190030430 D.Sri Rama Krishna Reddy

SE Adv Practical-7

Pre-lab:

1.What kind of diagrams are used to illustrate data structures, and the static snapshots instances of the things found in the class diagrams?

Ans: Object diagrams are used to illustrate data structures, and the static snapshots instances of the things found in the class diagrams.

2.Which of the following Composite name consists of in a UML Class and object diagram?

Ans: Delimiter,Simple names,Digits

3.Multiplicity for an association _____.

a) association is the number of instances with a single instance

b) association is the number of instances with a number instance

c) All of the mentioned

d) None of the mentioned

Ans: Option a

4._____among these are the rules to be considered to form Class diagrams.

a) Class symbols least a name compartment

b) The compartment can be in random order

c) Attributes and operations can be listed

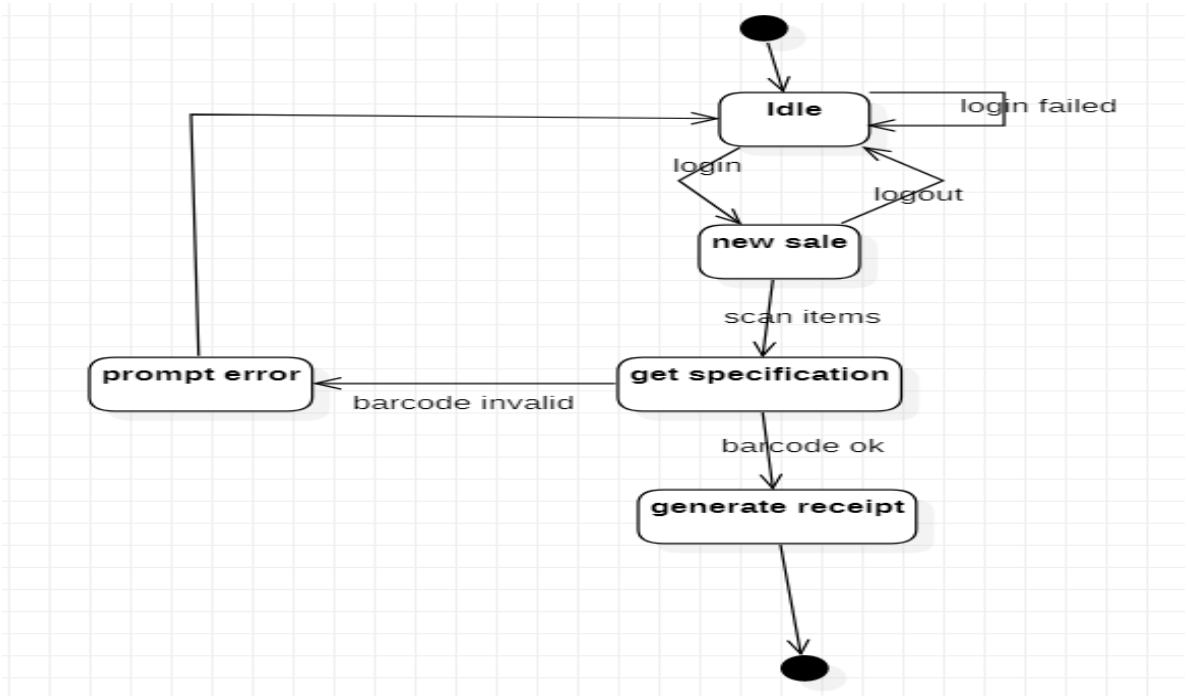
d) None of the mention

Ans: Option a

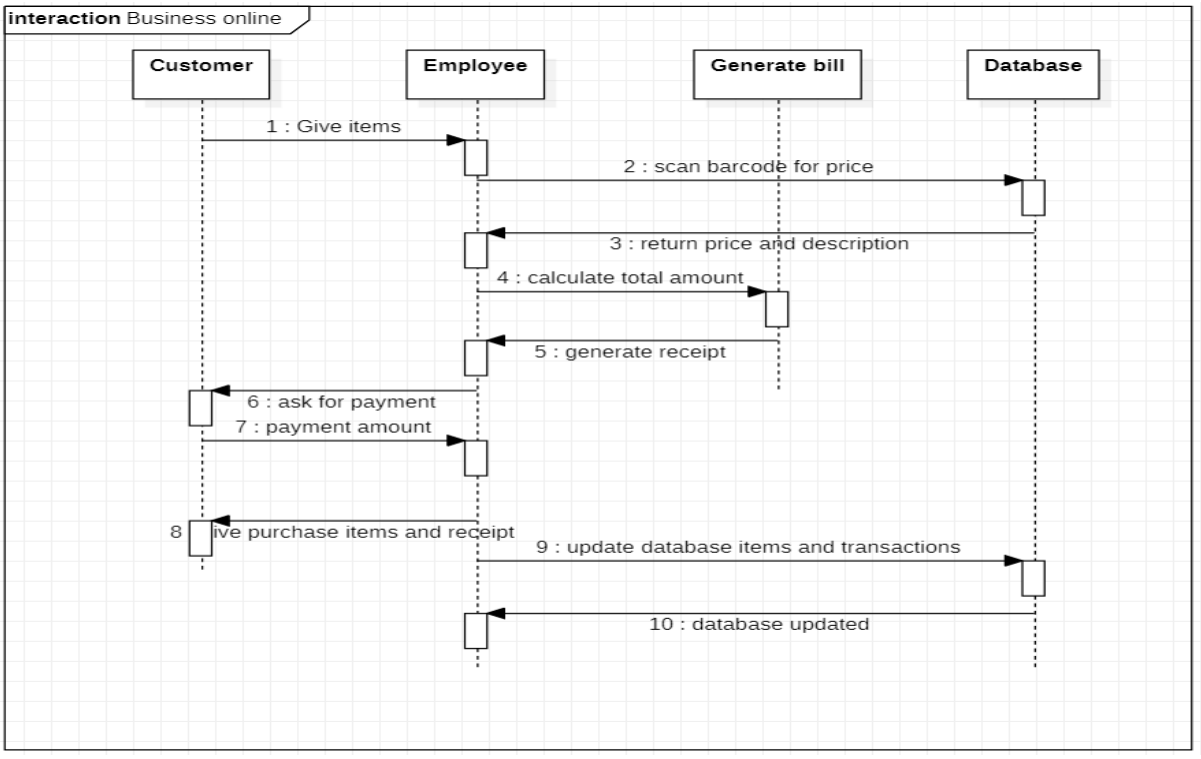
In Lab:

Mr. Rahul wants to extend his business by taking it to online platforms. He wants to provide best support service to his customers. He then consults a Software Designer and mentions all the requirements which is a User Story. Now consider yourself as the Software Designer who must prepare an SRS document. Draw a State and Sequence UML Diagram considering all the requirements in a step by step manner.

STATECHART DIAGRAM:



SEQUENCE DIAGRAM:



Post-lab:

1.Discuss few advantages on creating a Model

Ans: Modeling benefits include:

- Viewing systems from multiple perspectives.
- Discovering causes and effects using model traceability.
- Improving system understanding through visual analysis.
- Discovering errors earlier and reducing system defects.
- Exploring alternatives earlier in the system lifecycle.

2.What are the benefits of the class diagram?

Ans: Advantages of the class diagram

- Class diagrams give you a sense of orientation.
- They provide detailed insight into the structure of your systems.
- At the same time they offer a quick overview of the synergy happening among the different system elements as well as their properties and relationships.

3.Compare Aggregation and Composition?

Ans :

Sr. No.	Key	Composition	Aggregation
1	Basic	Composition(mixture) is a way to wrap simple objects or data types into a single unit	Aggregation(collection) differs from ordinary composition in that it does not imply ownership
2	Relationship	In composition , parent entity owns child entity.	In Aggregation , parent Has-A relationship with child entity
3	UML Notation	It is denoted by a filled diamond.	It is denoted by an empty diamond.
4.	Life cycle	Child doesn’t have their own life time	Child can have their own life time
5.	Association	It is a strong association	It is a weak association

190030430 D.Sri Rama Krishna Reddy

SE Adv Practical-8

Pre-Lab Task:

1.An association shows the relationship between _____.
Ans: Association is a relationship between two objects. In other words, association defines the multiplicity between objects.

2.A dependency is a ---------- relationship between two things
- **a. structural**
- **b. semantics**
- **c. behavioral**
- **d. none**

Ans: Option b

3.Class diagram shows relationsip between/among
- **a. classes**
- **b. Interfaces**
- **c. Collaborations**
- **d. All of these.**

Ans: Option d

4.In the description of class , the protected operations is shown by
Ans: In the description of class , the protected operations is shown by #(hash)

In-lab:

Develop the Activity UML diagram of Library Management System which shows the flows between the activity of Librarian Student Issues, Books Address. The main activity involved in this UML Activity Diagram of Library Management System are as follows:

• Librarian Activity • Student Activity • Issues Activity • Books Activity • Address Activity

Features of the Activity UML Diagram of Library Management System: -

• Admin User can search Librarian view description of a selected Librarian, add Librarian, update Librarian and delete Librarian,

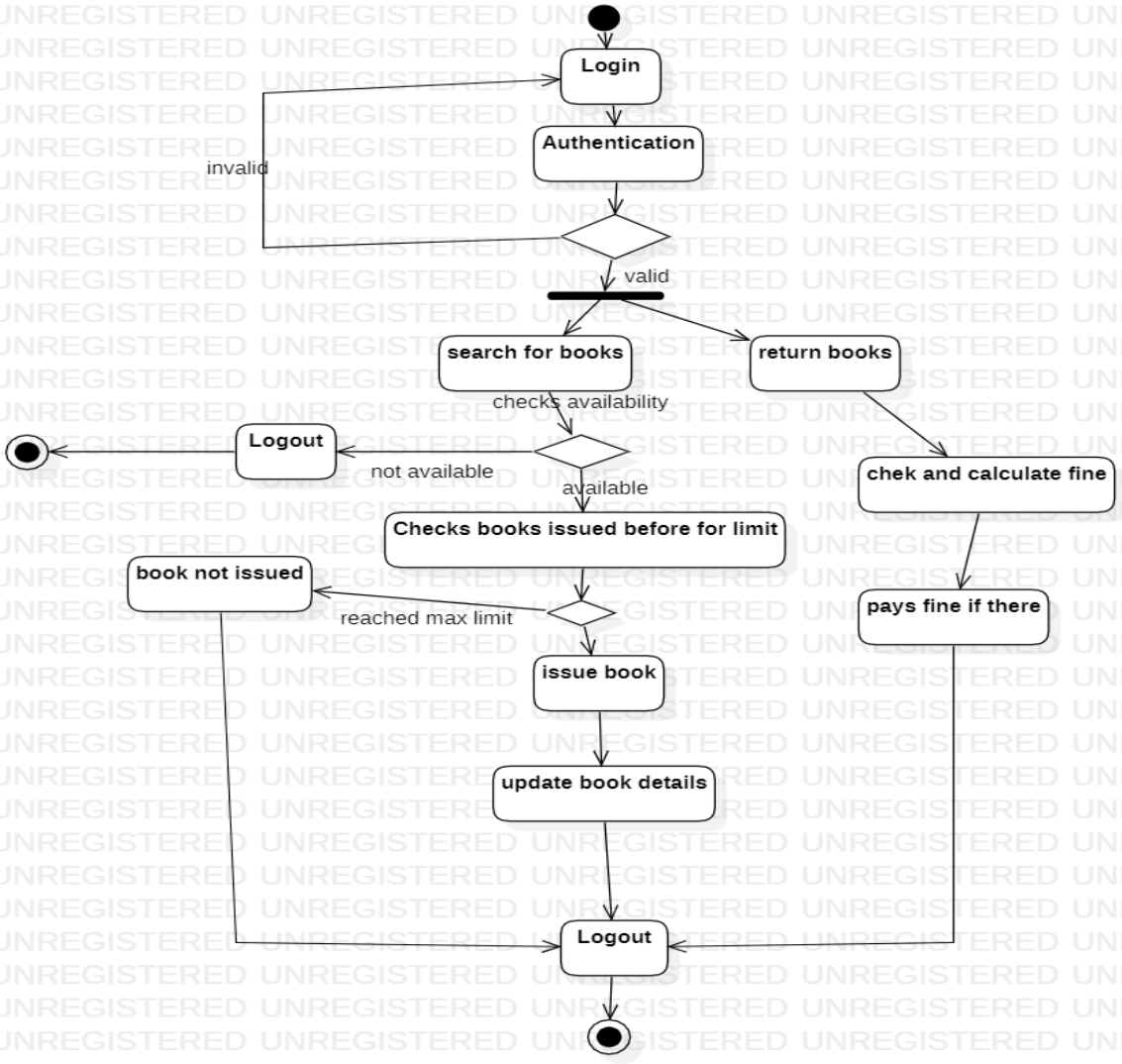
• It shows the activity flow of editing, adding and updating of Student

• User will be able to search and generate report of Issues, Books, Address

• All objects such as (Librarian, Student Address) are interlinked

• Its shows the full description and flow of Librarian, Books, Address, Issues, Student

ACTIVITY DIAGRAM:



Post Lab Task:

1.What are Cardinality associations in class diagram?

Ans: In UML, cardinality is represented by characters: "..1" (meaning that an instance of the first entity class can be associated with no more than one instance of the second class) or ".. *" (meaning that the first entity can be associated with an unlimited number of instances of the second class).

2.Extreme programming (XP) is one of the most important software development frameworks of Agile models. It is used to improve software quality and responsive to customer requirements. Explain extreme programming in a nutshell and why it is called as a extreme?

Ans:

Extreme Programming in a Nutshell

Extreme Programming involves −

- Writing unit tests before programming and keeping all of the tests running at all times. The unit tests are automated and eliminates defects early, thus reducing the costs.
- Starting with a simple design just enough to code the features at hand and redesigning when required.
- Programming in pairs (called pair programming), with two programmers at one screen, taking turns to use the keyboard. While one of them is at the keyboard, the other constantly reviews and provides inputs.
- Integrating and testing the whole system several times a day.
- Putting a minimal working system into the production quickly and upgrading it whenever required.
- Keeping the customer involved all the time and obtaining constant feedback.

Why is it called "Extreme?"

Extreme Programming takes the effective principles and practices to extreme levels.

- Code reviews are effective as the code is reviewed all the time.
- Testing is effective as there is continuous regression and testing.
- Design is effective as everybody needs to do refactoring daily.
- Integration testing is important as integrate and test several times a day.
- Short iterations are effective as the planning game for release planning and iteration planning.

190030430 D.Sri Rama Krishna Reddy

SE Adv Practical-9

Pre-lab:

1.Class diagram shows relationship between

a.classes

b.Interfaces

c.Collaborations

d.All of these.

Ans: Option d

2.A dependency is a ---------- relationship between two things

a.structural

b.semantics

c.behavioral

d.None

Ans: Option b

3.Which of the following is a condition or situation during the life of an object during which it satisfies some condition, perform some activity or wait for some event?

a.Class

b.State

c.Activity

d.Specification

Ans: Option b

In Lab:

1.Design the Activity UML diagram of University Admission Management System which shows the flows between the activity of Degree, Subject, Entrance Exam, University. The main activity involved in this UML Activity Diagram of University Admission Management System are as follows:

• Degree Activity • Activity • Subject Activity • Entrance Exam Activity • University Activity

Features of The Activity UML Diagram of University Admission Management System: -

• Admin User can search Degree, view description of a selected Degree, add Degree, update Degree and delete Degree

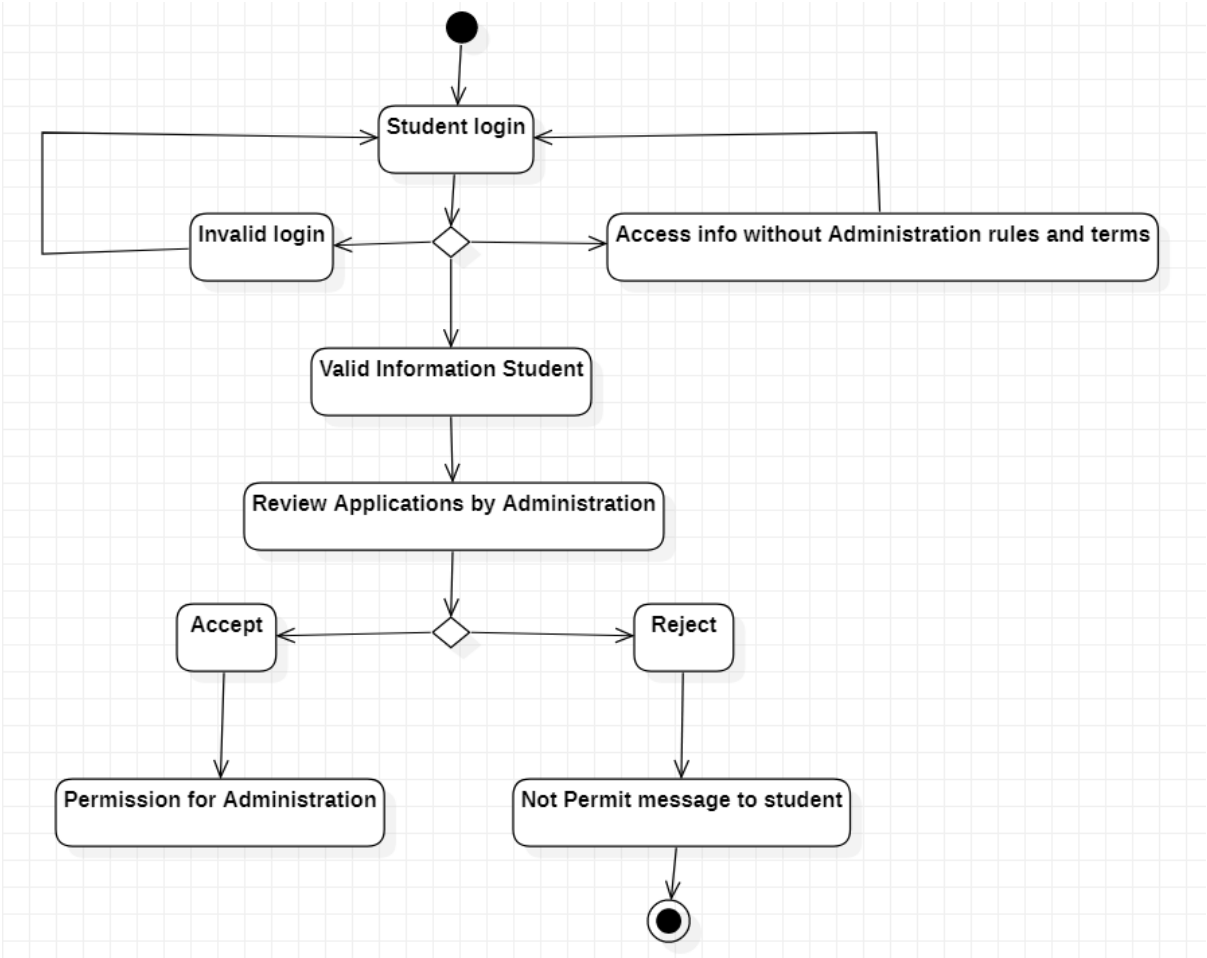
• It shows the activity flow of editing, adding and updating of data.

• User will be able to search and generate report of Subject, Entrance Exam, University

• All objects such as Degree, University) are interlinked

• It shows the full description and flow of Degree, Entrance Exam, University, Subject.

ACTIVITY DIAGRAM:



Post-lab:

1.What are the perspectives of Class Diagram?

Ans: Perspectives of Class Diagram:

The choice of perspective depends on how far along you are in the development process. During the formulation of a domain model, for example, you would seldom move past the conceptual perspective. Analysis models will typically feature a mix of conceptual and specification perspectives. Design model development will typically start with heavy emphasis on the specification perspective, and evolve into the implementation perspective.

A diagram can be interpreted from various perspectives:

- Conceptual: Represents the concepts in the domain
- Specification: Focus is on the interfaces of Abstract Data Type (ADTs) in the software
- Implementation: Describes how classes will implement their interfaces

2.What are Cardinality associations in class diagram?

Ans: In UML, cardinality is represented by characters: "..1" (meaning that an instance of the first entity class can be associated with no more than one instance of the second class) or ".. *" (meaning that the first entity can be associated with an unlimited number of instances of the second class).

3.What is Dependency?

Ans: Dependency is a broad software engineering term used to refer when a piece of software relies on another one. Coupling (computer programming) In software engineering, coupling or dependency is the degree to which each program module relies on each one of the other modules. Program X uses Library Y.

4.How can u generate sequence diagram from user story? Explain with an example.

Ans: In the world of agile, a user story can be used to record a user's problem or concern to be addressed by the system to be developed. During the discussion of user story, project team can write down the suggested usage of the system in the form of scenarios. Each scenario is a set of steps a user will take to achieve what they want, under that user story. With user story scenario, user can read and confirm if the system flow is what they preferred before the commencement of feature development.