Lucidchart

UML Diagram Templates and Examples

Posted By: Lucidchart Content Team

February

16

2018

From all the software engineers we've talked to, we've found a common theme: no one likes to create documentation. UML diagrams (https://www.lucidchart.com/pages/what-is-UML-unified-modeling-language) can be incredibly helpful when you need to onboard employees or reference source code during implementation, but they become outdated quickly and take hours to build—unless you use a UML diagram tool (https://www.lucidchart.com/pages/examples/uml_diagram_tool) like Lucidchart.

We've compiled templates for three types of structural UML diagrams—class, component, and object diagrams—and three types of behavioral UML diagrams—activity, sequence, and use case diagrams. Find a template to document your systems faster than ever.

Related Posts:

Automate Your Work with Lucidchart (/blog/automate-your-work-with-lucidchart)

How Lucidites Use Lucidchart: Diagrams for Engineering (/blog/how-lucidchart-uses-lucidchart-for-engineering)

Class diagram templates
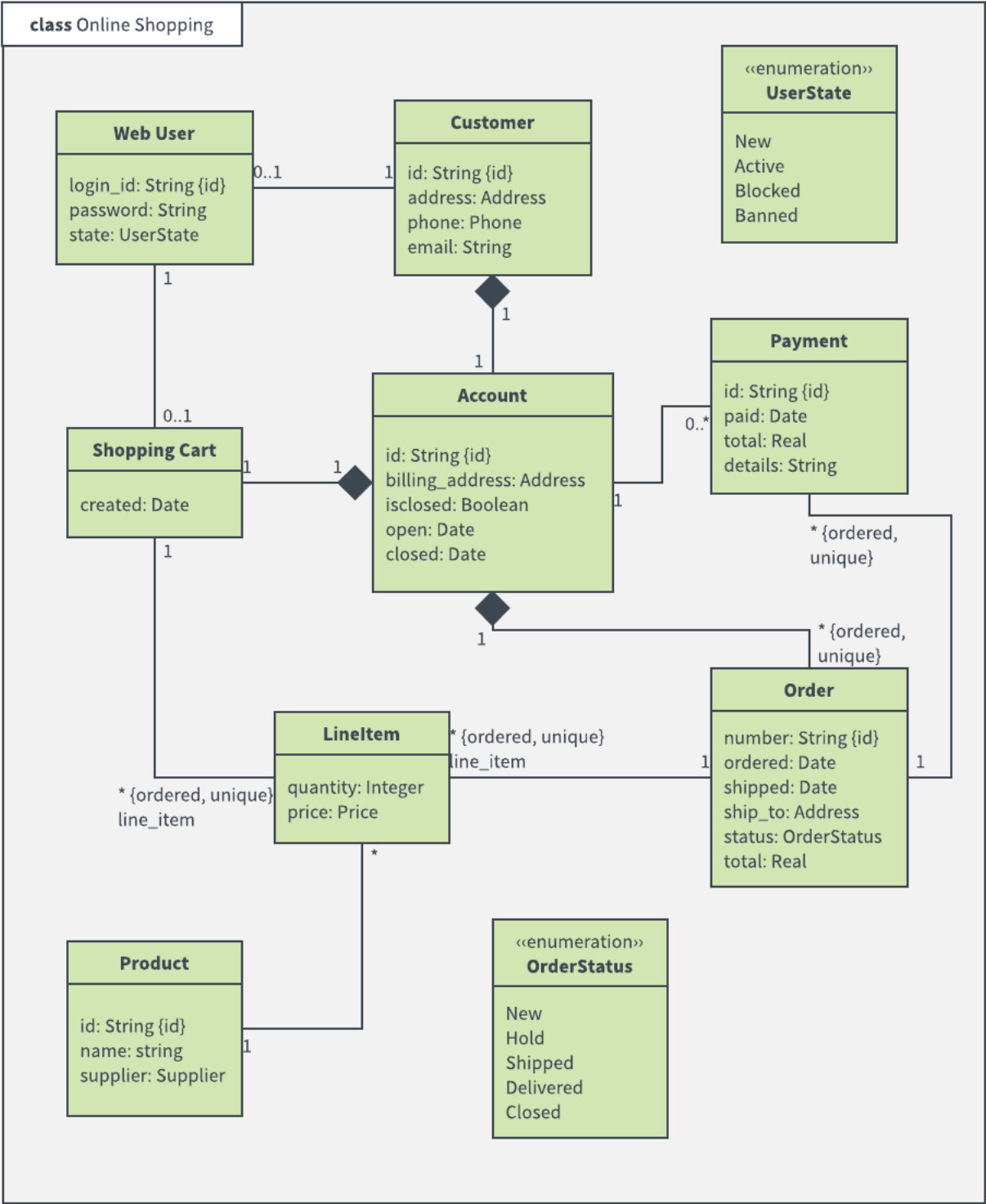
The class diagram is one of the most commonly used diagrams in UML, as explained in depth in our guide on class diagrams (https://www.lucidchart.com/pages/uml-class-diagram). Software engineers and business professionals often choose class diagrams to map the structure of particular systems because they clearly display the various classes, attributes, operations, and relationships between objects.

In our examples below, you'll find that each class shape is labeled with its name in the first row, the second row displays each attribute of the class on a separate line, and the third row displays each operation on a separate line. From there, additional UML symbols are used to model the various interactions and objects involved within the process.

Related Posts:

Automate Your Work with Lucidchart
(/blog/automate-your-work-with-lucidchart)

How Lucidites Use Lucidchart:
Diagrams for Engineering
(/blog/how-lucidchart-uses-lucidchart-for-engineering)

class Online Shopping

Web User

login_id: String {id}
password: String
state: UserState

Customer

id: String {id}
address: Address
phone: Phone
email: String

«enumeration»
UserState

New
Active
Blocked
Banned

0..1 — 1

1

1

Account

id: String {id}
billing_address: Address
isclosed: Boolean
open: Date
closed: Date

Payment

id: String {id}
paid: Date
total: Real
details: String

0..1

Shopping Cart

created: Date

1

1

1

0..*

1

* {ordered, unique}

* {ordered, unique}

1

LineItem

quantity: Integer
price: Price

* {ordered, unique}
line_item

* {ordered, unique}
line_item

Order

number: String {id}
ordered: Date
shipped: Date
ship_to: Address
status: OrderStatus
total: Real

1

1

*

1

Product

id: String {id}
name: string
supplier: Supplier

1

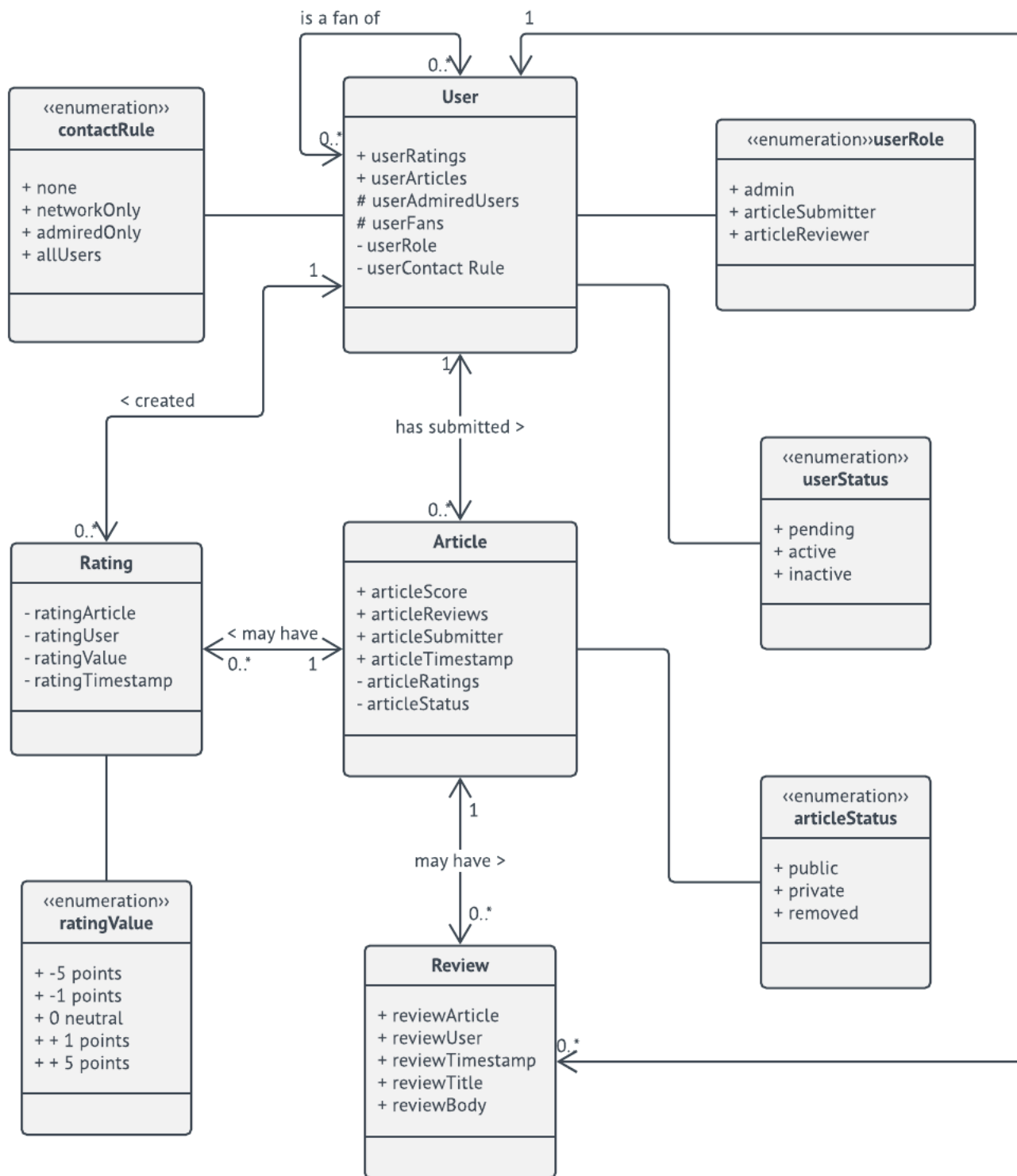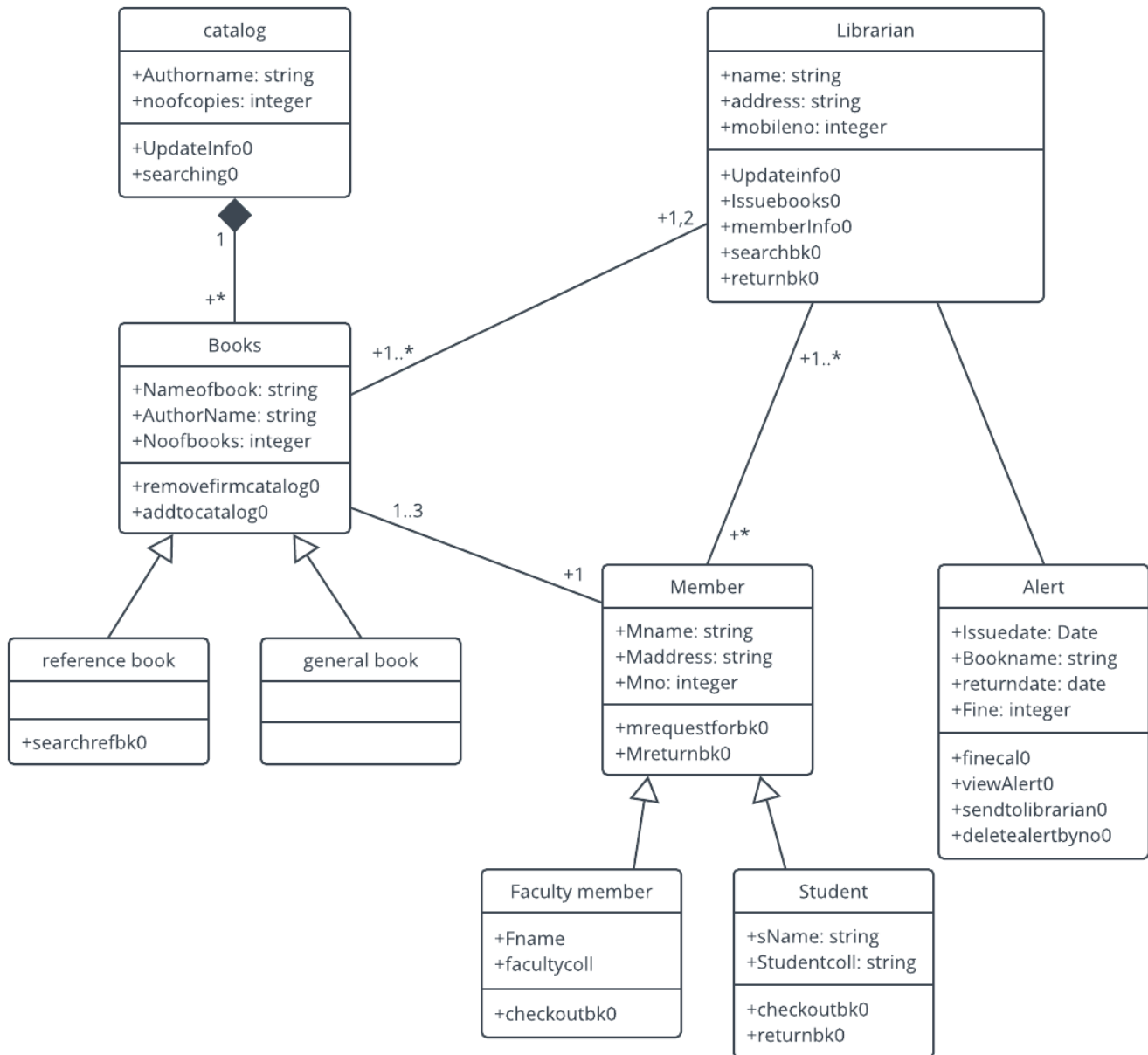«enumeration»
OrderStatus

New
Hold
Shipped
Delivered
Closed

(https://www.lucidchart.com/documents/editNewOrRegister/9c800ec7-8aaa-4eed-a389-9bba0caa1972)

UML Class Diagram for Online Shopping (Click on image to modify online)

is a fan of   1

User

0..*

«enumeration»
contactRule

+ none
+ networkOnly
+ admiredOnly
+ allUsers

0..*

+ userRatings
+ userArticles
# userAdmiredUsers
# userFans
- userRole
- userContact Rule

«enumeration»**userRole**

+ admin
+ articleSubmitter
+ articleReviewer

1

< created

has submitted >

1

«enumeration»
userStatus

+ pending
+ active
+ inactive

0..*

0..*

Rating

- ratingArticle
- ratingUser
- ratingValue
- ratingTimestamp

< may have

0..*   1

Article

+ articleScore
+ articleReviews
+ articleSubmitter
+ articleTimestamp
- articleRatings
- articleStatus

«enumeration»
ratingValue

+ -5 points
+ -1 points
+ 0 neutral
+ + 1 points
+ + 5 points

1

may have >

0..*

«enumeration»
articleStatus

+ public
+ private
+ removed

Review

+ reviewArticle
+ reviewUser
+ reviewTimestamp
+ reviewTitle
+ reviewBody

0..*

(https://www.lucidchart.com/documents/editNewOrRegister/c0ebd025-067f-4f92-b8fc-f3914e2ca51f)

UML Class Diagram for Domain Models (Click on image to modify online)

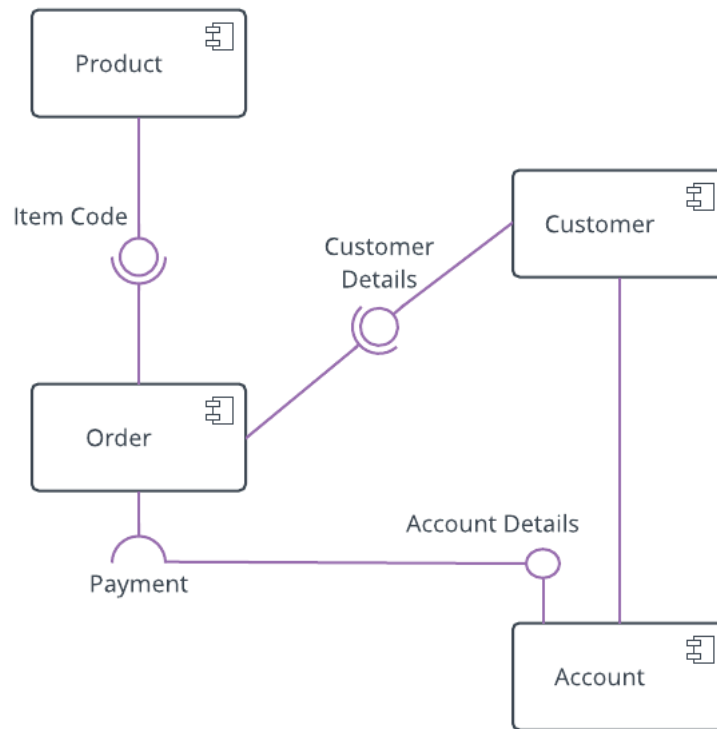**Related Posts:**   Automate Your Work with Lucidchart   How Lucidites Use Lucidchart:
(/blog/automate-your-work-with-   Diagrams for Engineering
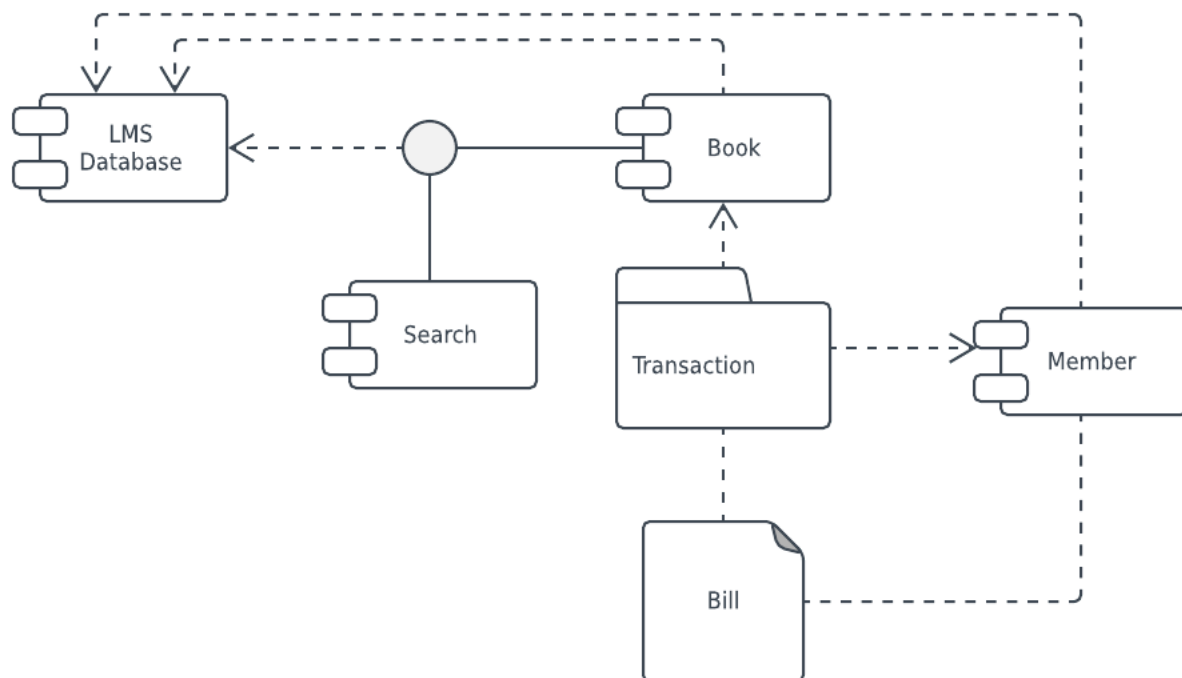lucidchart)   (/blog/how-lucidchart-uses-lucidchart-
                                                for-engineering)

(https://www.lucidchart.com/documents/editNewOrRegister/8b66bc49-ed39-4509-b340-32467a6f10b8)

UML Class Diagram for Library Management Systems (Click on image to modify online)

Component diagram templates

Component diagrams in UML are very similar to class diagrams. Both component and class diagrams display the structural relationship of software systems and their elements; however, component diagrams generally simplify the interactions within more complex systems. The components that make up this type of diagram are modular parts of the system that are inherently replaceable. Diagrams are structured this way so that the components can be easily replaced when needed.

The component diagram examples below show the structural relations between components in an online shopping system, library management system, and an ATM system. The connected circles, or "lollipop" symbols, represent realization relationships within the systems. Take a look at our examples below, and dive into our component diagram guide (https://www.lucidchart.com/pages/uml-component-diagram) to become more familiar with component diagrams.

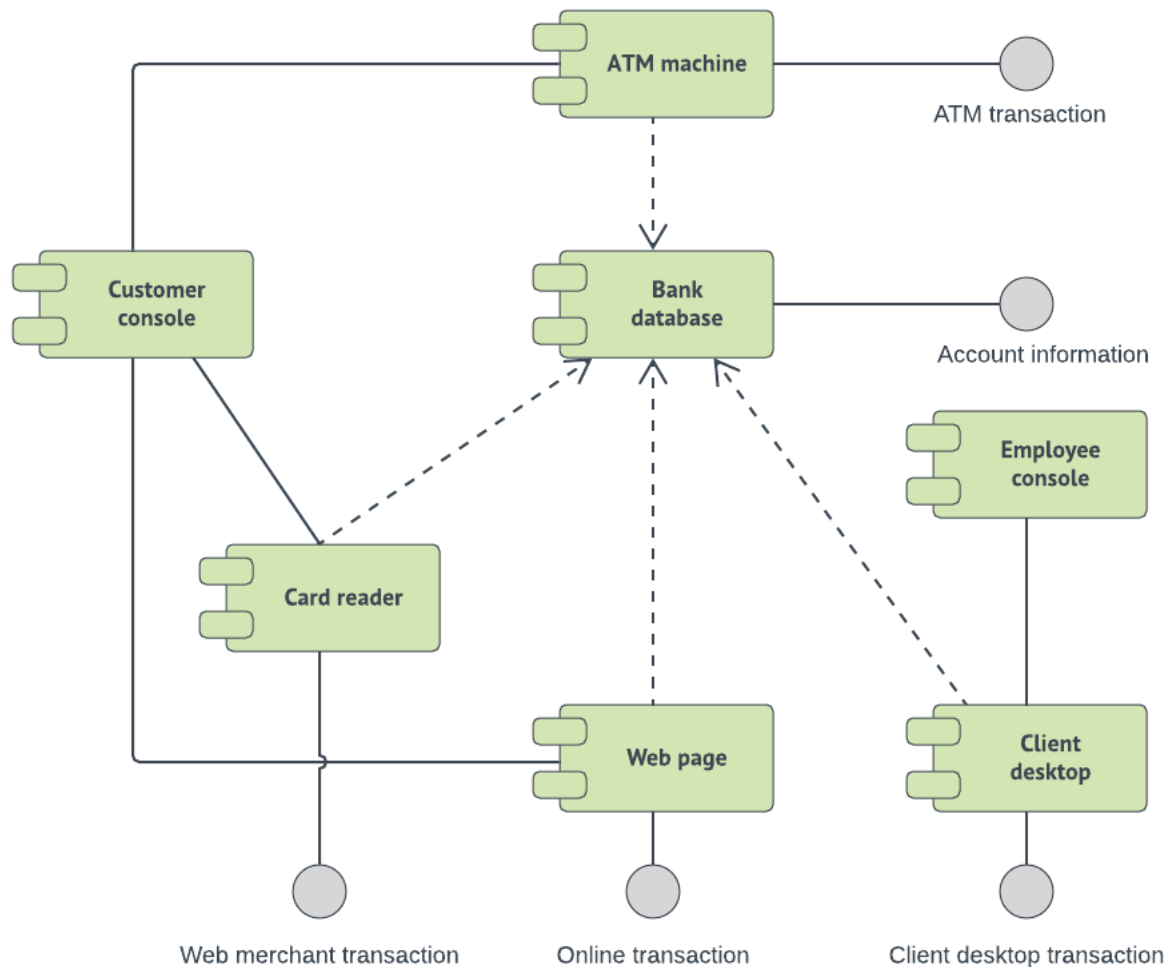*UML Component Diagram for Online Shopping (Click on image to modify online)*

UML Component Diagram for Library Management System (Click on image to modify online)

Shares

Related Posts: Automate Your Work with Lucidchart   How Lucidites Use Lucidchart:
                    (/blog/automate-your-work-with-   Diagrams for Engineering
                    lucidchart)   (/blog/how-lucidchart-uses-lucidchart-
                                                        for-engineering)

UML Component Diagram for ATM (Click on image to modify online)

Object diagram templates

An object diagram in UML may look similar to a class diagram because it focuses on the attributes of a class diagram and how those objects relate to each other. For example, in the ATM template below, the class titles display the type of card, account, or action that the customer uses. The class attributes are all unique—in this case, the card has a specific number and PIN, the accounts and machines have their own specific numbers and amounts, and actions have specific transaction numbers.

Refer to our object diagram guide (https://www.lucidchart.com/pages/uml-object-diagram) if you need more insight. With the rest of our object diagram examples, you'll see that these UML diagrams aren't just limited to banking systems. Try one out.
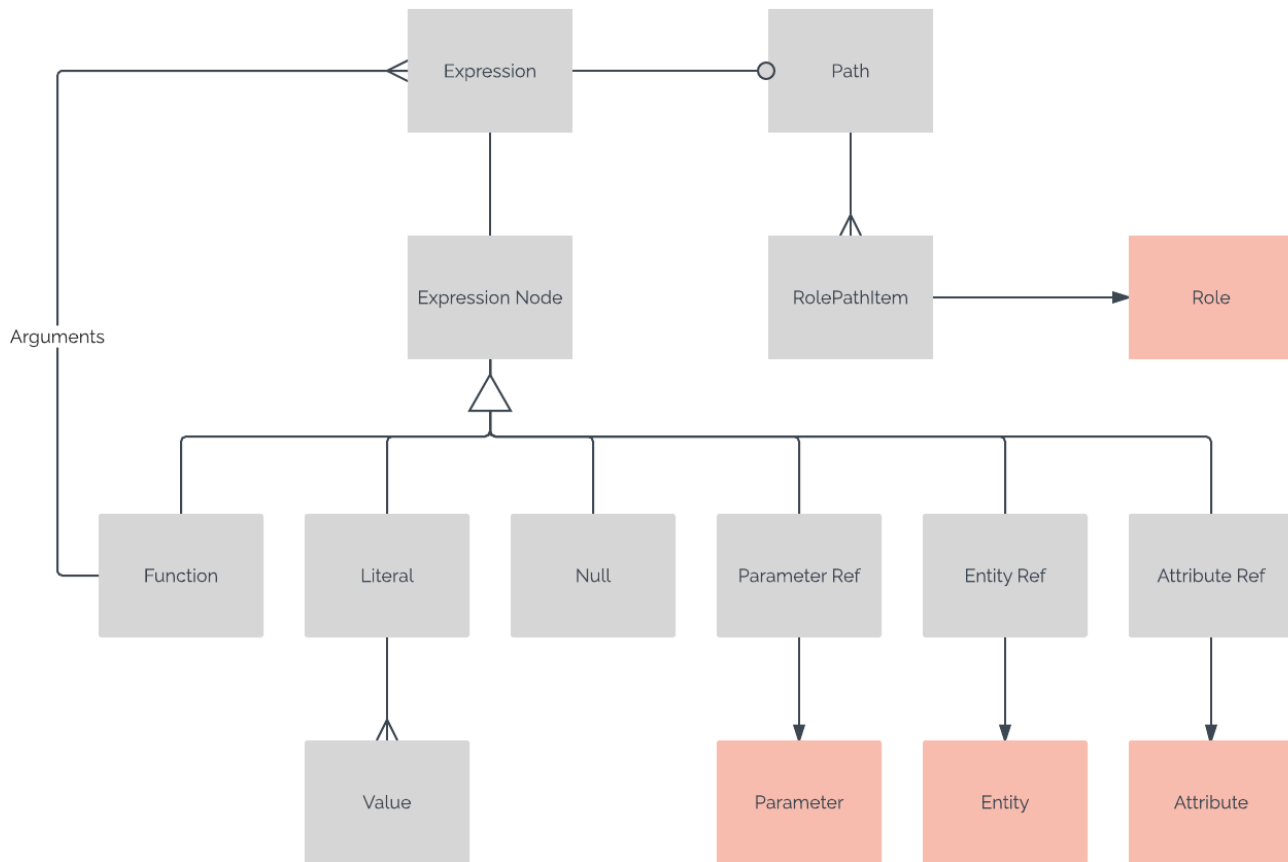
(https://www.lucidchart.com/documents/editNewOrRegister/7c93bd76-a537-48c8-9a43-731bbfc2a435)

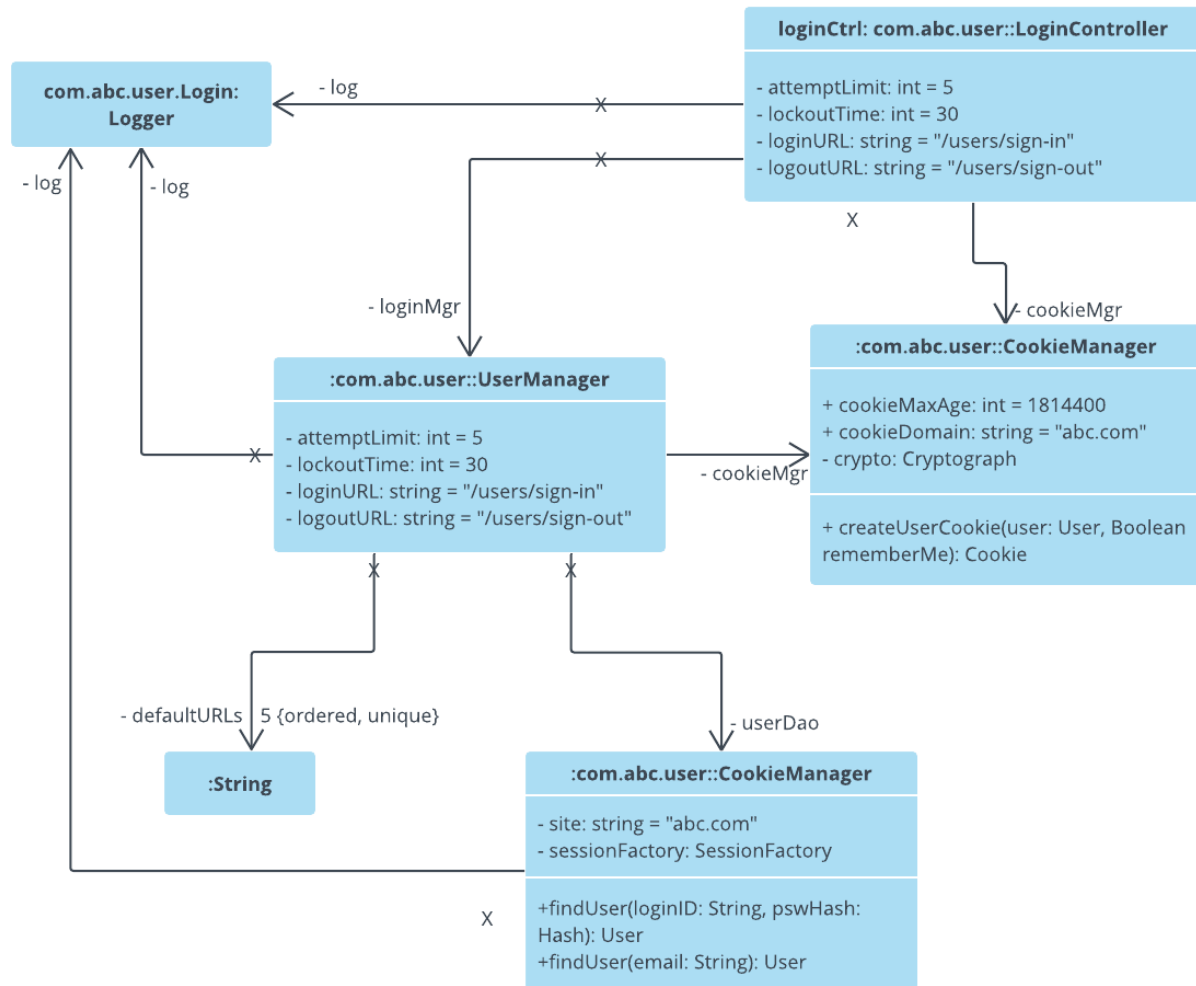*UML Object Diagram for ATM (Click on image to modify online)*

(https://www.lucidchart.com/documents/editNewOrRegister/b296b8e0-f96b-4add-b568-40918091d20d)
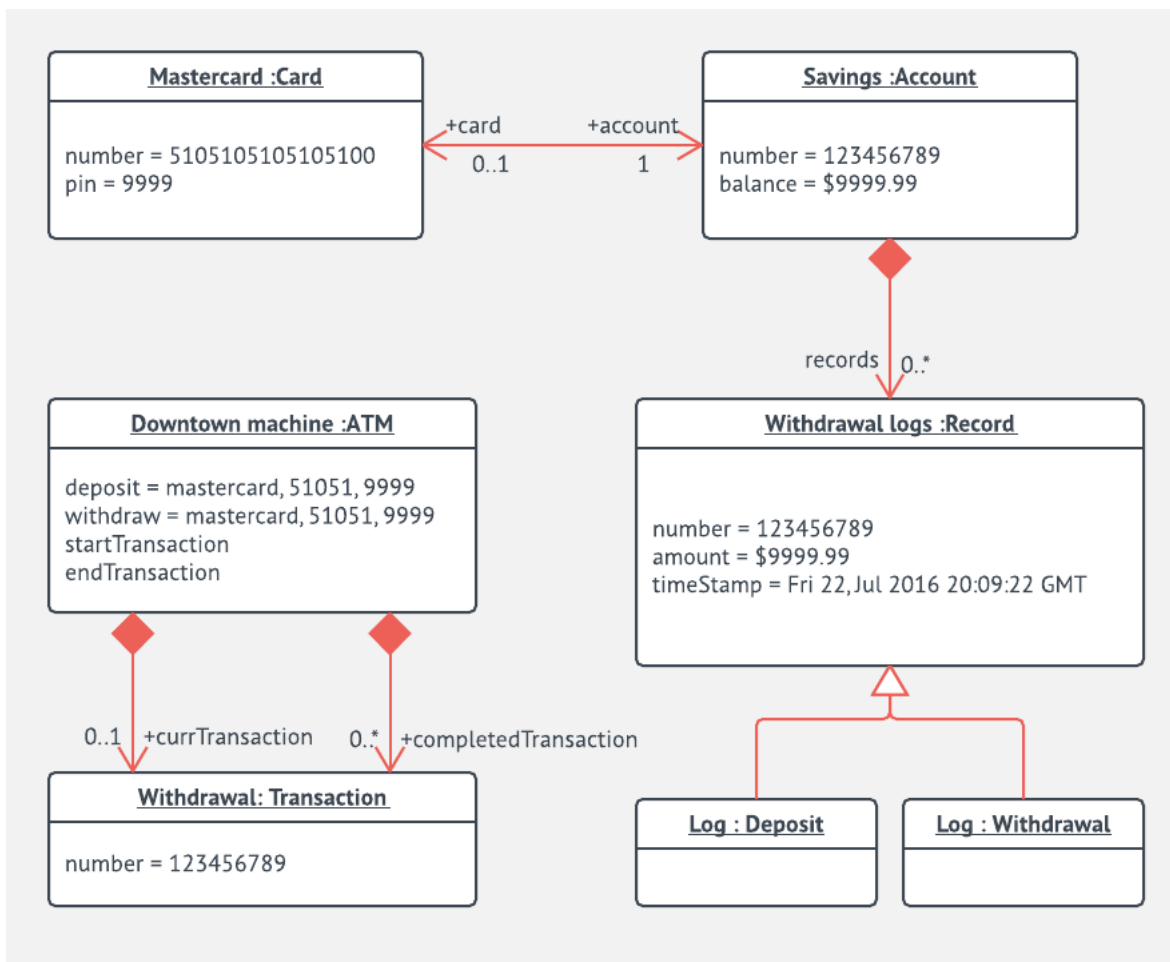
UML Object Diagram for Relationships (Click on image to modify online)

Related Posts: Automate Your Work with Lucidchart   How Lucidites Use Lucidchart:
(/blog/automate-your-work-with-   Diagrams for Engineering
lucidchart)   (/blog/how-lucidchart-uses-lucidchart-
                                    for-engineering)

loginCtrl: com.abc.user::LoginController

- attemptLimit: int = 5
- lockoutTime: int = 30
- loginURL: string = "/users/sign-in"
- logoutURL: string = "/users/sign-out"

com.abc.user.Login: Logger

- log
- log
- log

- loginMgr

- cookieMgr

:com.abc.user::UserManager

- attemptLimit: int = 5
- lockoutTime: int = 30
- loginURL: string = "/users/sign-in"
- logoutURL: string = "/users/sign-out"

- cookieMgr

:com.abc.user::CookieManager

+ cookieMaxAge: int = 1814400
+ cookieDomain: string = "abc.com"
- crypto: Cryptograph

+ createUserCookie(user: User, Boolean rememberMe): Cookie

- defaultURLs 5 {ordered, unique}

:String

- userDao

:com.abc.user::CookieManager

- site: string = "abc.com"
- sessionFactory: SessionFactory

+findUser(loginID: String, pswHash: Hash): User
+findUser(email: String): User

(https://www.lucidchart.com/documents/editNewOrRegister/fdd96462-54fa-41d6-8ac9-5b41d4e5bf43)

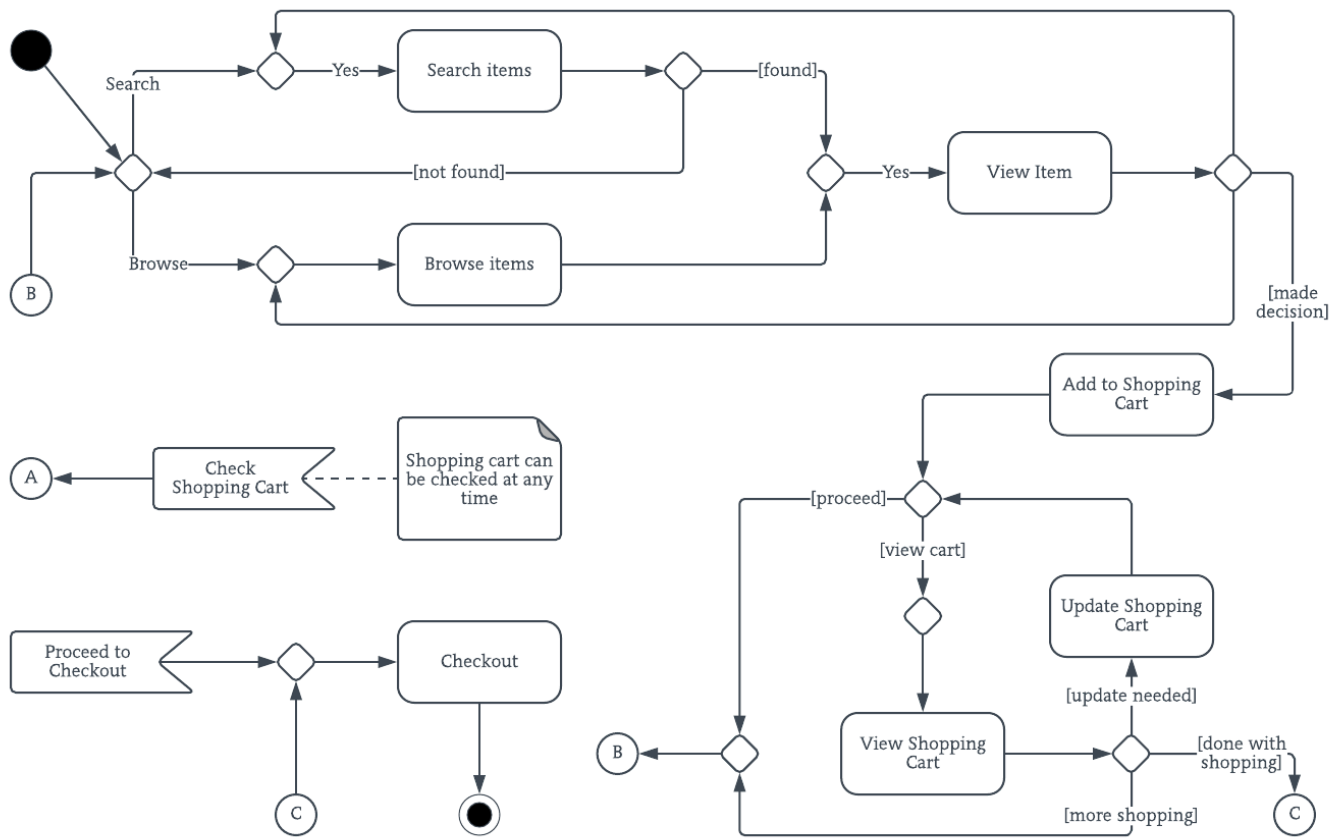*UML Object Diagram for Login (Click on image to modify online)*

Activity diagram templates

Activity diagrams in UML are a leading subset of behavioral diagrams. They display the functionalities of various activities and flows in business processes and software systems. With UML-specific symbols (https://www.lucidchart.com/pages/uml-activity-diagram#section-3), you can map out the start point, end point, and all the merging and interactions in between your process flow. See our guide on activity diagrams (https://www.lucidchart.com/pages/uml-activity-diagram) if you need additional information.
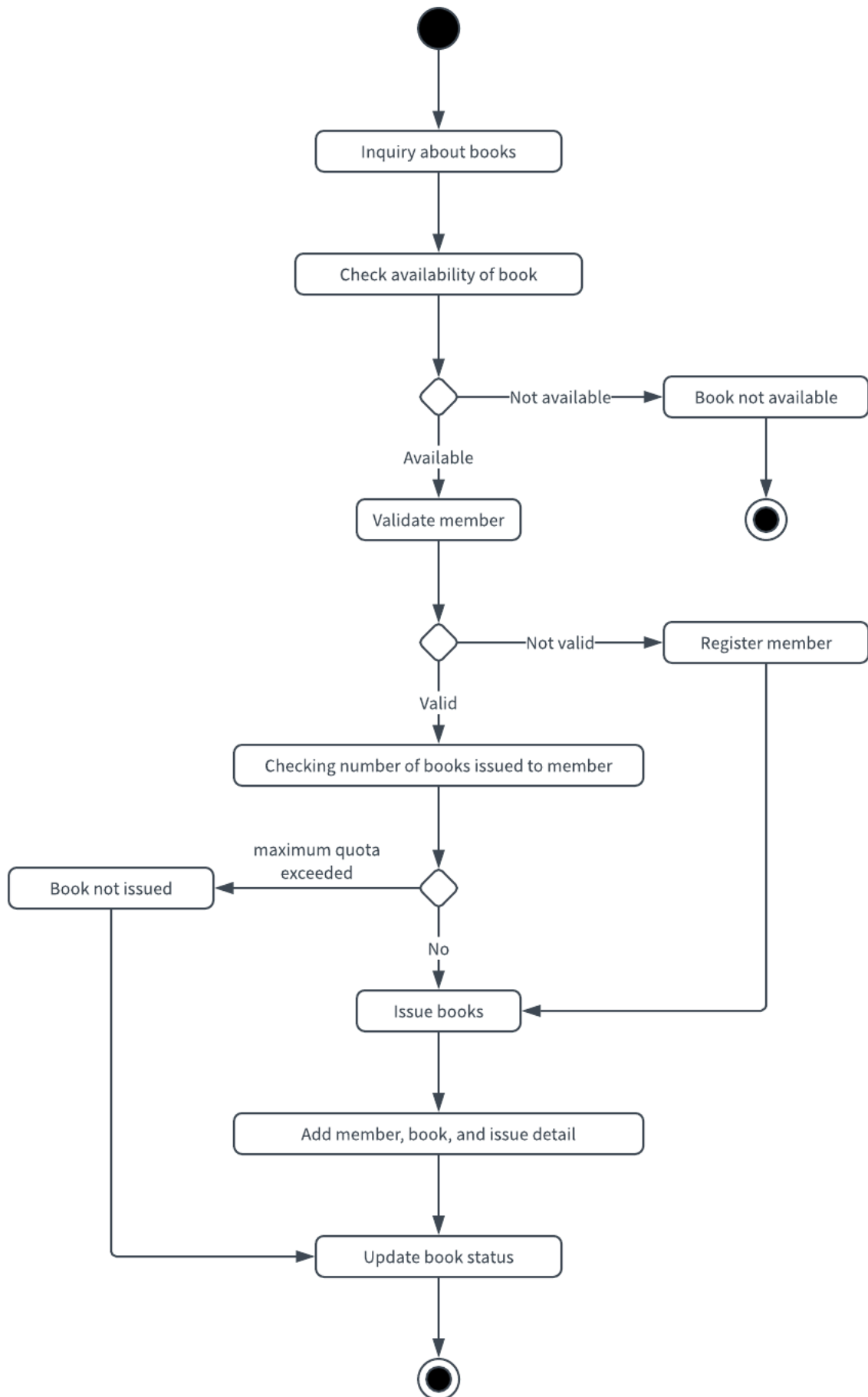
(https://www.lucidchart.com/documents/editNewOrRegister/7c05264c-d6f9-4642-a1ab-9afdf23c6def)

UML Activity Diagram for Online Shopping (Click on image to modify online)

Inquiry about books

Check availability of book

Not available → Book not available

Available

Validate member

Not valid → Register member

Valid

Checking number of books issued to member

maximum quota exceeded → Book not issued

No

Issue books

Add member, book, and issue detail

Update book status

UML Activity Diagram for Library Management System (Click on image to modify online)
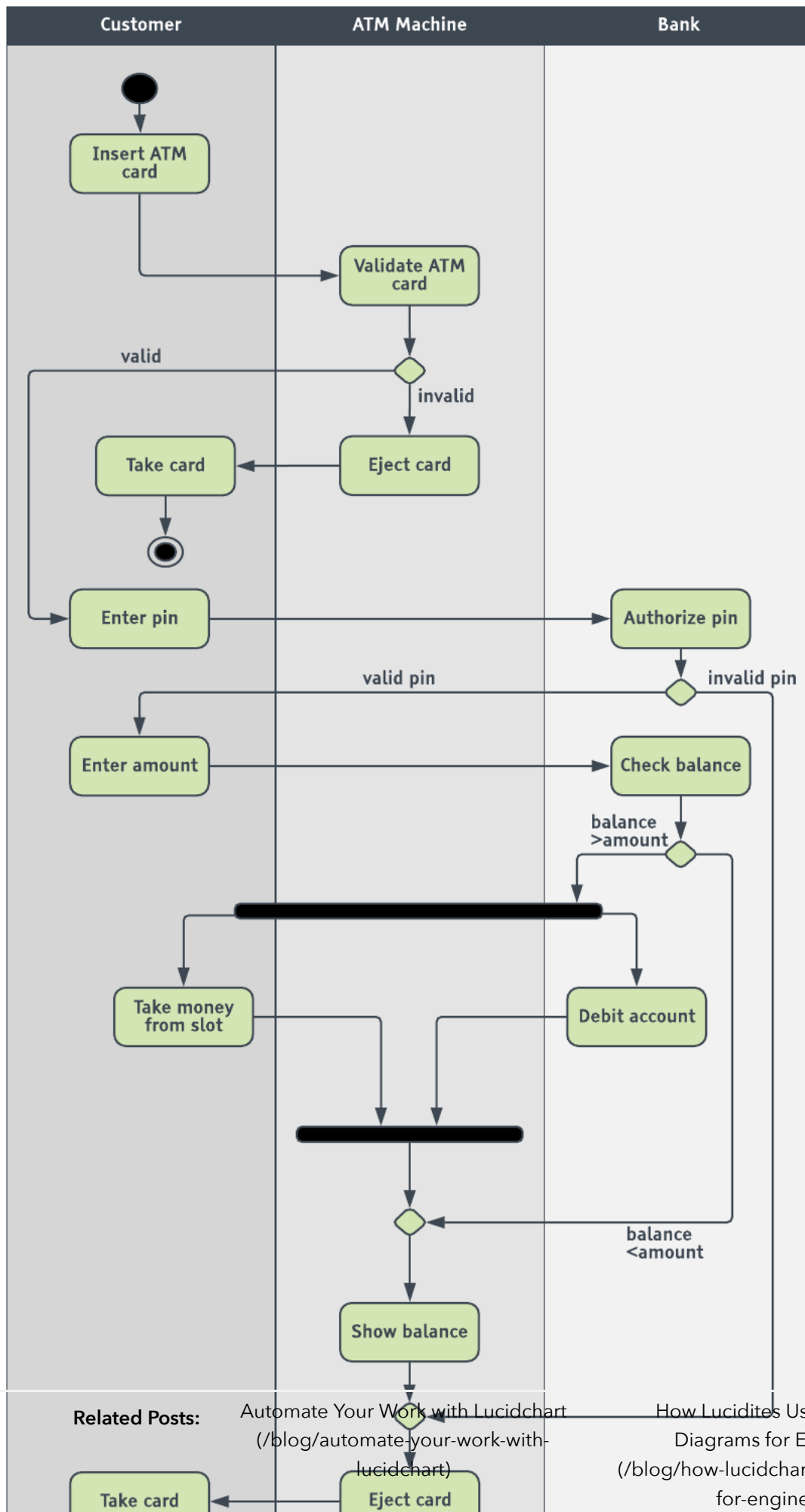
Customer	ATM Machine	Bank

Customer column:
- (start) → Insert ATM card
- Take card → (end)
- Enter pin
- Enter amount
- Take money from slot
- Take card

ATM Machine column:
- Validate ATM card → (decision)
- invalid → Eject card → Take card
- Eject card
- Show balance

Bank column:
- Authorize pin → (decision) → invalid pin
- valid pin → Enter amount
- Check balance → balance >amount
- Debit account
- balance <amount

valid

invalid

Enter pin → Authorize pin

valid pin

invalid pin

Enter amount → Check balance

balance >amount

Take money from slot — Debit account

balance <amount

Show balance

Take card ← Eject card

(https://www.lucidchart.com/documents/editNewOrRegister/5e2d4026-316f-420a-9ef0-e5bf0080e672)

UML Activity Diagram for ATM (Click on image to modify online)

Sequence diagram templates

Many project managers and engineers use sequence diagrams in UML to get a better idea of how tasks within a project will function, overlap, and move between objects or components. Create sequence diagrams to display interactions between objects and the order in which those interactions occur.

You can read our full guide on sequence diagrams (https://www.lucidchart.com/pages/uml-sequence-diagram) for additional reference. While the examples below cover UML sequence diagrams, Lucidchart still has the shapes and features you need to model code-based sequence diagrams as well.
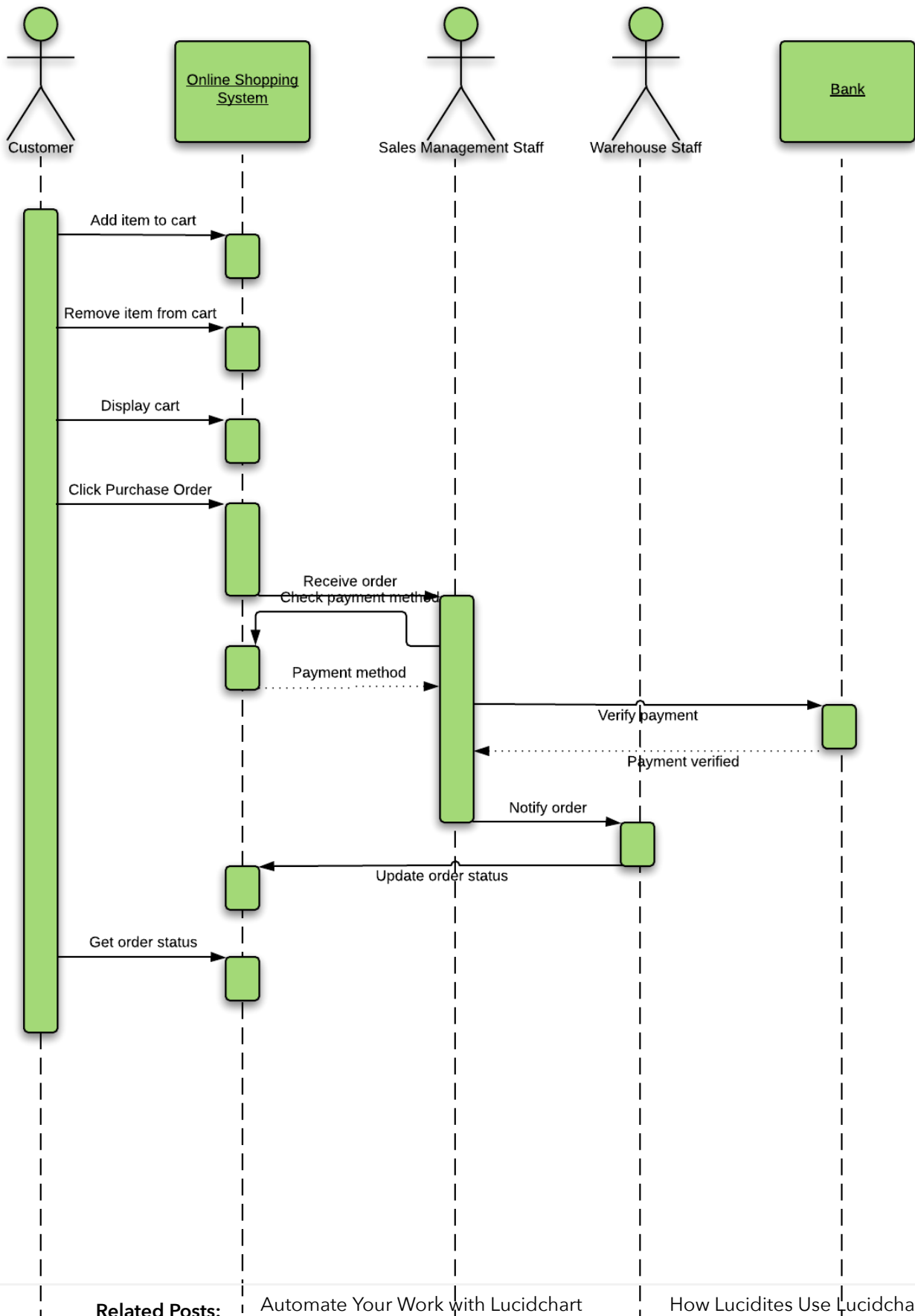
(P.S. You can save even more time when you generate UML sequence diagrams from text markup in Lucidchart. Learn more about this feature (https://www.lucidchart.com/pages/uml/uml-sequence-markup).)

Related Posts: Automate Your Work with Lucidchart (/blog/automate-your-work-with-lucidchart) How Lucidites Use Lucidchart: Diagrams for Engineering (/blog/how-lucidchart-uses-lucidchart-for-engineering)

Online Shopping System Sequence Diagram

Customer

Online Shopping System

Sales Management Staff

Warehouse Staff

Bank

Add item to cart

Remove item from cart

Display cart

Click Purchase Order

Receive order

Check payment method

Payment method

Verify payment

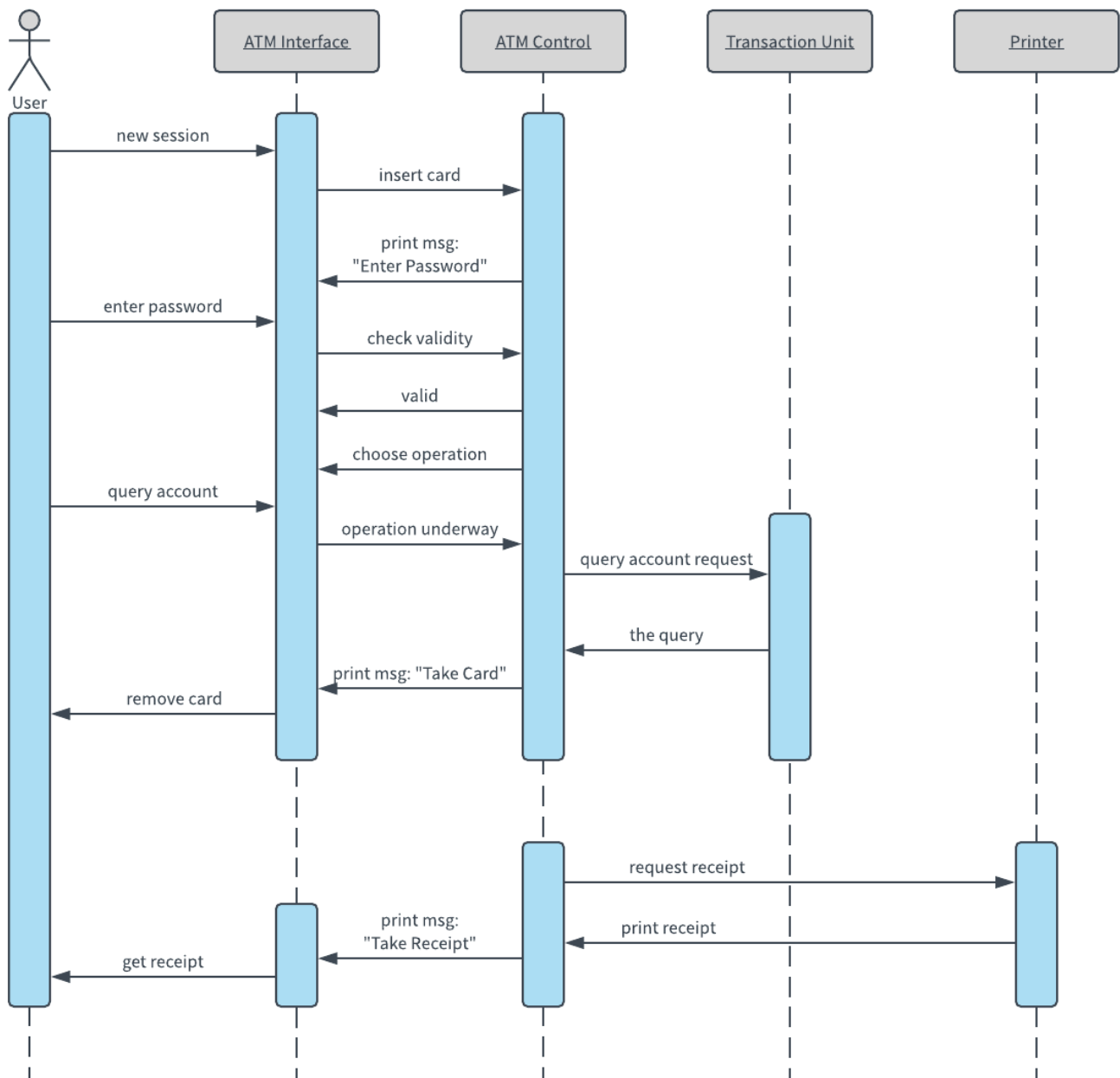Payment verified

Notify order

Update order status

Get order status

(https://www.lucidchart.com/documents/editNewOrRegister/26497540-86cf-4b00-a873-71d34ce2d20f)
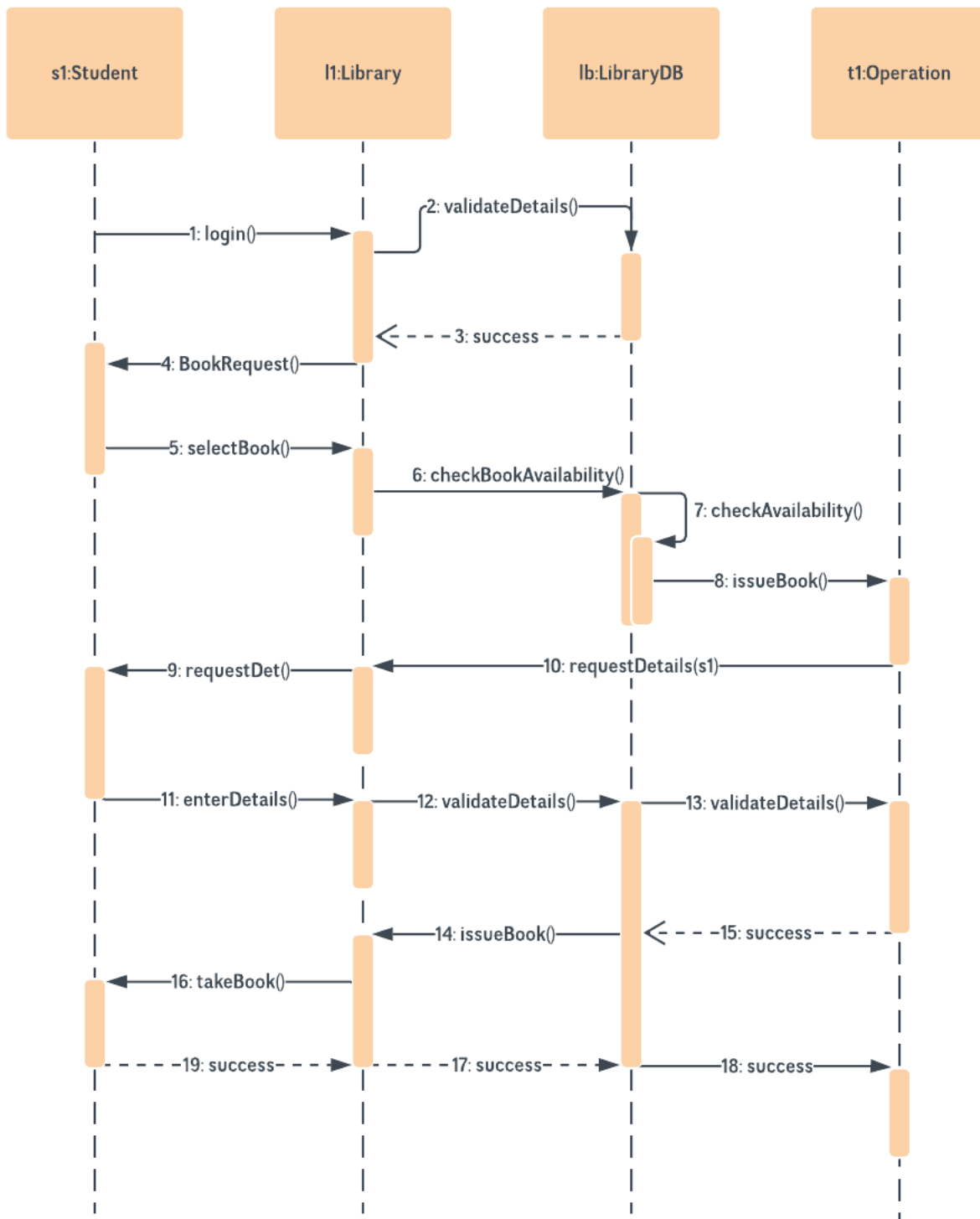
UML Sequence Diagram for Library Management System (Click on image to modify online)

UML Sequence Diagram for ATM (Click on image to modify online)

Use case diagram templates

With a UML use case diagram, you can create a broad, high-level view of the relationship between use cases, actors involved, and systems being performed. Take a look at our use case diagram guide (https://www.lucidchart.com/pages/uml-use-case-diagram) to learn more about the benefits of use case diagrams and the shapes involved.

As you can see from the examples below, use cases are represented by oval shapes, and the lines then show at which point an actor participates and interacts with their corresponding use case. You can see where each actor is involved within the entire process (and where they're excluded). For instance, in one of the examples, a truck driver needs to know the location information but doesn't need to be involved at any other part of the process within a successful inventory system.
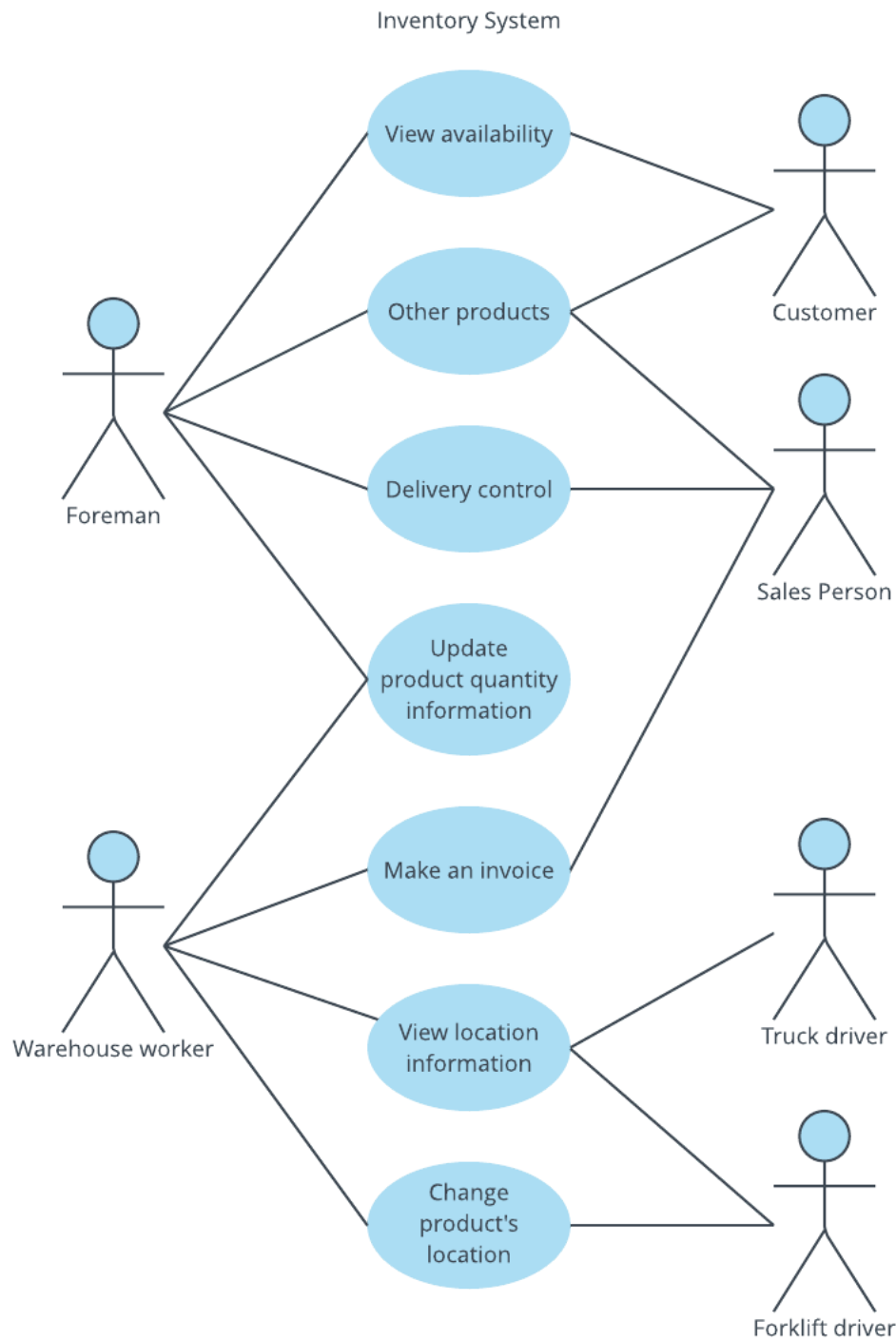
Inventory System

View availability

Other products

Delivery control

Update product quantity information

Make an invoice

View location information

Change product's location

Foreman

Warehouse worker
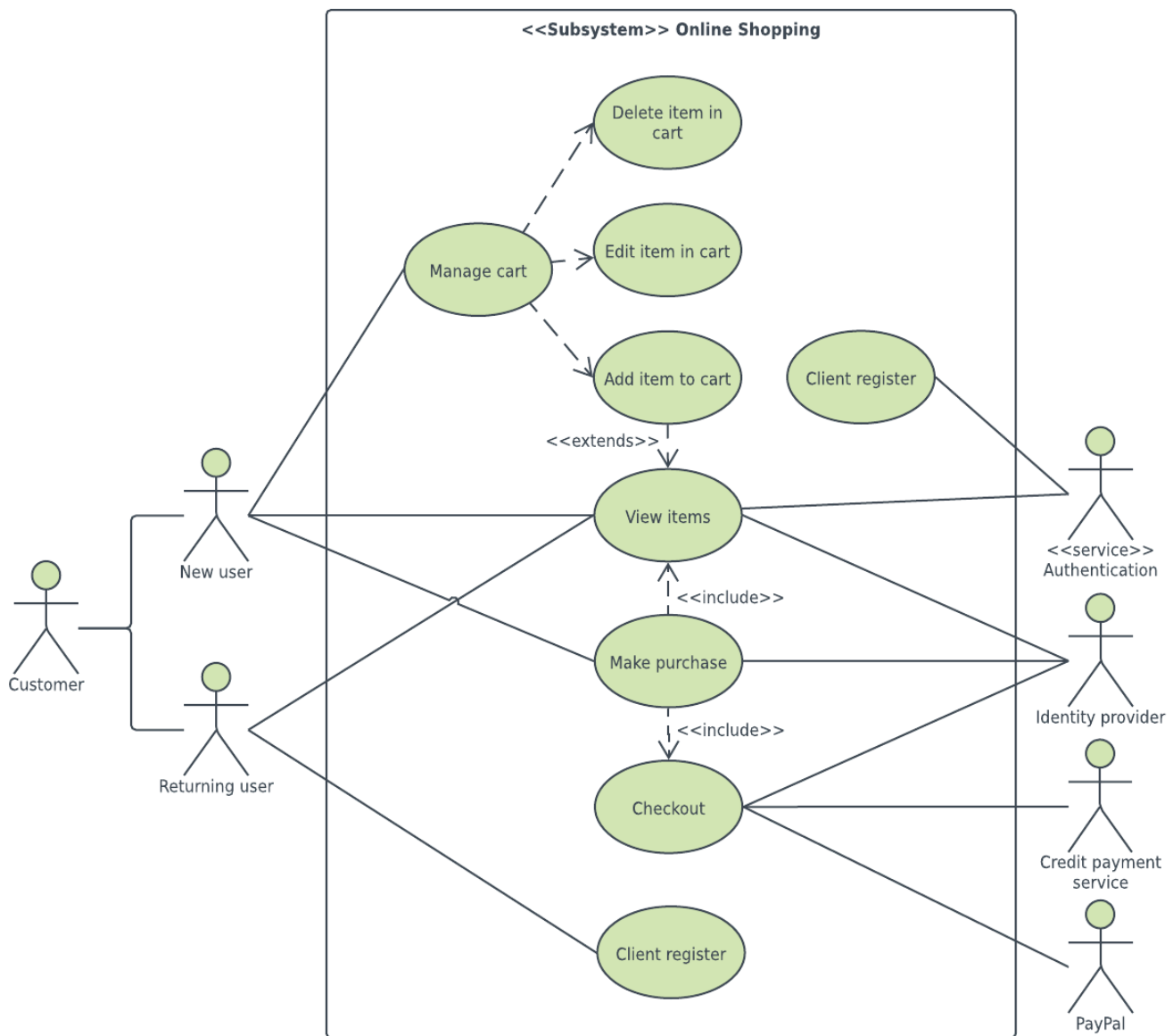
Customer

Sales Person

Truck driver

Forklift driver

(https://www.lucidchart.com/documents/editNewOrRegister/abd2a744-2650-4eef-a946-a79fe52a754d)

UML Use Case Diagram for Inventory (Click on image to modify online)

Related Posts: Automate Your Work with Lucidchart (/blog/automate-your-work-with-lucidchart)   How Lucidites Use Lucidchart: Diagrams for Engineering (/blog/how-lucidchart-uses-lucidchart-for-engineering)
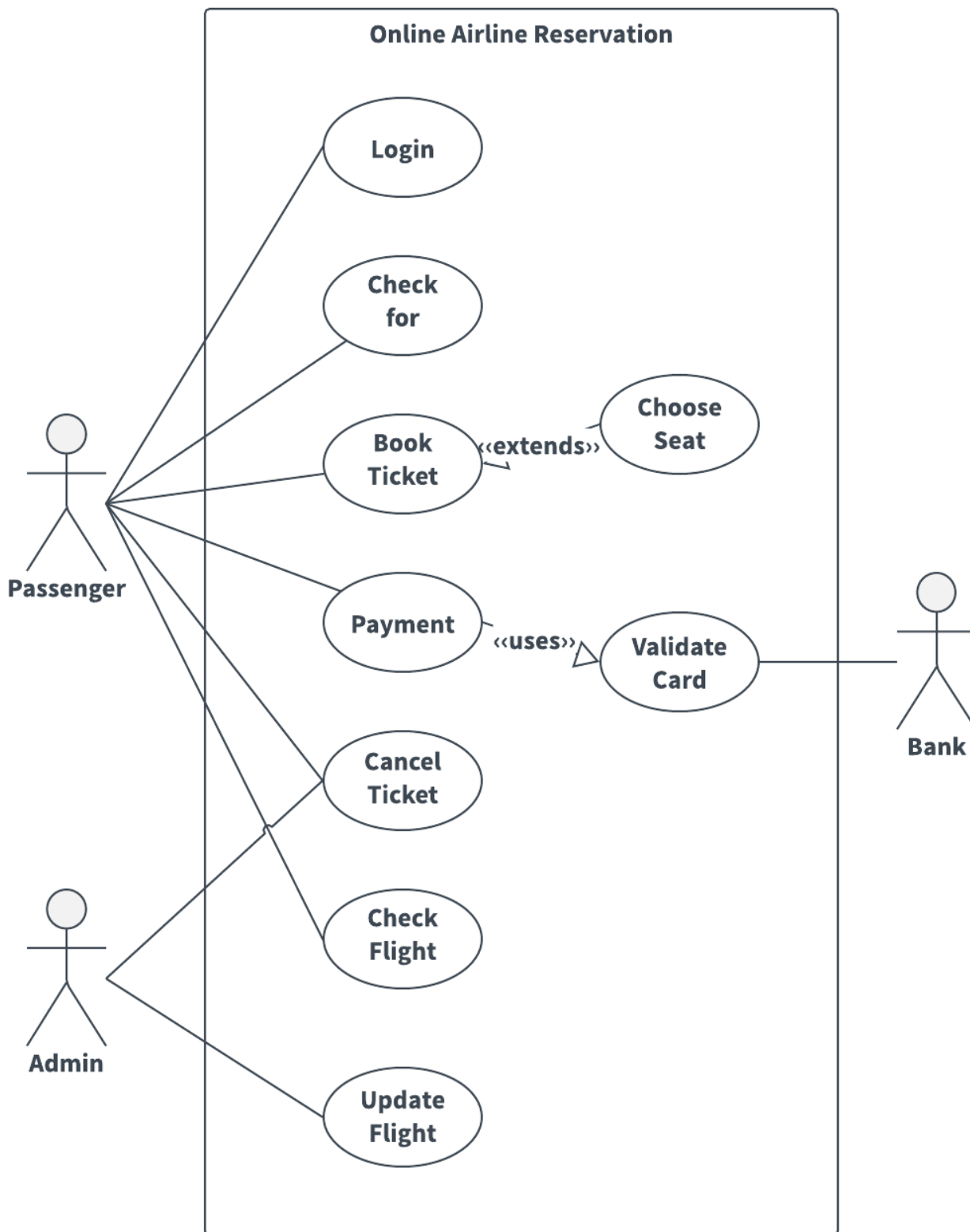
UML Use Case Diagram for Online Shopping (Click on image to modify online)

Related Posts: Automate Your Work with Lucidchart   How Lucidites Use Lucidchart:
(/blog/automate-your-work-with-   Diagrams for Engineering
lucidchart)   (/blog/how-lucidchart-uses-lucidchart-
for-engineering)

Online Airline Reservation

- Login
- Check for
- Book Ticket «extends» Choose Seat
- Payment «uses» Validate Card
- Cancel Ticket
- Check Flight
- Update Flight

Passenger

Admin

Bank

(https://www.lucidchart.com/documents/editNewOrRegister/624d44c3-6abc-4a7e-a84d-e2fe58150508)

UML Use Case Diagram for Airline Reservation (Click on image to modify online)

UML diagrams may look complicated, but the process of building one doesn't have to be. Click on any of the templates above or sign up for your free Lucidchart account (https://www.lucidchart.com/users/registerLevel? pricing=true) to get started.

Automate Your Work with Lucidchart (/blog/automate-your-work-with-lucidchart)

How Lucidites Use Lucidchart: Diagrams for Engineering (/blog/how-lucidchart-uses-lucidchart-for-engineering)

0 Comments   Lucidchart Blog   🔴1 **Login**   ▾

♡ Recommend   3   ⬆ Share   Sort by Best ▾

👤   Start the discussion…

LOG IN WITH   **OR SIGN UP WITH DISQUS** ⑦

          Name

Be the first to comment.

✉ Subscribe   Ⓓ Add Disqus to your siteAdd DisqusAdd   🔒 Disqus' Privacy PolicyPrivacy PolicyPrivacy

Start diagramming with Lucidchart today—it's free!

          Enter your email address

          Sign up free

or

          Sign up with Google (/users/googleFederatedLogin?level_id=free&return_url=%2Fusers%2Flevel%2FnewUser)

By signing up you agree to our terms & conditions. (/pages/tos)

Related Articles

Related Posts: Automate Your Work with Lucidchart   How Lucidites Use Lucidchart:
                              (/blog/automate-your-work-with-   Diagrams for Engineering
                              lucidchart)   (/blog/how-lucidchart-uses-lucidchart-
                                                      for-engineering)

4 Phases of Rapid Application Development Methodology (/blog/rapid-application-development-methodology)

Simplifying Estate Plans with Visuals (/blog/simplifying-estate-plans-with-visuals)

What Is Adaptive Project Framework? (/blog/what-is-adaptive-project-framework)

Popular Now

How One Man Saved Delta Airlines "Hundreds of Thousands of Dollars" With Lucidchart (/blog/delta-airlines-featurette)

Related Posts: Automate Your Work with Lucidchart (/blog/automate-your-work-with-lucidchart)   How Lucidites Use Lucidchart: Diagrams for Engineering (/blog/how-lucidchart-uses-lucidchart-for-engineering)

How to Make a Flowchart in Google Docs (/blog/how-to-make-a-flowchart-in-google-docs)

About Lucidchart:

Lucidchart is an online flowchart maker (https://www.lucidchart.com/pages/examples/flowchart-maker) used by more than 11 million people around the world to create flowcharts, network diagrams, ER diagrams, UML diagrams, mind maps, and more. Because of its intuitive user interface and collaborative features, it is the most popular online Visio alternative. (https://www.lucidchart.com/pages/tour/visio_alternative)

Lucidchart is one of the most popular productivity apps for G Suite, Confluence, JIRA, Jive and many other leading platforms.

Solutions

Lucidchart for Sales
(/pages/solutions/sales)

Visio for Mac
(/pages/tour/visio_for_mac)

Visio Alternative
(/pages/tour/visio_alternative)

Decision Tree Maker
(/pages/planning/decision-tree-examples)

UML Diagram Tool
(/pages/examples/uml_diagram_tool)

Org Chart Software
(/pages/examples/orgchart_software)

ER Diagram Tool
(/pages/tour/ER_diagram_tool)

Flowchart Software
(/pages/examples/flowchart_software)

Concept Map Maker
(/pages/examples/concept-maps)

Resources

Resource Center
(/pages/resource-center)

Templates
(/pages/examples)

Business Blog (/blog/)

Tech Blog (/techblog/)

Library
(/pages/resources)

Video Center
(/pages/resource-center?topic=Videos)

Case Studies
(/pages/customers)

Services

Integrations
(/pages/integrations)

Enterprise
(/pages/enterprise)

For Companies
(/pages/companies)

Teams (/pages/teams)

Affiliates
(/pages/affiliate-program)

Solution Partners
(/pages/partners)

Education
(/pages/usecase/education)

Contact Sales

Request a Demo

About Us

Tour (/pages/tour)

Pricing
(/users/registerLevel?type=blog)

Careers
(https://www.golucid.co/jobs)

Help
(https://lucidchart.zendesk.com/hc/en-us)

Privacy
(/pages/privacy)

Terms (/pages/tos)

Events
(/pages/lucidchart-connect)

(https://www.facebook.com/lucidchart/)

(https://twitter.com/lucidchart)

(https://www.youtube.com/user/lucidchart)

(https://www.linkedin.com/company/lucidchart/)

(https://www.glassdoor.com/Overview/Working-at-Lucid-Software-EI_IE636868.11,25.htm)

Download on the App Store
(https://itunes.apple.com/us/app/lucidchart-flowchart-diagram-visio-viewer/id611543423?mt=8#)

GET IT ON Google Play
(https://play.google.com/store/apps/details?id=com.lucidchart.android.chart&hl=en)

Contact sales: (888) 875-1867

Related Posts: Automate Your Work with Lucidchart
(/blog/automate-your-work-with-lucidchart)

How Lucidites Use Lucidchart:
Diagrams for Engineering
(/blog/how-lucidchart-uses-lucidchart-for-engineering)