



University of Sindh
The oldest University of Pakistan

1

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



Contents

- ▶ Project Overview
- ▶ Problem Identification/ Statement
- ▶ Aim and Objectives
- ▶ Scope of Project
- ▶ Tools and Technologies
- ▶ Design and Development Methodology
- ▶ Progress Update
- ▶ System Design
- ▶ Implementation
- ▶ Future Work
- ▶ Conclusion
- ▶ References.

Introduction to Project

- ▶ In many underdeveloped areas of Pakistan, students struggle to access quality education due to high costs and a shortage of qualified teachers. **Learnity** addresses this issue by providing an **affordable, localized online learning platform** that connects students with **verified tutors**, supports **group study**, and uses a **streak-based motivation system**.
- ▶ Focused on grades **1 to 12**, Learnity follows the **Pakistani curriculum** and offers a **bilingual (Urdu-English)** interface. Built with modern technologies like **Next.js**, **Firebase**, and **MySQL**, it aims to make quality education **accessible, engaging, and affordable** for every student.

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.**

Literature View / Similar projects

► Several e-learning platforms such as **Khan Academy**, **Coursera**, and **Preply** provide online tutoring and educational resources. However, these platforms often focus on international curricula and are **too costly for students in Pakistan**.

► Research by *Memon et al. (2021)* highlights that tools like **WhatsApp** were used for learning during COVID-19, but they lack structure, teacher verification, and progress tracking.

Studies on **gamification in education (Hamari, 2023)** show that reward-based learning improves student motivation and consistency.

► **Learnity** builds upon these findings by offering a **localized, affordable, and bilingual (Urdu-English)** platform that integrates verified tutoring, study groups, and gamified progress tracking for Pakistani students.

Similar projects

- ▶ **Khan Academy** – Offers free lessons but not 1-on-1 tutoring or Pakistan's syllabus.
- ▶ **Coursera** – High-quality but costly; targets higher education.
- ▶ **Preply** – Private tutoring but expensive and not local.
- ▶ **IlmKiDunya** – Covers local syllabus but lacks live tutoring and gamification

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:**

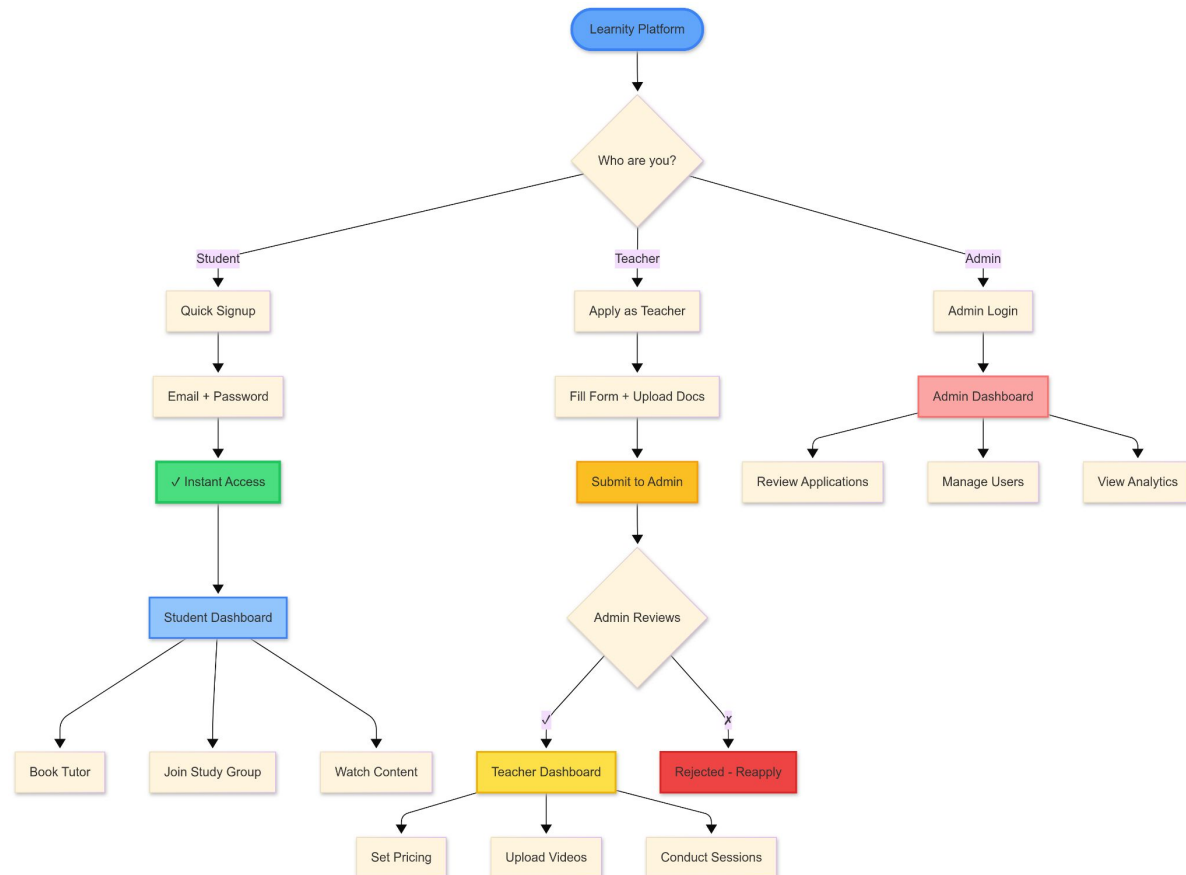
- Develop tutor-student matching and booking system
- Create study group features
- Build curriculum-aligned resource library
- Implement bilingual interface (Urdu + English)
- Integrate video calling for sessions

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

Erism erat elit clam donec.

Quisque et tristique eu est sed id sapien, nulkam erat.

Shams Tabriz

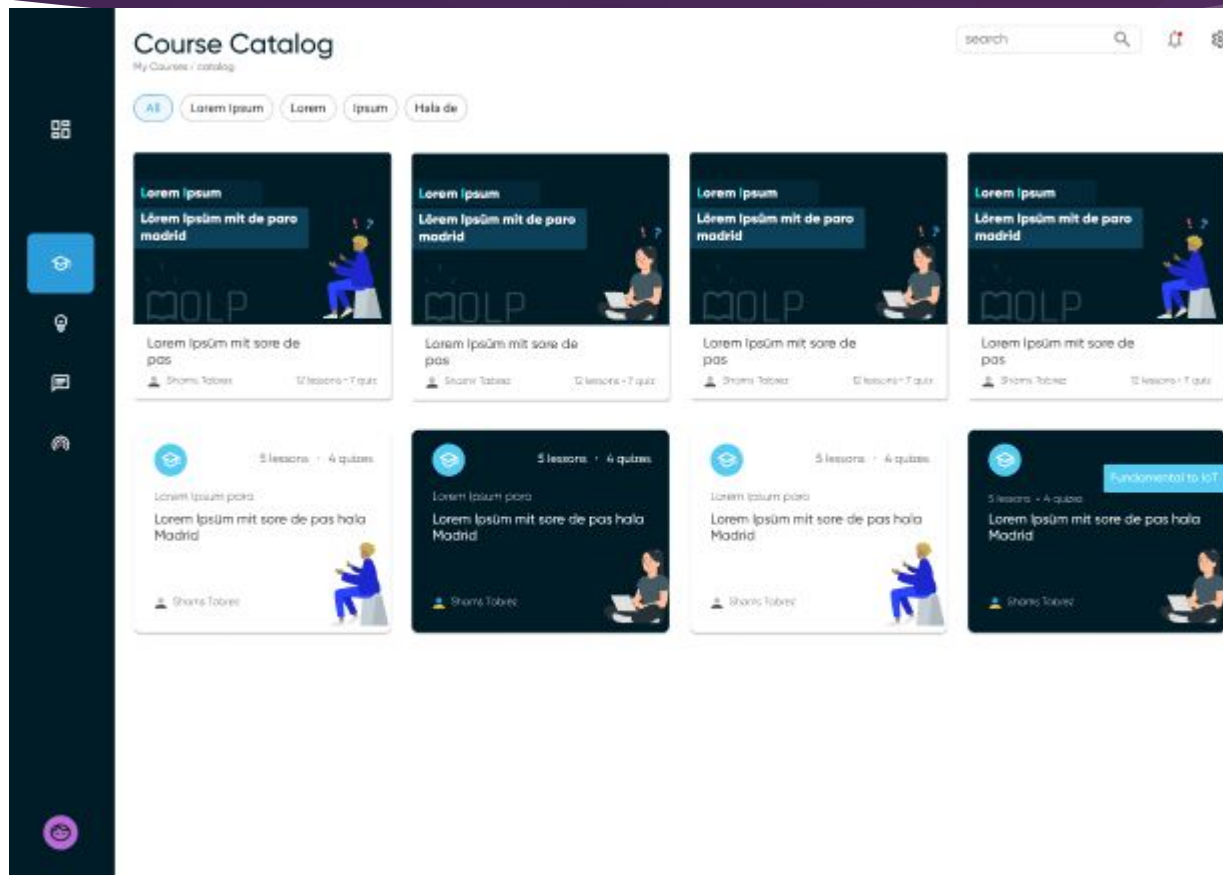
5 lessons • 4 quizzes

Nibh consectetur leo.







A, sed lectus id rutrum phasellus adipiscing sit dolor quis.

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 search bar, a list of discussion topics with user avatars, and a '+ Ask New' button. The discussions listed include topics like '3D Place solution', 'what is the pcb board made of?', and 'will reactjs take over the web development sector?'. Each entry shows the author's name, the last comment time, and the number of comments.

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

search

search discussion

+ Ask New

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

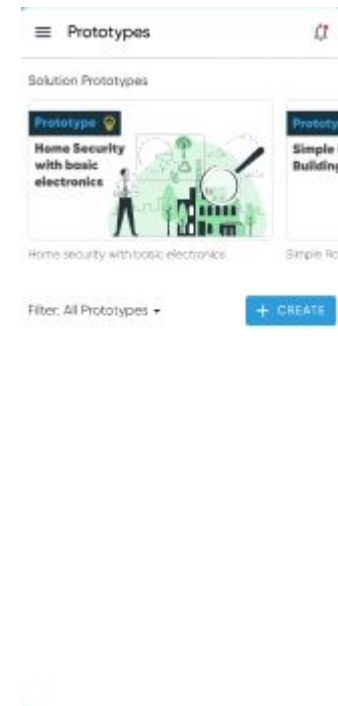
100

search 🔍 🔔 ⚙️

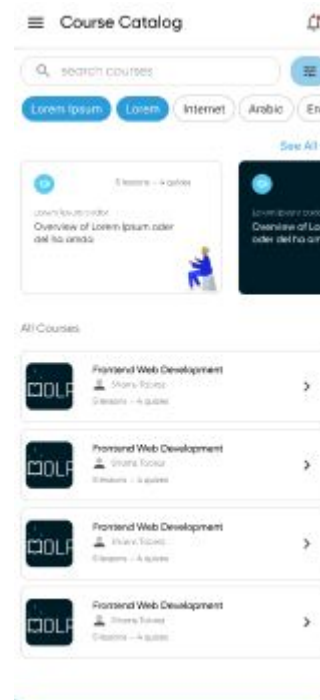
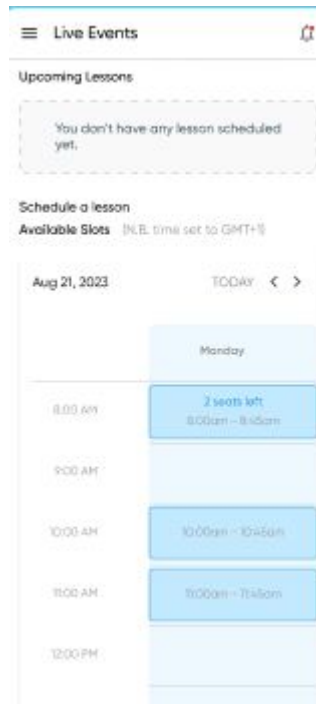
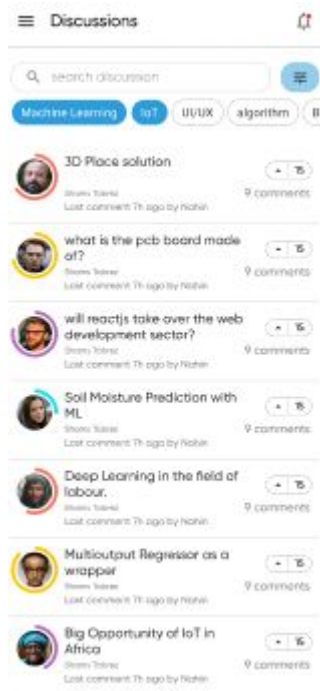


	Mon 14/08	Tue 15/08	Wed 16/08	Thu 17/08	Fri 18/08	Sat 19/08	Sun 20/08
8:00 AM		8:00am - 8:45am		2 seats left 8:00am - 8:45am			
9:00 AM	9:00am - 10:45am						
10:00 AM			10:00am - 10:45am	10:00am - 10:45am	9 seats left 10:00am - 10:45am		
11:00 AM				11:00am - 11:45am			
12:00 PM							
01:00 PM							

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:**

Learnty 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,
fin!*