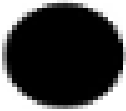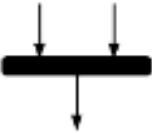# Activity Diagram
Software Engineering
By-SHARMIN AKTER (SNA)
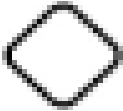
Basic components of an activity diagram

Before you begin making an activity diagram, you should first understand its makeup. Some of the most common components of an activity diagram include:
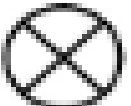
- **Action:** A step in the activity wherein the users or software perform a given task. In Lucidchart, actions are symbolized with round-edged rectangles.
- **Decision node:** A conditional branch in the flow that is represented by a diamond. It includes a single input and two or more outputs.
- **Control flows:** Another name for the connectors that show the flow between steps in the diagram.
- **Start node:** Symbolizes the beginning of the activity. The start node is represented by a black circle.
- **End node:** Represents the final step in the activity. The end node is represented by an outlined black circle.
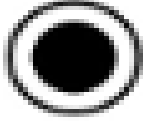
Activity diagram symbols

These activity diagram shapes and symbols are some of the most common types you'll find in UML diagrams.

Symbol	Name	Description
	Start symbol	Represents the beginning of a process or workflow in an activity diagram. It can be used by itself or with a note symbol that explains the starting point.
	Activity symbol	Indicates the activities that make up a modeled process. These symbols, which include short descriptions within the shape, are the main building blocks of an activity diagram.
	Connector symbol	Shows the directional flow, or control flow, of the activity. An incoming arrow starts a step of an activity; once the step is completed, the flow continues with the outgoing arrow.
	Joint symbol/ Synchronization bar	Combines two concurrent activities and re-introduces them to a flow where only one activity occurs at a time. Represented with a thick vertical or horizontal line.

Symbol	Name	Description
	Fork symbol	Splits a single activity flow into two concurrent activities. Symbolized with multiple arrowed lines from a join.
	Decision symbol	Represents a decision and always has at least two paths branching out with condition text to allow users to view options. This symbol represents the branching or merging of various flows with the symbol acting as a frame or container.
	Note symbol	Allows the diagram creators or collaborators to communicate additional messages that don't fit within the diagram itself. Leave notes for added clarity and specification.
	Send signal symbol	Indicates that a signal is being sent to a receiving activity.

Symbol	Name	Description
	Receive signal symbol	Demonstrates the acceptance of an event. After the event is received, the flow that comes from this action is completed.
	Shallow history pseudostate symbol	Represents a transition that invokes the last active state.
	Option loop symbol	Allows the creator to model a repetitive sequence within the option loop symbol.
	Flow final symbol	Represents the end of a specific process flow. This symbol shouldn't represent the end of all flows in an activity; in that instance, you would use the end symbol. The flow final symbol should be placed at the end of a process in a single activity flow.
	Condition text	Placed next to a decision marker to let you know under what condition an activity flow should split off in that direction.

Symbol	Name	Description
	End symbol	Marks the end state of an activity and represents the completion of all flows of a process.

Activity diagram for a login page

Many of the activities people want to accomplish online—checking email, managing finances, ordering clothes, etc.—require them to log into a website. This activity diagram shows the process of logging into a website, from entering a username and password to successfully logging in to the system. It uses different container shapes for activities, decisions, and notes. Lucidchart is the ideal tool for creating any kind of UML flowchart, whether it's an activity diagram, a use case diagram, or a component diagram. Lucidchart offers in-editor collaboration tools and instant web publishing so you can demonstrate the functionality of your system to others.

```
Client is
registered  ----------------●

                              │
                              ▼
                    ┌──────────────────┐
                    │  Client enters login  │◄───────────────┐
                    │    name and          │                 │
                    │    password          │                 │
                    └──────────────────┘                 │
                              │                             │
                              ▼                             │
                           ◇◇◇◇◇                         │
                        ◇   Correct  ◇      No      ┌──────────────┐
                        ◇  login and  ◇ ─────────► │   Invalid     │
                        ◇  password?  ◇            │ login/password │
                           ◇◇◇◇◇                   └──────────────┘
                              │
                             Yes
                              ▼
                    ┌──────────────────┐
                    │     Client        │
                    │ successfully logs │
                    │       in          │
                    └──────────────────┘
                              │
                              ▼
                    ┌──────────────────┐
                    │ Client's settings │
                    │  are displayed    │
                    └──────────────────┘
                              │
                              ▼
                             ◉ ──────────►  ┌──────────────┐
                                            │ Client logs in to │
                                            │   the system     │
                                            └──────────────┘
```
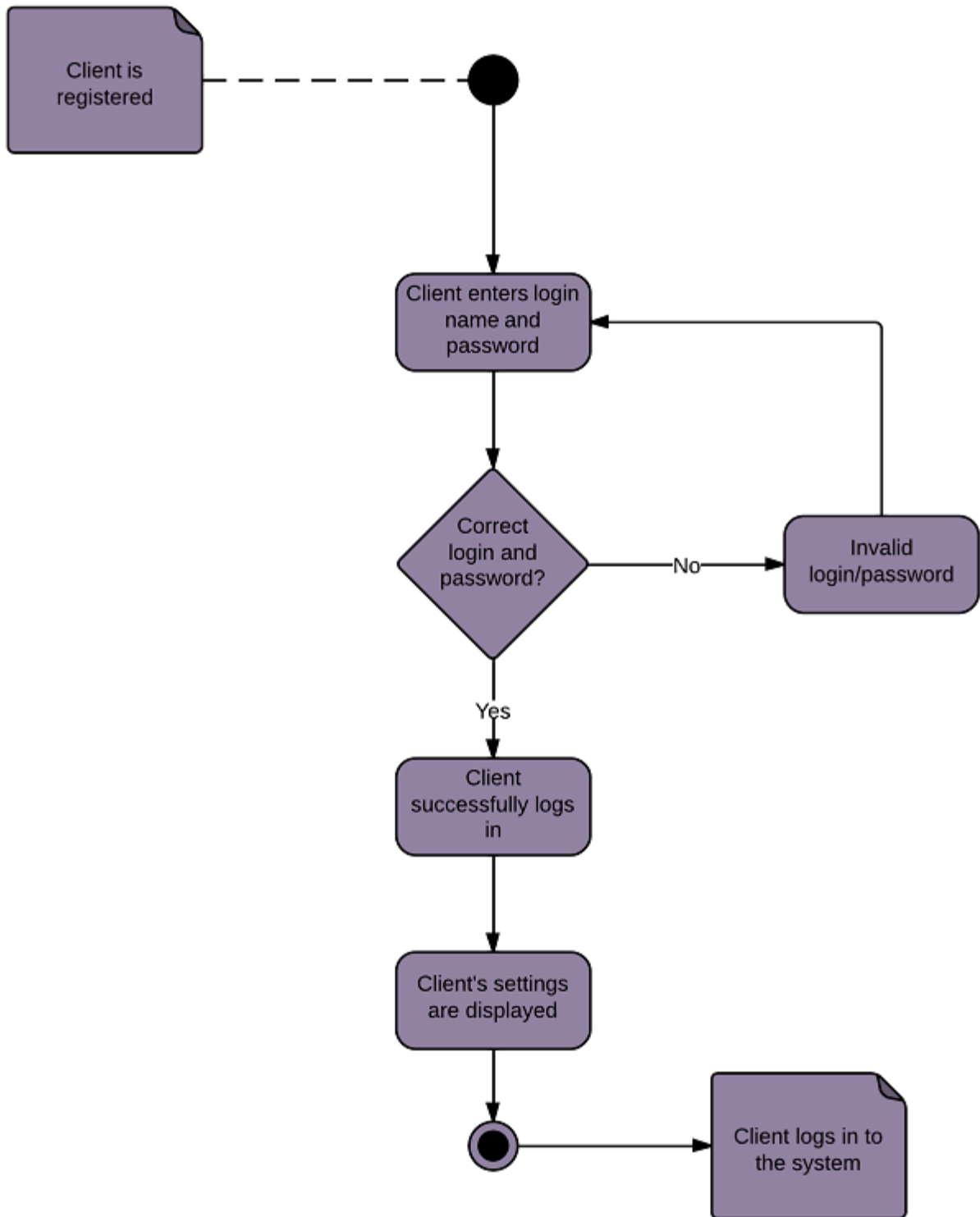
Activity diagram for a banking system

This diagram shows the process of either withdrawing money from or depositing money into a bank account. An advantage of representing the workflow visually in UML is the ability to show withdrawals and deposits on one chart. When you use Lucidchart to build an activity diagram, you can customize your templates with professional-grade typefaces and colors. Never worry about losing your documents with secure, cloud-based storage.