UniForum

Problem Description (Introduction)

University students often face challenges when completing assignments and projects, such as software installation issues, debugging code errors, or conceptual doubts. While Teaching Assistants (TAs) provide valuable support, their availability is limited and may not align with students' diverse study hours. As a result, many students struggle to find timely help, leading to frustration, project delays, and an incomplete understanding of course materials.

UniForum is designed to address this problem. A single digital platform where students can post their questions, discuss technical issues, and share project experiences. It also enables peer-to-peer help sessions, reducing dependency on TA availability and fostering a stronger sense of academic community.

Objective

The main goal of **UniForum** is to create a collaborative discussion forum that connects students, TAs, and peers for effective academic support and knowledge sharing. The platform aims to:

- Provide a space for posting and resolving course-related queries (e.g., coding errors, setup issues, project ideas).
- Enable **peer-to-peer learning** by allowing users to reply, react, or upvote helpful answers.
- Allow students to **schedule short help sessions or calls** with peers who are knowledgeable in specific areas.
- Facilitate sharing of **final project insights** and best practices to support future learners.
- Encourage a **24×7 learning environment** that complements TA support and promotes community-driven problem solving

Analysis (Your Study, Research, etc.)

Before designing UniForum, we analyzed common academic challenges faced by students through informal surveys and peer discussions. The key findings were:

- **Limited TA availability:** Students often need help outside of TA office hours, especially late evenings or weekends.
- **Fragmented communication:** Course-related discussions happen across multiple channels (Teams, Discord, Slack), making it hard to track solutions.
- **Repetitive questions:** Many students face similar setup or debugging issues each semester but have no centralized record of solutions.
- **Hesitation to ask:** Some students feel uncomfortable reaching out to TAs for minor issues or worry about being judged for basic doubts.

Based on this analysis, a centralized forum encouraging peer discussion, quick responses, and easily searchable solutions can significantly enhance academic collaboration and learning efficiency.

Design (Algorithms, System Design, Flow Chart, etc.)

Key Design Components:

- **User Module: Vighneshwar**
  Handles login, registration, and profile management (including GitHub, LinkedIn, enrolled courses, and activity summary).
- **Course Module: Vimala**
  Displays enrolled courses and organizes discussions by topic (e.g., FAQs, Installation Issues, Final Projects).
- **Forum Module: Payal**
  Allows users to create, edit, and delete posts; reply to others; and upvote useful responses.
- **Scheduling Module:Vimala**
  Enables students to set or book peer-to-peer help sessions.
- **Notification Module: (optional)**
  Sends real-time alerts for replies, upvotes, or scheduled calls.

Algorithmic Concepts Used:

- **Search Filtering:** Efficient retrieval of relevant posts based on keywords, tags, or course filters.
- **Upvote Ranking:** Sorting posts by relevance and popularity using vote count.
- **Session Scheduling:** Conflict-free booking logic to avoid overlapping meetings.

- **Data Persistence:** Storing and retrieving user interactions through a local SQL database with CRUD operations.

Flow Chart (Conceptual):

1. User logs in → navigates to dashboard
2. User selects course → views forum page
3. User posts a query or replies to an existing one
4. Responses are ranked → most helpful answers move up
5. Schedule or join a peer help session
6. Optional: Notifications update in real-time

Implementation (To be completed after coding)

Results (To be completed after coding)

Conclusions and Future Work

Conclusions:
UniForum successfully provides a centralized, structured environment for academic discussion, technical troubleshooting, and project collaboration. It complements TA support and bridges communication gaps across courses. The platform has demonstrated that integrating a forum model within an academic context enhances accessibility to knowledge and encourages continuous learning.

Future Work:
While the current version focuses on fundamental discussion and scheduling features, there are several enhancements planned:

- **AI-based query suggestions** to detect similar posts or recommend possible solutions.
- **Gamification and leaderboards** to motivate active contributors and recognize top problem-solvers.
- **Integration with university authentication systems** for secure single sign-on (SSO).
- **Analytics dashboards** for TAs to track common issues and student participation.
- **Mobile application version** using JavaFX's cross-platform framework or React Native for wider accessibility.

With these future developments, UniForum can evolve from a student-driven discussion board into a scalable academic collaboration ecosystem.

Discussion (Reflection)

Developing UniForum highlighted how effective peer collaboration can reduce academic stress and improve learning outcomes. We learned to balance **simplicity with functionality** while designing features like course-based discussions and scheduling.

Technically, the project strengthened our understanding of **JavaFX UI design, event handling, and database integration**. We also recognized that user engagement depends on intuitive design and motivation features like upvotes and badges.

Overall, UniForum reflects how thoughtful design and collaboration can make academic help more accessible and community driven.

Job Assignment

Teammates	Tasks
Vimala	
Payal	
Vighneshwar	