BSc (Hons) in Information Technology
Year 1

Lab Exercise – Activity Diagrams

IT1060 – Software Process Modeling Semester 1, 2022

In this Lab we will draw Activity diagrams to model the given case studies.

This Lab sheets has two parts: Part A and Part B. Students should try to complete Part A questions within the lab sessions. Part B questions are for self-learning. Students must try Part B questions by themselves.

Part A

We will be using Draw.io software (which can access through https://www.draw.io/).

Guidelines for using the Lab sheet:

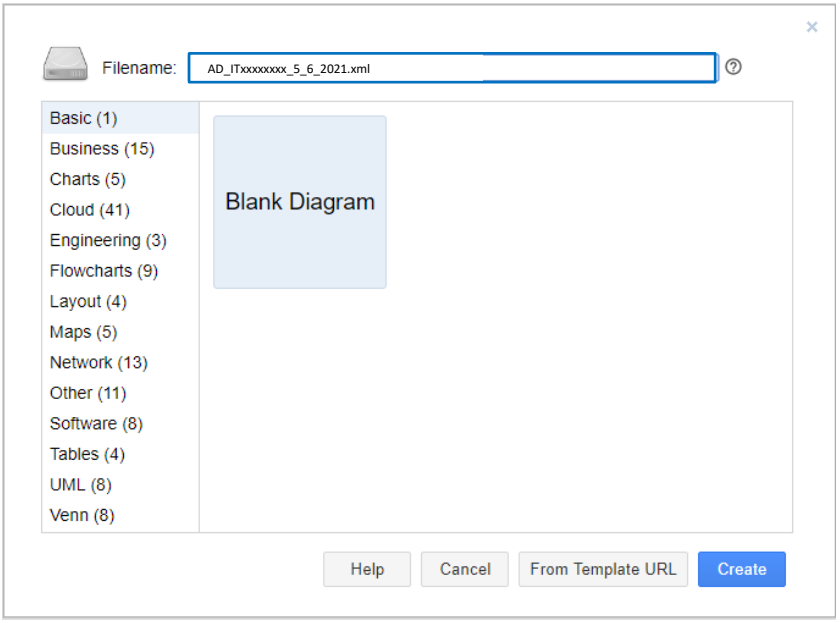
- First, ask the students to read the case study and draw the activity diagram on paper. Discuss the answer. (There might be different correct answers.)
- Show the students how to draw the activity diagram using Draw.io.

Instructions for using Draw.io:

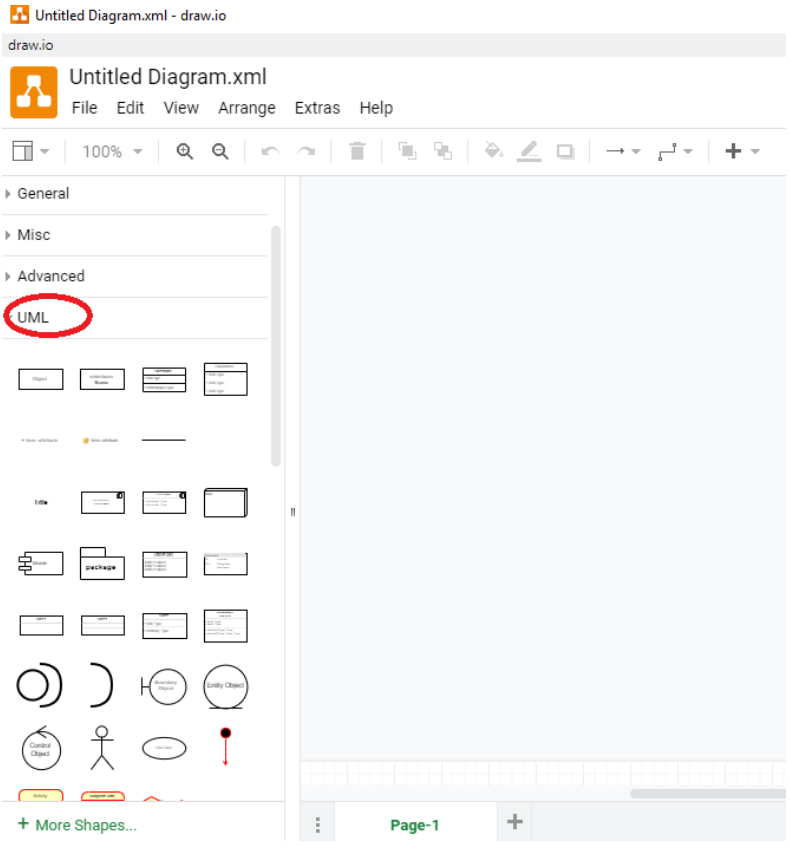
- Open Draw.io software from the start menu.
- New window will appear, and select "create new diagram"

- Give a file name and select "Basic → Blank Diagram" and then click on "Create".

  (For this lab, use the format given below for the file name)
  File name format – AD_ITxxxxxxxx_DD_MM_YYYY



- Select “UML” category from left side bar.
- Click on suitable notations to draw the activity diagram



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Exercise 1:

Draw the Activity Diagram for "Borrow Book" use case for SLIIT Library Information System using Draw.io.

Once registered, a library member will be given the borrowing rights. Members have access to core textbooks, reference books, general reading materials, CDs and DVDs.

A library member should reserve the required item before borrowing it. There is a maximum limit of items that could be reserved by a member. If the member has reached the limit of reserving items, he/she should return the item before reserving another item. If there are any overdue items the member has to pay the fines and return the items before reserving. A successful reservation request will receive a reservation ID through the system.

On receiving a reservation Id through the system, valid undergraduate student members are allowed to borrow one book for a period of 5 days. If an undergraduate student member needs to borrow more than one book at a time he/she is allowed to do so after making an additional valid refundable deposit of Rs. 3000/-. Staff members are allowed to borrow one item for a period of 3 months whereas the non-academic staff members and Post Graduate students are allowed to borrow one book for a period of 7 days.

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Exercise 2:

Draw an Activity Diagram with swim lanes for the given process.

Use Case: Make an appointment

Main flow:

1. Use case starts when customer successfully logins to the system.
2. Customer selects the date and time that are needed to take the appointment.
3. System checks for available hair dressers for customer.
4. Display the list of available hair dressers.
5. Customer selects the hair dresser.
6. System sends appointment details to the relevant hair dresser and to the payment counter.
7. Hair dresser and the payment counter receive notification about the appointment.
8. While, payment counter processes the payment details, hair dresser schedules in the calendar.
9. Use case ends when the system send confirmed appointment details to the customer.

Extensions:

1.A. If customer login is invalid,

a). Display an error message.

b). Allow customer to login again.

3.A. If there are no available hair dressers on that time,

a). Ask user to choose a different date and time.

b). Repeat from step 2.

Exercise 3:

Draw an Activity Diagram with swim lanes for the for the "Place Order" process of the Taste Buds Catering System (TBCS) given below using Draw.io.

To place a food order through TBCS, a customer has to login to the TBCS system. Once logged in, the customer initiates the ordering process by providing the food details including the quantities for the order. Then TBCS will calculate the total amount for the order and display it to the customer. If the customer is a registered customer, he will be given a discount from the total bill amount depending on how many orders he has placed during the month. Then the discounted amount will be displayed to the customer. If the customer is willing to place the order, he/she will make the payment online via credit or debit card. Once the customer enters and submit the card details, the system will validate those details. If the validation process is unsuccessful, the system will notify the customer and will ask the customer to re-enter the payment details. If the validation is successful, the order details will be sent to the Restaurant Manager for approval. Once approved, a unique order number is generated and displayed to the customer. Then the order is assigned with "New Order" status. Meanwhile the system generates a digital receipt and sends it to the customer via e-mail. Once all these tasks are successfully executed, the system will generate a "Order Placed Successfully" message which would be shown to the customer.

Part B

Exercise 4:

a. Draw an Activity Diagram for the given process.

Use Case: Add a listing

Main flow:

1. Receptionist enter Agent information for the system
2. System will display Information in the screen
3. Then receptionist enter new listing information on a property
4. After that new list will be created
5. At the same time the new list will be displayed in the screen
6. Then receptionist needs to verify the list by identifying no editing or changes to be done in the list
7. Once confirmed the list task is completed.

Extensions:

1a. If agent not found in database, terminate session

6a. If errors in listing, edit listing for verification

b. Develop an activity diagram with swim lanes based on the following narrative using Draw.io.

The purpose of the Open Access Insurance System is to provide automotive insurance to car owners. Initially, potential customers fill out an insurance application and submit, which provides information about the customer and his or her vehicles. This information is sent to an agent for the processing proposal. Then agent will send those documents to various insurance companies to get quotes for insurance. When the responses return, the agent then determines

the best policy for the type and level of coverage desired and sends the customer a copy of the insurance policy proposal and quote for the approval. If customer approved the policy, it is confirmed. If not approved agent will send another policy until customer approves.

Exercise 5:

Draw an Activity Diagram for the "Generate Weekly Transaction Report" use case scenario given above.

Use case ID	001	
Use case Name	Generate Weekly Transaction Report	
Summary	Admin generates reports from web site	
Primary Actor	Administrator	
Trigger	Admin chooses the admin page	
Main Success Scenario	Step	Action
	1.	Include :: (Login)
	2.	System displays the Admin page
	3.	User views "Generate Report" page
	4.	System shows the options for report types: advertiser report, customer report, vendor report, item report and finance finance report
	5.	User selects "Finance Report" option
	6.	User enters the duration of the report as start time and end time
	7.	User selects "Add Transaction Filters
	8.	For each transaction filter, user has to enter transaction type, number of transactions and amount range in any order.
	9	If there are more transactions for the week, repeat step number 7 and 8 for each transactions of the week.

	10.	User selects "Finalize Report"
	11.	User saves the softcopy of report.
	12.	Meantime, system sends an email to admin
Extensions	Step	Actions
	6.a	If entered time period is not valid, display error message and prompt user to enter it again.
	8.a	If user does not want to continue, he/she can exit