Lab report no: 01

Name of the lab report: Activity diagram.

Group members:

- **IT-17015**
- **IT-17032**
- **IT-17045**
- **IT-17057**
- **IT-17060**

Objectives:

- Learn basic about activity diagram
- Learn activity diagram notations
- Learn how to draw an activity diagram.

Theory:

What is an Activity diagram?

A UML activity diagram helps to visualize a certain use case at a more detailed level. It is a behavioral diagram that illustrates the ow of activities through a system. UML activity diagrams can also be used to depict a ow of events in a business process. They can be used to examine business processes in order to identify its ow and requirements.

Activity Diagram Symbols

UML has specified a set of symbols and rules for drawing activity diagrams. Following are the commonly used activity diagram symbols with explanations.

Symbol	Name	Use
	Start/ Initial Node	Used to represent the starting point or the initial state of an activity
	Activity / Action State	Used to represent the activities of the process
	Action	Used to represent the executable sub-areas of an activity
	Control Flow / Edge	Used to represent the flow of control from one action to the other
	Object Flow / Control Edge	Used to represent the path of objects moving through the activity
	Activity Final Node	Used to mark the end of all control flows within the activity
	Flow Final Node	Used to mark the end of a single control flow
	Decision Node	Used to represent a conditional branch point with one input and multiple outputs
	Merge Node	Used to represent the merging of flows. It has several inputs, but one output.
	Fork	Used to represent a flow that may branch into two or more parallel flows

	Merge	Used to represent a flow that may branch into two or more parallel flows
	Signal Sending	Used to represent the action of sending a signal to an accepting activity
	Signal Receipt	Used to represent that the signal is received
	Note/ Comment	Used to add relevant comments to elements

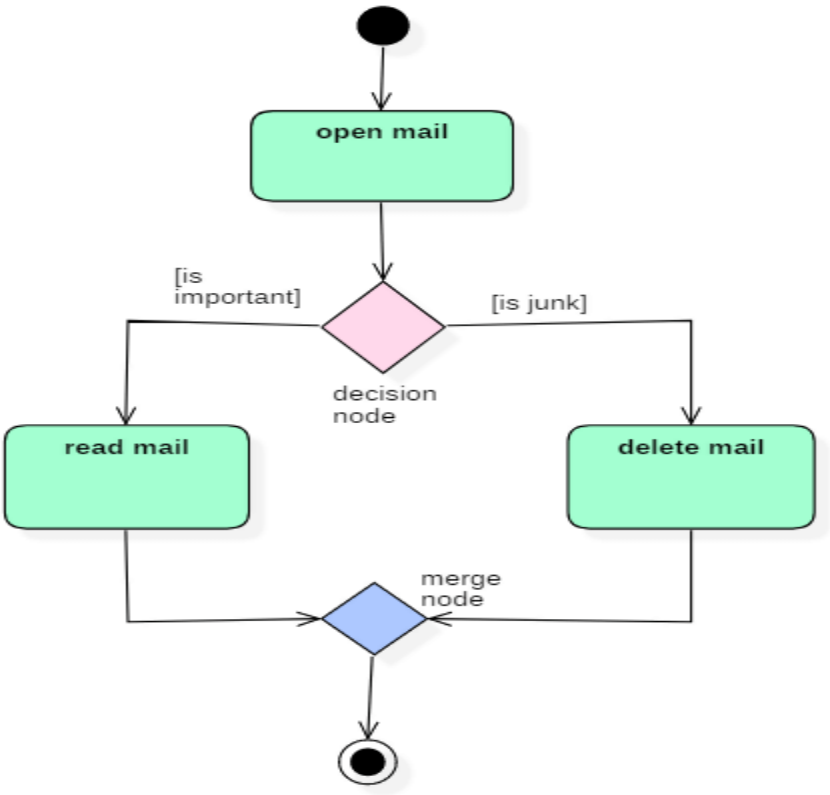
How to draw an activity diagram?

To draw an activity diagram, one must understand and explore the entire system. All the elements and entities that are going to be used inside the diagram must be known by the user. The central concept which is nothing but an activity must be clear to the user. After analyzing all activities, these activities should be explored to find various constraints that are applied to activities. If there is such a constraint, then it should be noted before developing an activity diagram.

Following rules must be followed while developing an activity diagram,

- All activities in the system should be named.
- Activity names should be meaningful.
- Constraints must be identified.
- Activity associations must be known.

Example of Activity Diagram:



When Use Activity Diagram?

Activity diagram is used to model business processes and workflows. These diagrams are used in software modeling as well as business modeling.

Most commonly activity diagrams are used to,

- Model the workflow in a graphical way, which is easily understandable.
- Model the execution flow between various entities of a system. / Prev (/state-machine-transition-diagram.html) Next (/interaction-collaboration-sequence-diagrams-examples.html)
- Model the detailed information about any function or an algorithm which is used inside the system
- . Model business processes and their workflows
- Capture the dynamic behavior of a system.
- Generate high-level flowcharts to represent the workflow of any application.
- Model high-level view of an object-oriented or a distributed system.

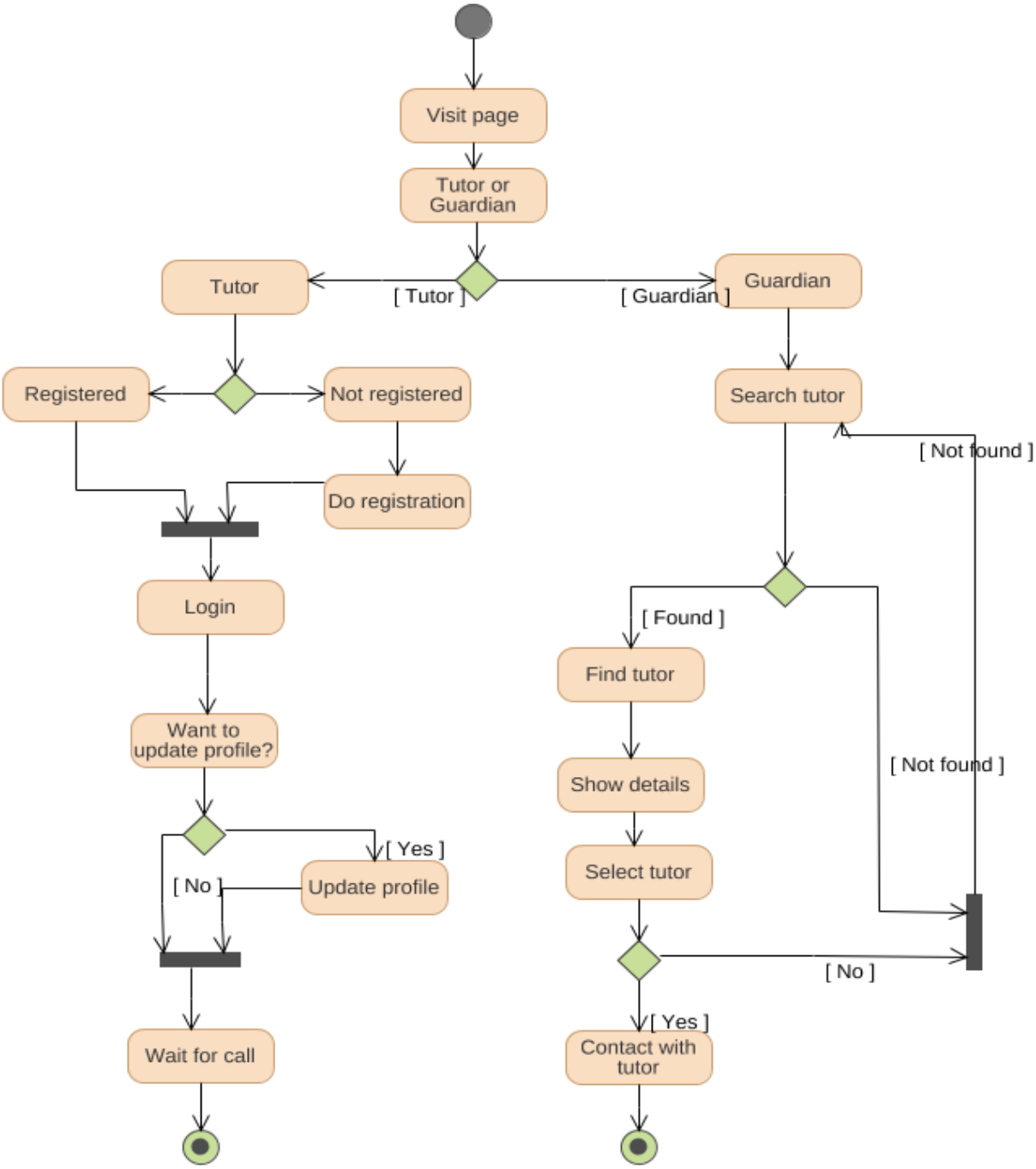
Our group story:

X is a student of Y university. He belongs to a middle class family. When he at first came to university, he faces a lot of trouble specifically financial problems. So he collects tuition from his varsity's senior brother. After getting the tuition somehow he maintains his cost. But he thinks that the problem doesn't over. He notices that when students at first came to university they are also facing the same problems who are also belonging to middle class family, they are also facing a lot of financial problems. So try to do something about this problem. At third year second semester his teacher teaches them a course about software engineering. In this course he learns laraval software development framework and decides to develop a software on tuition management system using laravel framework. To develop such a system he first want to draw the following diagram of the system.

- Activity diagram.
- Use Case diagram.
- Sequence diagram.
- Class diagram.

In this lab we will draw a activity diagram based on that story.

Activity diagram of our group story:



Conclusion:

This was an interesting lab. I learned many things from this lab. I don't know nothing about activity diagram before this lab work but now I know about activity diagram, the main components of activity diagram and finally how to draw a activity diagram.