Week-5-Lesson-1
Activity Diagram and Sequence Diagram

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Topics Covered

- Activity diagrams
- Elements of activity diagram
- Example of activity diagram
- Sequence diagram
- Elements of Sequence diagram
- Example of Sequence diagram
Activity Diagram

- **Activity Diagrams** to illustrate the flow of control in a system and refer to the steps involved in the execution of a use case.

- An activity diagram focuses on condition of flow and the sequence in which it happens.

- Activity diagrams describe the workflow behavior of a system.
Elements of Activity Diagram

- Activity Initial Node
- Activity End Node
- Transition
- Action
- Decision
- Fork
- Join
- Rendezvous
Activity Diagram - Examples

- Start State
- Activity
- Fork
- Branch
- Merge
- Join
- End State

- Receive Order
- Fill Order
- Send Invoice
- Overnight Delivery
- Regular Delivery
- Receive Payment
- Close Order

[rush order] [else]
## ATM Withdrawal Activity Diagram

<table>
<thead>
<tr>
<th>Customer</th>
<th>ATM</th>
<th>Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Session</td>
<td>Request Pin</td>
<td>Authorize Card</td>
</tr>
<tr>
<td>Forget Pin</td>
<td>ProcessPin</td>
<td></td>
</tr>
<tr>
<td>Enter Pin</td>
<td>Request Amount to Withdraw</td>
<td>Authorize Withdrawal</td>
</tr>
<tr>
<td>Enter Amount</td>
<td>Processing Amount</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Get Cash</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Processing Withdrawal</td>
<td></td>
</tr>
</tbody>
</table>
Activity Diagram (Search Store)

1. Search store
   - Found
   - Not found
2. View item
3. Add to cart
4. View cart
5. Update cart
6. Checkout
Activity Diagram for order system

1. Request Order
2. Receive Order
   - Order Accepted
   - Order Rejected
   - Order not Completed
3. Fill Order
   - Fill Completed
4. Send Order
5. Send Payment
   - Payment [Paid]
6. Ship Order
7. Check Payment
   - Payment [Confirmed]
8. Close Order
9. Complete
A sequence diagram describes an interaction among a set of objects participated in a collaboration (or scenario), arranged in a chronological order;

It shows the objects participating in the interaction by their "lifelines" and the messages that they send to each other.

Sequence diagrams can be useful references for businesses and other organizations.
Basic Sequence Diagram Notations

Object symbol

Activation or Execution Occurrence

Actor

:User

:Object

:Object

:Object

:Object

messages

lifeline
Types of Messages in Sequence Diagrams

- Simple, also used for asynchronous
- Synchronous
- Reply or return message
- Create message
- Found message
- Lost message
- Delete message
Sequence Diagram for Login

1. Input CustomerName, CustomerPassword (getCustomerName, getCustomerPassword)
2. Check
3. Open Ordering Home Menu (setOrderId)
4. Name Password Invalid
An ATM allows patrons to access their bank accounts through a completely automated process. You can examine the steps of this process in a manageable way by drawing or viewing a sequence diagram. The example below outlines the sequential order of the interactions in the ATM system. Just click to edit the template, and customize the sequence diagram so it suits your own needs.
Sequence Diagram of an ATM system
Sequence Diagram (make a phone call)
Sequence Diagram Example: Buy Tickets
Technology has completely transformed the field of medicine, as it has with most industries. A hospital information system, also known as a hospital information system, helps doctors, administrators, and hospital staff managing all of the activities and information collected at a hospital, including checkups, prescriptions, appointments, and information on the patients and their caretakers. The diagram below provides a simple view of how the primary processes operate with each other over time. You can use Laucidchart to reshape the diagram any way you choose and to share it with your colleagues or collaborators.
Sequence diagram of a hospital management system
References:

1. **Software Engineering A practitioner’s Approach**

2. **Software Engineering by Ian Sommerville,**
   9th edition, Addison-Wesley, 2011