



University of Sindh  
The oldest University of Pakistan

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FULL PROJECT ID: 29

# Learnity - Interactive Learning Platform for Students

## GROUP MEMBERS:

- |                |                     |
|----------------|---------------------|
| 1. Wasif Malik | ROLL#. 2K22/SWE/88  |
| 2. Abdul Rafay | ROLL#. 2K22/SWE/131 |
| 3. Syed Ahsan  | ROLL#. 2K22/SWE/115 |

## SUPERVISOR NAME:

Sir Kamran Taj

DEPARTMENT OF SOFTWARE ENGINEERING,  
FACULTY OF ENGINEERING AND TECHNOLOGY,  
UNIVERSITY OF SINDH, JAMSHORO



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# Project Overview

- ▶ **Learnity** is a web and mobile platform for Pakistani students (Grades 1-12).
- ▶ Connects students with **verified tutors** for affordable one-on-one sessions.
- ▶ Provides **study groups** for peer-to-peer collaborative learning.
- ▶ Offers **curriculum-aligned resources** matching Matric/FSc syllabi.
- ▶ Supports **Urdu + English** interface for accessibility.

# Project Overview Continued!

- ▶ Students can search, book, and rate tutors by subject and grade.
- ▶ Study groups enable chat, video calls, and resource sharing.
- ▶ **Gamification system** rewards users with points and badges.
- ▶ Admin approval ensures only qualified tutors join the platform.
- ▶ Learnity bridges education gaps in Pakistan — **affordable, accessible, localized.**

# Problem Identification / Statement

## ► **Problem:**

- Students struggle to find qualified tutors, especially in remote areas.
- International platforms charge \$15-25/hour — unaffordable for most.
- Study resources scattered across WhatsApp, YouTube, and PDFs.
- WhatsApp groups lack structure, verification, and progress tracking.
- Most platforms don't support Urdu or Pakistani curriculum.

## ► **Solution (Learnity):**

- Verified tutor marketplace with affordable and accessible pricing.
- Structured study groups with chat & video features.
- Curriculum-specific content aligned with Matric/FSc boards.
- Multi-language support (Urdu + English).

# Scope of Project

- ▶ Platform for **Web (Next.js)** and **Mobile (PWA)**
- ▶ Target audience: students and Teachers.
- ▶ **Features include:**
  - Student: Search tutors, book sessions, join study groups
  - Tutor: Create profile, set pricing, conduct video sessions
  - Admin: Approve tutors, manage users, moderate content
  - Video calling (one-on-one and group)
  - Resource library (upload/download notes and videos)

# Aim and Objectives

## ► **Aim:**

- Build an accessible platform connecting Pakistani students with verified tutors and study groups, aligned with local curriculum.

## ► **Objectives:**

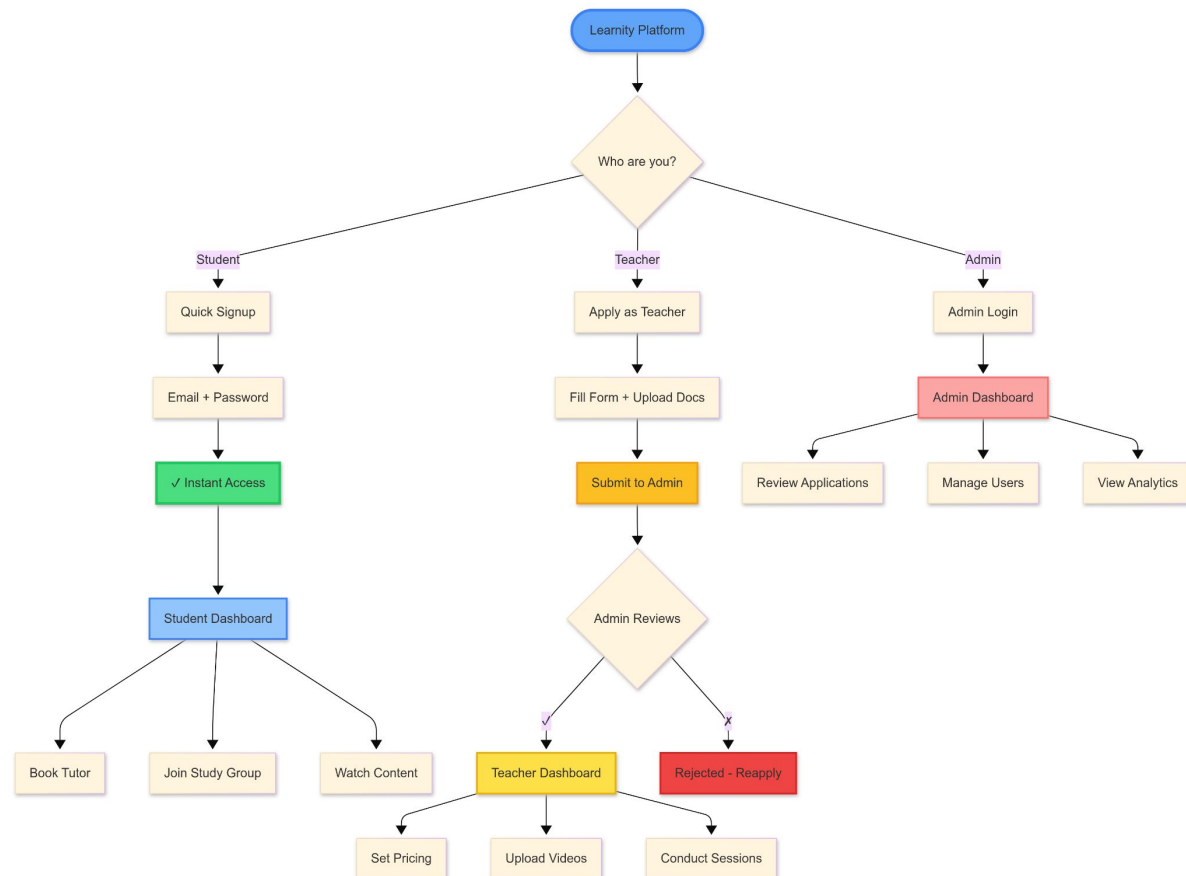
- Develop tutor-student matching and booking system
- Create study group features
- Build curriculum-aligned resource library
- Implement bilingual interface (Urdu + English)
- Integrate video calling for sessions

# Tools and Technologies

- ▶ **Frontend:** Next.js, Tailwind CSS.
- ▶ **Backend:** Node.js, NestJS (TypeScript)
- ▶ **Database:** Neon DB (PostgreSQL), MongoDB Atlas, Firebase.
- ▶ **Communication:** Stream SDK or Jitsi (video calling)
- ▶ **Design Tool:** Figma + Stitch
- ▶ **Version Control:** GitHub, GitHub Actions (CI/CD)
- ▶ **Deployment:** Vercel (frontend), AWS/GCP (backend)
- ▶ **Other Tools:** VS Code, Postman, JWT, Bcrypt

# Design and Development Methodology

## Activity Diagram



# Design and Development Methodology

## ► Agile Development Model:

- Short sprints: plan, code, test
- Continuous feedback & improvements
- Flexible, user-focused, quick updates



# Progress Update

## ▶ Completed Task:

- Project planning and requirements finalized
- System architecture designed
- Database schema created (PostgreSQL)
- Backend development: NestJS setup complete
- Authentication system (JWT) implemented
- User, Tutor, Session, Admin APIs built
- Database deployed on Neon DB

## ▶ Current Status:

- Working on frontend development (Next.js)
- Designing UI/UX in Figma
- Building student and tutor dashboards

# Progress Update Continued

## ► Pending Task:

- Video calling Integration system(Stream SDK)
- Study group features (chat, video, resources)
- Resource library upload/download system
- Mobile app development
- Gamification system (points, badges)
- Payment integration

## ► Challenges faced

- Learning Nest JS and PostgreSQL simultaneously
- Designing role-based authentication flow
- Finding affordable deployment platforms

# Implementation (UI Design)



# Courses section (Desktop view)

**My Courses**

Progress

33%

Beginner

3/7 courses, 30/70 quizzes, 2 prototypes, 2 hours learning

Enrolled Courses

- Basic of English Language (Progress: 2/10, 3/5)
- Introduction the web development (Progress: 0/10)
- Basic data-structure and algorithm (Completed, View Certificate)
- Lorem ipsum codor le hala madrid (Completed, View Certificate)

SEARCH

Sept 2023

Mon Tue Wed Thu Fri Sat Sun

26 27 28 29 30 01 02

Due Date: Oct 02, 2023

Assignment 04

Nisi, venenatis id cursus volutpat cursus interdum enim mauris.

Featured

5 lessons • 4 quizzes

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Shams Tabriz

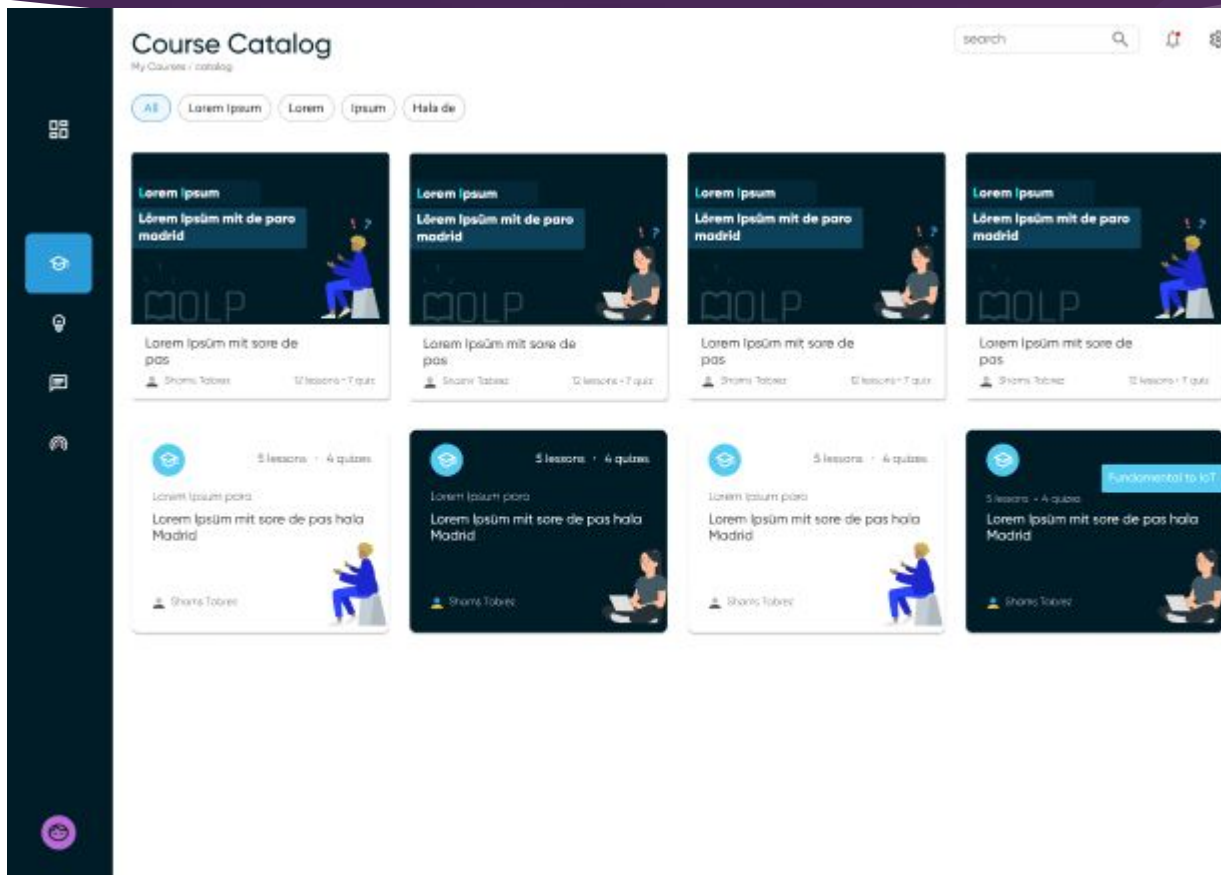
5 lessons • 4 quizzes

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Shams Tabriz




# Course catalog



# Prototypes



## My Prototypes


  

Explore Solution Prototypes

see all →

**Solution**


Home Security with basic electronics



Home security with basic electronics

**Prototype**


Simple Rocket Building



Simple Rocket building for beginners

**Solution**


Lorem Ipsum ned ut ser gut vergasen



Home security with basic electronics


**Prototype**

Lorem Ipsum ned ut ser gut vergasen




Home security with basic electronics

Filter: All Prototypes ▾



**Lorem Project**  
In Draft - Edited 5 min ago



**Ipsum prototype**  
In Draft - Edited 5 min ago

+ CREATE PROTOTYPES

# Discussion section

The screenshot displays the 'Discussions' section of the OLP platform. On the left is a dark sidebar with navigation icons. The main content area features a 'Discussions' header, a search bar, and a list of discussion topics. Each topic includes a user profile picture, the title, the author, the time since the last comment, and the number of comments. A '+ Ask New' button is located on the right side of the discussion list.

**Discussions**  
Discuss the OLP platform – this includes sharing feedback, asking questions, and more.

search

search discussion

Machine Learning IoT UI/UX algorithm Biology more

**3D Place solution**  
Shams Tabrizi · Last comment 7h ago by Nahin · 9 comments

**what is the pcb board made of?**  
Shams Tabrizi · Last comment 7h ago by Nahin · 3 comments

**will reactjs take over the web development sector?**  
Shams Tabrizi · Last comment 7h ago by Nahin · 62 comments

**Soil Moisture Prediction with ML**  
Shams Tabrizi · Last comment 7h ago by Nahin · 5 comments

**Deep Learning in the field of labour.**  
Shams Tabrizi · Last comment 7h ago by Nahin · 1 comments

**Multioutput Regressor as a wrapper**  
Shams Tabrizi · Last comment 7h ago by Nahin · 12 comments

**Big Opportunity of IoT in Africa**  
Shams Tabrizi · Last comment 7h ago by Nahin · 7 comments

**Is there any TechHub competition in recent days?**  
Shams Tabrizi · Last comment 7h ago by Nahin · 2 comments

+ Ask New

# Live session

## Live Lessons

search 🔍 🔔 ⚙️

### Upcoming Lessons

You don't have any lesson scheduled yet.

### Schedule a lesson

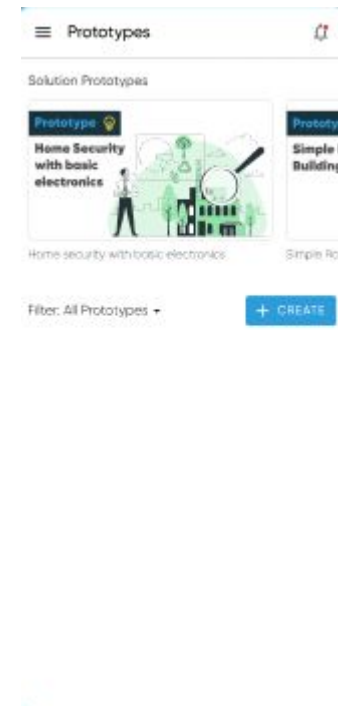
**Available Slots** (N.B. time set to GMT+1)

Aug 14 - 20, 2023

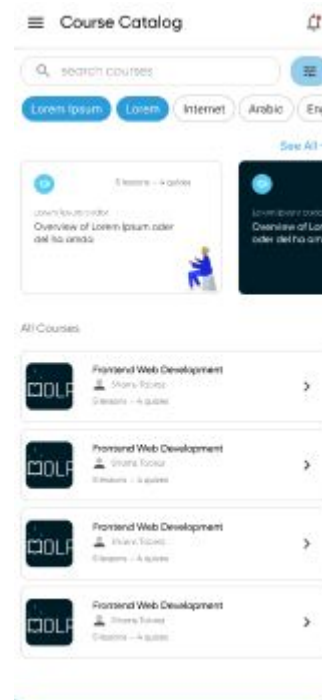
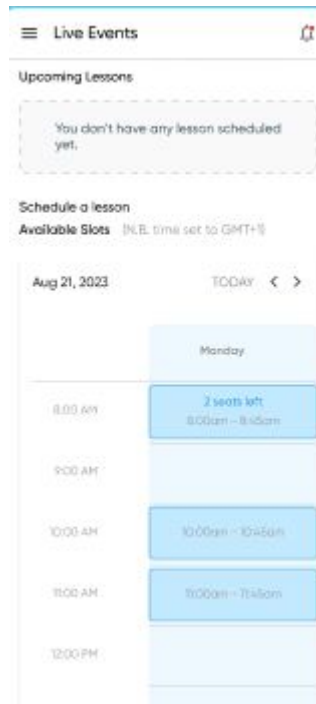
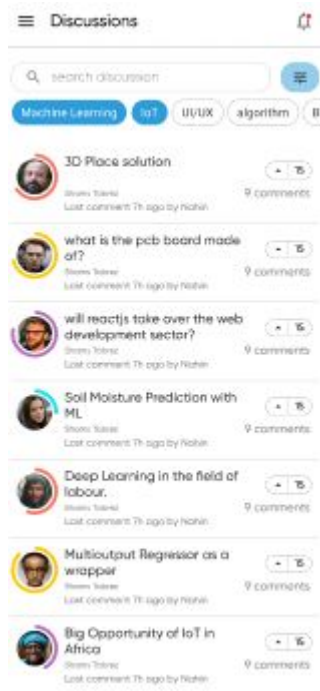
TODAY < >

	Mon 14/08	Tue 15/08	Wed 16/08	Thu 17/08	Fri 18/08	Sat 19/08	Sun 20/08
8:00 AM		8:00am - 8:45am		2 seats left 8:00am - 8:45am			
9:00 AM	9:00am - 10:45am						
10:00 AM			10:00am - 11:45am	10:00am - 10:45am	9 seats left 12:00am - 12:45am		
11:00 AM				11:00am - 11:45am			
12:00 PM							
01:00 PM							

# Dashboard (Mobile view)



# Student side (Mobile view)



# Future Work

## ► Remaining Task:

- Complete frontend (Student, Tutor, Admin dashboards)
- Integrate video calling (Stream SDK or Jitsi)
- Build study group features (chat, video, resources )
- Implement resources library (upload / download)
- Add gamification (points, badges, leaderboards)
- Develop mobile app (React Native)
- Add payment gateway integration
- Email notification for booking

# Future Work Continued

## ► **Post- FYP Enhancements**

- AI-powered tutor recommendations
- Advanced analytics dashboards
- Live streaming for large lectures
- Regional language expansion(Sindhi, Punjabi)
- Parent portal for monitoring progress
- Integration with school systems
- Certification with school systems
- Certification for completed courses

# Timeline

SNo	Milestone	Date	Deliverable
1	UI/UX Design	25-07-2025	UI designs and wireframes
2	Database Design	05-08-2025	Database schema and tables
3	Frontend Development	28-9-2025	Next.js Frontend with localization and responsive design.
4	Backend Development	16-10-2025	APIs, Auth, SSRm db Schema implementation.
5	Deployment and Testing.	02-12-2025	App deployment on vercel and aws ec2 manual and auto testing.
6	Thesis Submission	18-12-2025	Final project report

# Conclusion

## ► **Summary:**

Learnity solves critical education challenges in Pakistan by connecting students with verified tutors through an affordable, localized platform aligned with national curriculum.

## ► **Lesson Learned:**

- Database design for multi-role applications
- Team collaboration using Agile methodology
- Importance of planning and clear requirements
- The value of feedback and iteration in building better solutions.

# References

- ▶ <https://www.khanacademy.org/>
- ▶ <https://www.coursera.org/>
- ▶ <https://www.preply.com/>
- ▶ <https://docs.nestjs.com/>
- ▶ <https://nextjs.org/docs>
- ▶ <https://www.postgresql.org/docs>
- ▶ <https://firebase.google.com/docs>
- ▶ Memon, S., et al. (2021). "WhatsApp as an educational tool during COVID-19." Pakistan Journal of Medical Sciences.
- ▶ Hamari, J. (2023). "Gamification in education." Computers in Human Behaviour.
- ▶ National Education Policy (2022). Ministry of Federal Education, Pakistan.

*Thank you,  
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