PES University, Bengaluru

Department of Computer Science & Engineering
Session: Jan - May 2022

UE19CS353 – Object Oriented Analysis and Design with Java

Theory ISA (Mini Project)

Report on

Discussion Forum like StackOverFlow

By:

Kedar U Shet – PES1UG19CS217

Kishan Murthy – PES1UG19CS221

Kshitij Gopali – PES1UG19CS234
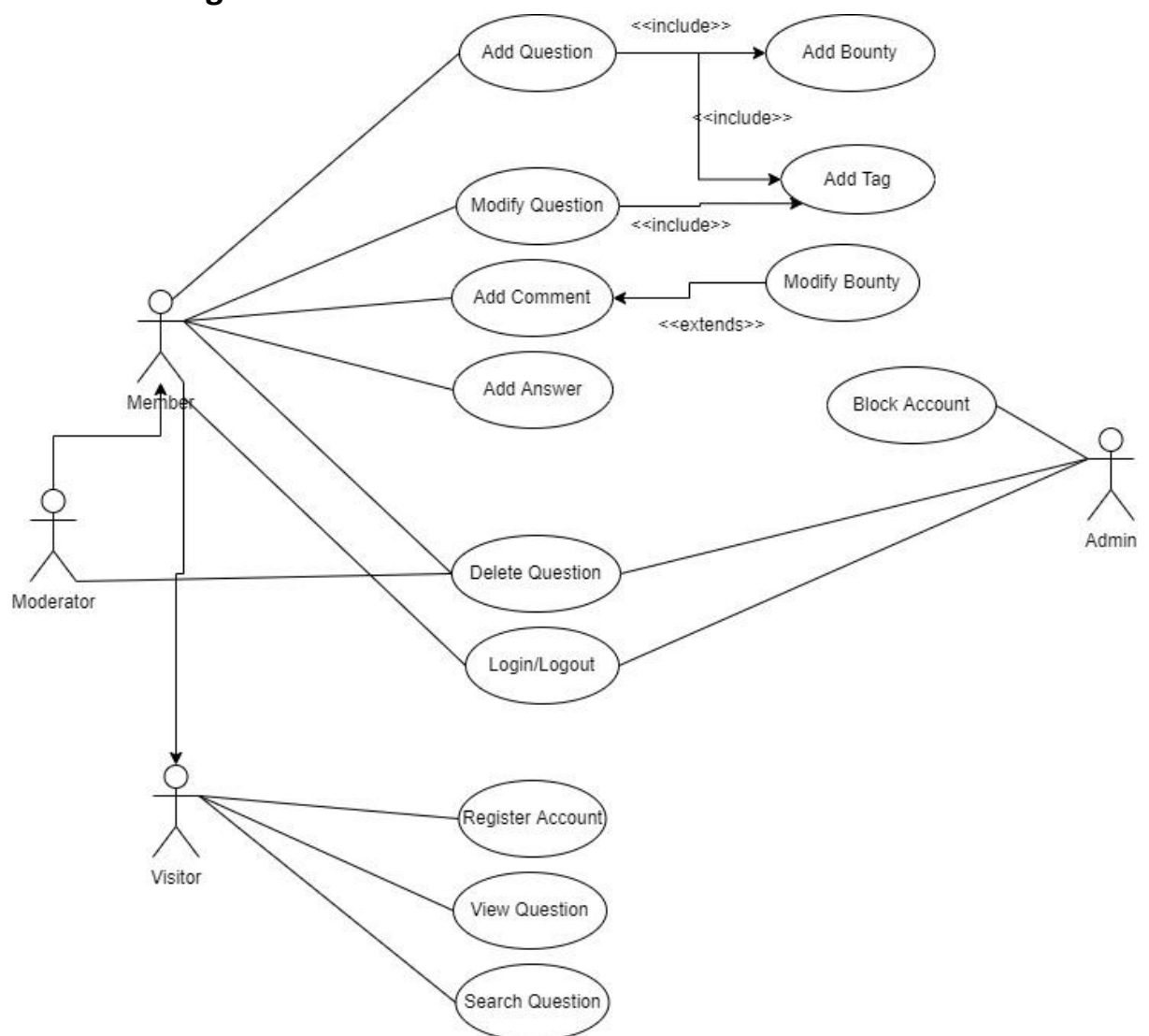
6th Semester D

1. Project Description

A professional discussion forum for enthusiasts in their fields to ask questions and answers. We have created an application like StackOverFlow where users can post questions, post answers to said questions and vote for it.

Only registered users can post questions and answers. Visitors can only view.
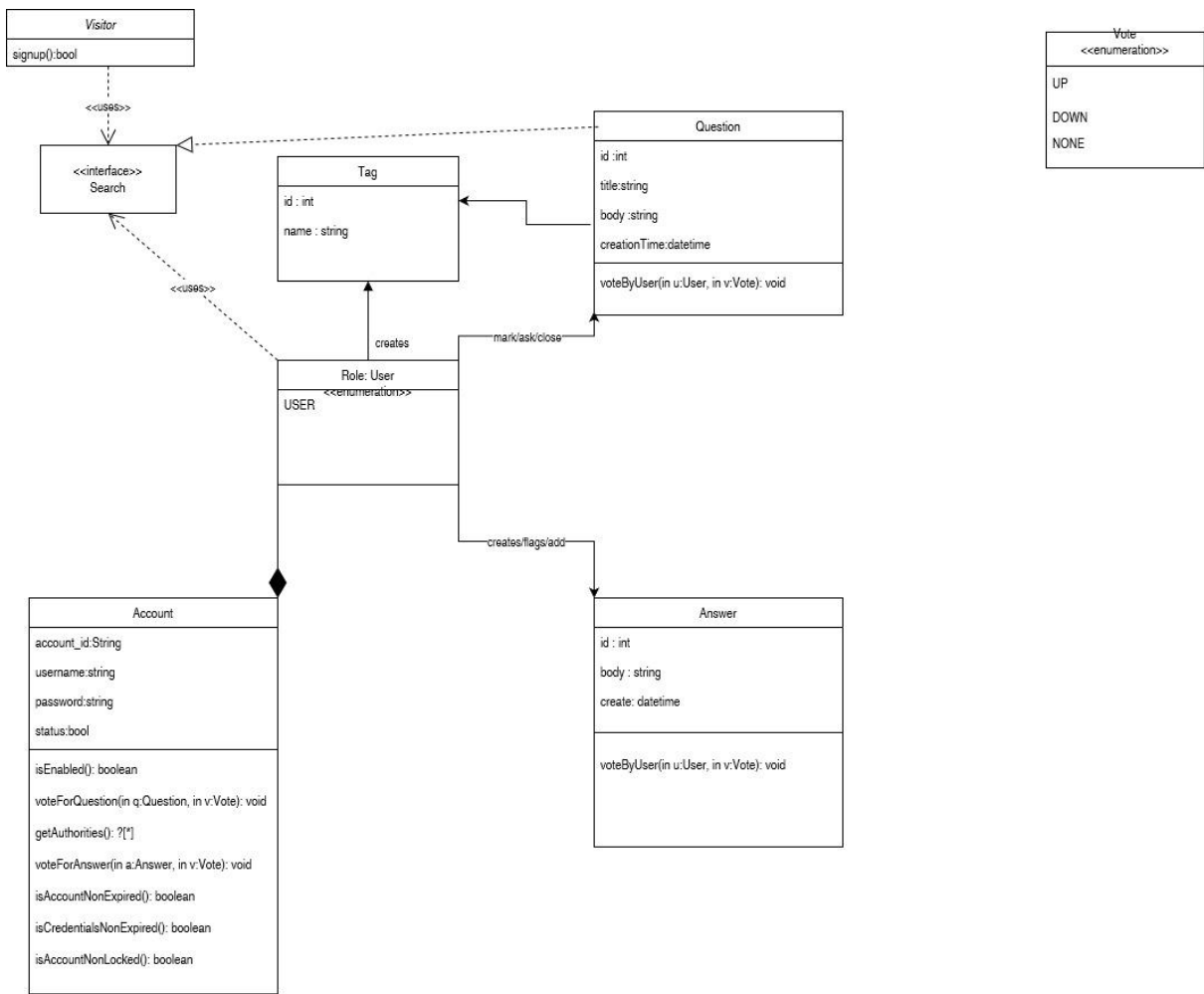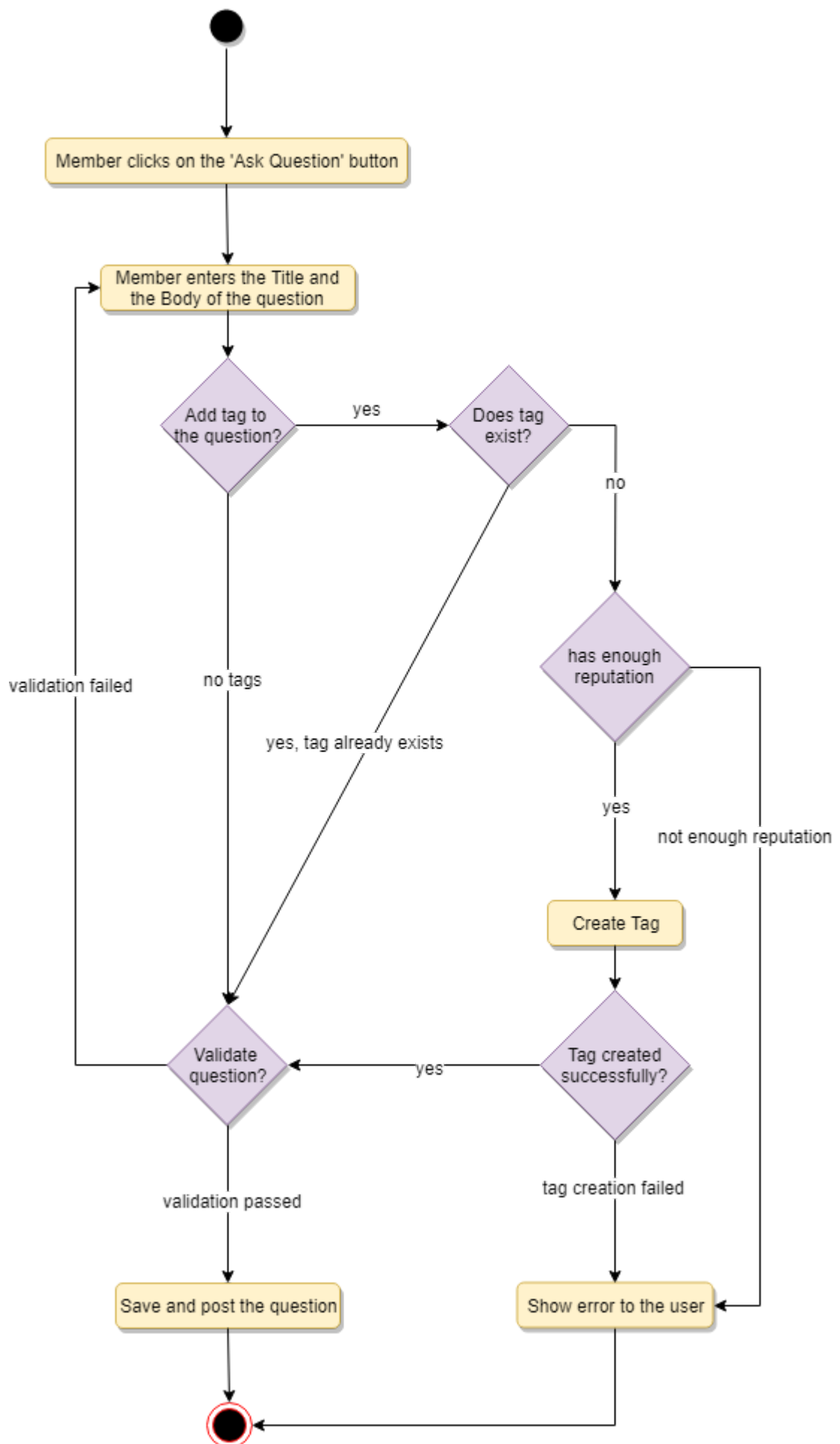
Link:

2. Analysis and Design Models

Use Case Diagram

Class Diagram

Visitor
signup():bool

<<uses>>

**<<interface>>
Search**

Tag
id : int
name : string

Question
id :int
title:string
body :string
creationTime:datetime
voteByUser(in u:User, in v:Vote): void

Vote
<<enumeration>>
UP
DOWN
NONE

<<uses>>

creates

mark/ask/close

Role: User
<<enumeration>>
USER

creates/flags/add

Account
account_id:String
username:string
password:string
status:bool

isEnabled(): boolean
voteForQuestion(in q:Question, in v:Vote): void
getAuthorities(): ?[*]
voteForAnswer(in a:Answer, in v:Vote): void
isAccountNonExpired(): boolean
isCredentialsNonExpired(): boolean
isAccountNonLocked(): boolean

Answer
id : int
body : string
create: datetime

voteByUser(in u:User, in v:Vote): void

Activity Diagram

```mermaid
flowchart TD
    Start((●)) --> A[Member clicks on the 'Ask Question' button]
    A --> B[Member enters the Title and the Body of the question]
    B --> C{Add tag to the question?}
    C -- yes --> D{Does tag exist?}
    C -- no tags --> E{Validate question?}
    D -- no --> F{has enough reputation}
    D -- "yes, tag already exists" --> E
    F -- yes --> G[Create Tag]
    F -- not enough reputation --> H[Show error to the user]
    G --> I{Tag created successfully?}
    I -- yes --> E
    I -- tag creation failed --> H
    E -- validation failed --> B
    E -- validation passed --> J[Save and post the question]
    J --> End(((●)))
    H --> End
```

- Member clicks on the 'Ask Question' button
- Member enters the Title and the Body of the question
- Add tag to the question?
  - yes → Does tag exist?
    - yes, tag already exists → Validate question?
    - no → has enough reputation
      - yes → Create Tag → Tag created successfully?
        - yes → Validate question?
        - tag creation failed → Show error to the user
      - not enough reputation → Show error to the user
  - no tags → Validate question?
- Validate question?
  - validation failed → Member enters the Title and the Body of the question
  - validation passed → Save and post the question
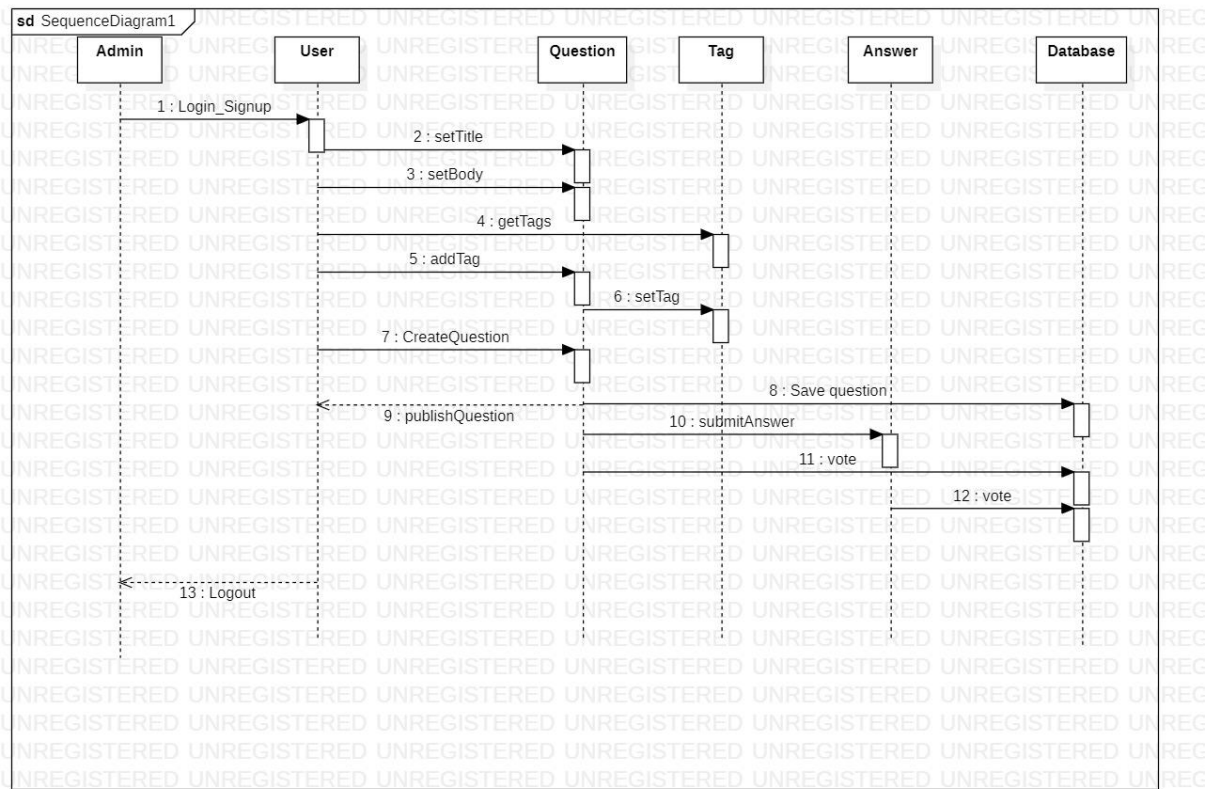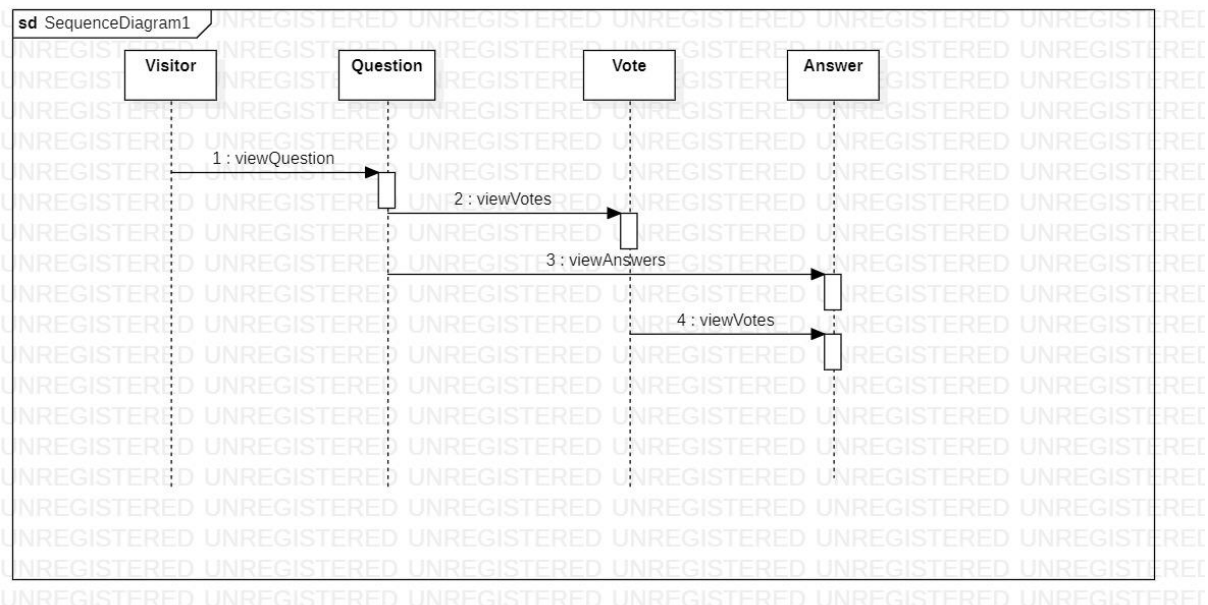
Sequence Diagram

Alternate Flow:

3. Tools and Frameworks Used
- Java, JavaScript, CSS, HTML

- IntelliJ IDEA
- SpringBoot Framework
- MariaDB
- StarUML

4. Design Principles and Design Patterns Applied

Architecture

MVC architecture – Model: Handles data logic. View: It displays the information from the model to the user. Controller: It controls the data flow into a model object and updates the view whenever data changes persisting to data into MariaDB.

Design Principles

SOLID is an acronym that stands for five key design principles: single responsibility principle, open-closed principle, Liskov substitution principle, interface segregation principle, and dependency inversion principle. All five are commonly used by software engineers and provide some important benefits for developers.

- Follows SRP - each class has only one use case and one class doesn't implement multiple functions, helps in testing and reduces coupling.
- Follows OCP - since MVC is used the views are used as interfaces and then implemented by the services created.
- Follows LSP - since the code has all child classes replaceable by their parent class.
- Follows ISP - the site built follows the traditional approach for any text forum and does not offer un-necessary options/interfaces to the user.
- Follows DIP - details should depend upon abstractions. This principle is followed by the user class and all the controller classes.

Design Patterns

Builder pattern is used which consists of various controllers which are used in the aspects for MariaDB.

5. Application Screenshots (3-4 important pages)

Login

Ask Question

Questions

Questions

Ask Question

0
votes
Anyone loves OOAD
asked Apr 28 '22 at 13:56 by ooad

1
votes
Is R good?
asked Apr 27 '22 at 22:23 by Kshitij

0
votes
Java
asked Apr 27 '22 at 22:21 by kedar

Answer

Ask Question

0
votes
Anyone loves OOAD
asked Apr 28 '22 at 13:56 by ooad

1
votes
Is R good?
asked Apr 27 '22 at 22:23 by Kshitij

Home

▲ Anyone loves OOAD

0   I love OOAD

▼   asked Apr 28 '22 at 13:56 by ooad

0 answers

Your Answer

Post your answer

Logout

6. Team member contributions

Kedar	FrontEnd, Backend
Kishan	Report, Diagrams, Backend
Kshitij	Diagrams, Backend