objects collaborating with each other
- Collaboration is achieved through message passing

Sequence Diagram for Placing an Order

Customer Places Order



Placing an Order

- A message is sent to the *order* class to create a new “order”
  - *Customer No., Stock items* and *Quantities* are passed as parameters
  - Customer details are retrieved from the appropriate customer object
  - For each *stock item* an *order line* object is created
    - Details are extracted from the stock item object

Library Example

We have identified three objects: *Borrower, Book* and *Librarian* and the following relationship:

Issuing a Loan

Triggered by a request from a Borrower for
the loan of a Book.