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Student Reference Number: 10952523

Module Code: PUSL2023	Module Name: Mobile Application Development

Coursework Title: Final Report of the Coursework - TechLink

Deadline Date: 04/04/2025	Member of staff responsible for coursework: Mr. Diluka Wijesinghe

Programme: BSc (hons) Software Engineering

Please note that University Academic Regulations are available under Rules and Regulations on the University website www.plymouth.ac.uk/studenthandbook.

Group work: please list all names of all participants formally associated with this work and state whether the work was undertaken alone or as part of a team. Please note you may be required to identify individual responsibility for component parts.

10952523 - Jayawardena Kavinda :- News Feed / UI Enhancements / Report
10952463 - Dulaj Hewage :- Payment Gateway / Firebase Implementation / Finalizing Report
10952470 - Unagollage Wijesinghe :- Market Place (Plaza) / Implementing main Screens / Report
10952545 - Witharamalage Sirimewan :- Login & Signup / Firebase / Report
10952565 - Pathiranage Didula Theekshana :- User Profile / Report
10953075 - Duwage Perera :- Podcast / Report
10952645 - Chamathka Abeykoon :- Job Portal / Report
10952629 - Rathnayaka Rathnayaka :- Post Sharing / Report

We confirm that we have read and understood the Plymouth University regulations relating to Assessment Offences and that we are aware of the possible penalties for any breach of these regulations. We confirm that this is the independent work of the group.

Signed on behalf of the group: *Dinath*

Individual assignment: ***I confirm that I have read and understood the Plymouth University regulations relating to Assessment Offences and that I am aware of the possible penalties for any breach of these regulations. I confirm that this is my own independent work.***
Signed :

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Overall mark _____%   Assessors Initials _____   Date_____

*Please delete as appropriateSci/ps/d:/students/cwkfrontcover/2013/14

PUSL2023 – Mobile Application Development

TechLink

A comprehensive platform connecting all IT Professionals, Students and enthusiasts in one integrated ecosystem.

Group – 38

NSBM ID	NSBM Name	Plymouth ID	Plymouth Name	Degree Program
30399	JWD Kavinda	10952523	Jayawardena Kavinda	SE
29981	DD Hewage	10952463	Dulaj Hewage	SE
29676	DAD Wijesinghe	10952470	Unagollage Wijesinghe	SE
29590	WVW Sirimewan	10952545	Witharamalage Sirimewan	SE
29905	PDT Heenatigala	10952565	Pathiranage Didula Theekshana	SE
31863	DTT Perera	10953075	Duwage Perera	SE
30202	CD Abeykoon	10952645	Chamathka Abeykoon	SE
30224	MSI Rathnayaka	10952629	Rathnayaka Rathnayaka	SE

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Chapter – 01

1.1. Introduction

TechLink represents a mobile application for IT professionals that creates one platform to enhance professional development while enabling professional job opportunities, technology related marketplace, knowledge and networking needs. The platform functions as a community platform where IT professionals can engage in discussions and view live sessions while displaying skills and finding job opportunities and participating in a secure marketplace. This document gives a comprehensive summary about the advancement procedure and its consequences alongside difficulties and foreseeable upgrades.

1.2. Existing systems and problem definition

1.2.1. Existing systems

Today, there are several platforms that cater professional network, search for jobs, participate in industry discussions. Among them LinkedIn is the most popular as it has a dedicated space for professionals to connect and be able to explore career opportunities.

Limitations :-

- Dedicated Marketplace for all IT related people.
- Limitations of Community collaborations.
- Unique platform to follow professional job opportunities.

1.2.2. Problem Definition

IT industry needs something beyond professional networking and job searching. TechLink makes this gap by bringing together a marketplace, IT focused discussions, networking, and business/job listings in a mobile application.

Identified Key Problems :-

- Lack of IT related marketplace - There is no such mobile platform where IT people can securely buy and sell IT-related tools, software and devices within a professional network.
- Difficulty in finding IT-specific jobs and Freelance work - Even though there are many IT professionals and students around the world who struggle to get the right freelance projects, internships or tech related jobs in a structured manner.
- IT Network and learning resources are limited with these kind of applications - Part of staying on top of technological advancements, IT professionals require continuously updated discussions, podcasts and collaboration tools.
(Wesdorp, 2021) (Pandya, 2024) (Bishop, 2024) (Firebase, n.d.)

1.3. Project aims and objectives

1.3.1. Project Aims

The major aim of TechLink is to implement a detailed mobile app that consolidates all features that an IT professional, a student or an enthusiast may require in one place.

An IT specific marketplace, networking, education, collaboration, job opportunities, and an overall secure environment will integrate into a single unit.

It is aimed to bridge the gap of the IT community between the professional networking and certain IT needs, with some features that provide learning, skill development, growth to your career and product trading.

1.3.2. Objectives

- Building an IT centric networking platform - Live podcasts, webinars, and hackathons open for IT professionals to talk about the technological trends, the problems with programming and career advice.
- Create a specialty IT Marketplace - Build a reliable marketplace for buying and selling IT related products, with IoT devices, software tools and hardware.
- Improving Job search and development - Include a dedicated job portal that includes full time, internship, and freelance positions tailored for IT professionals.

1.4. Scope of the project

TechLink is designed to all-in-one application that all the IT related people can gather into a one place. And they can apply for their most matching jobs interns, buy any technology related thing like hardware, IoT tools or any device. The platform provides a dedicated space for knowledge sharing, career growth and professional connections.

1.4.1. Functional Scope

- Professional Networking – A user can create a profile and participate to professional discussions like podcasts.
- IT related Marketplace – A comprehensive platform to buy and sell any kind of IT and technology related items.
- Job Portal – Listings of full time, internship and freelance opportunities.

1.4.2. Out of Scope

- General E-Commerce and Non-IT related sharing.
- Advanced AI based Job recommendations. (Future Planning)

Chapter – 02

2.1. Requirement gathering techniques

- Competitive Analysis – Researching some similar mobile applications (LinkedIn, Fiverr, Upwork) to study their strengths, weaknesses and missing features.
- Prototyping – Create Wireframe diagrams using Figma to visualize the full app before the development.
- Document Analysis – Studying and reviewing academic papers and researches about mobile applications and IT related platforms to get some ideas about their weaknesses.
- Surveys and Questionnaires – Creating a survey from Google Forms to collect data and ideas from the IT students.

2.2. Functional and Non-Functional Requirements

2.2.1. Functional Requirements

- User profiles and Account Management – Users can register and login to their own accounts securely.
- Networking and Connectivity - Users can like and be followed with other IT professionals.
- IT related Marketplace - Users can buy and sell any kind of IT related things.
- Job Portal – Users can apply for jobs that posted by recruiters.
- Listening and Knowledge sharing – Having knowledge by listening to live podcasts done by professionals.

2.2.2. Non-Functional Requirements

- Usability – Well enhanced UI / UX for user friendly and easy navigation platform.
- Security – Basic Email and Password authentication to secure login.
- Performance – The app should run with minimum delays.
- Reliability – The system should run without crashes during normal operations.

2.3. Features of application

1. User Profiles with Networking – Users can create their own account and manage their accounts by showcasing their skills, projects and highlights.
2. IT related Marketplace – A comprehensive platform to buy and sell IT related things and services, can add to cart or buy directly.
3. Job Portal – Users can apply for full time, internships or any kind of job opportunity.
4. Listening and knowledge sharing – Users can listen to podcasts who done by IT professionals.
5. Secure and Simple Authentication – Email and Password login for secure access for each user.
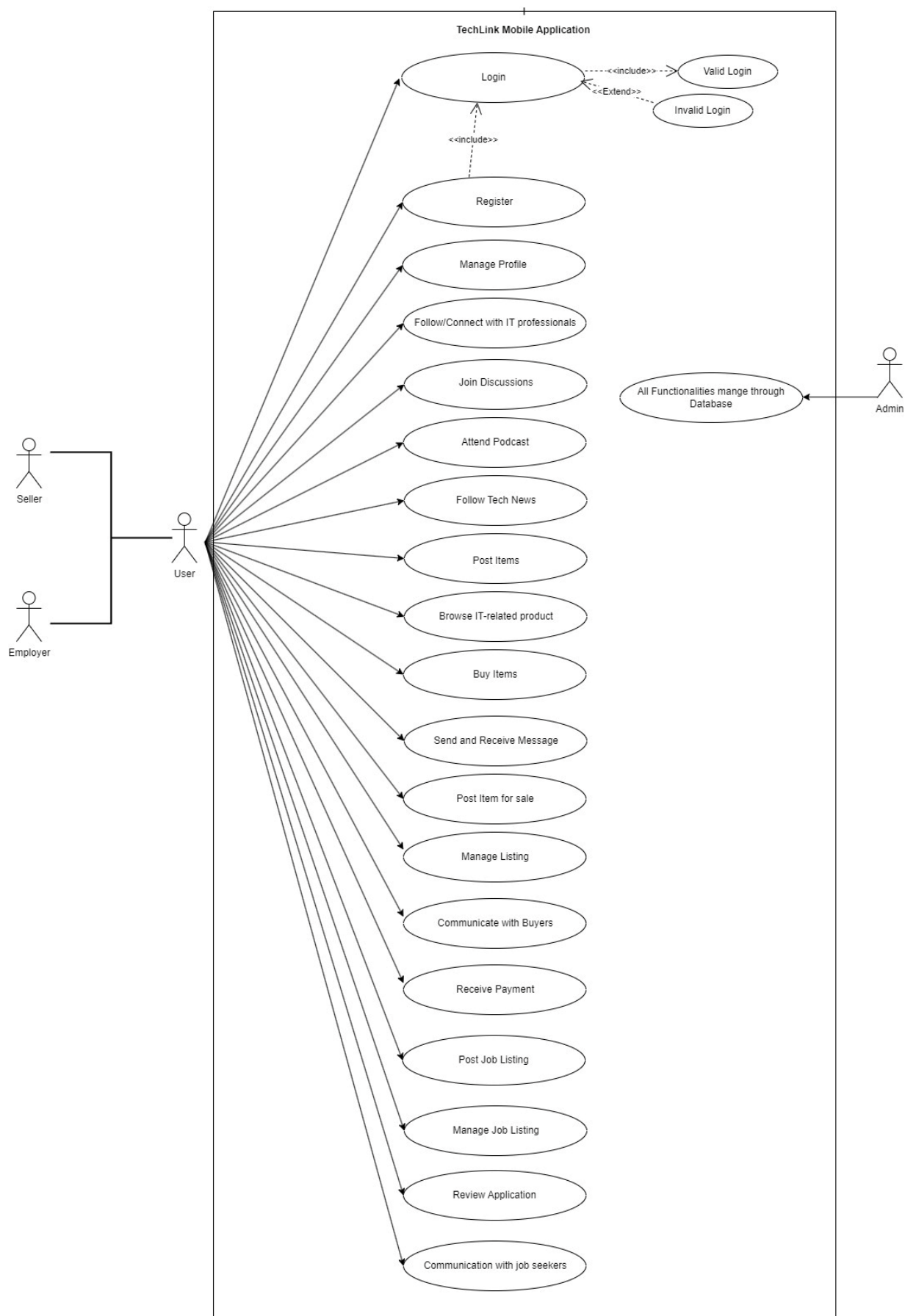
Chapter – 03

3.1. Use Case Diagram

Figure 1 - Use Case Diagram

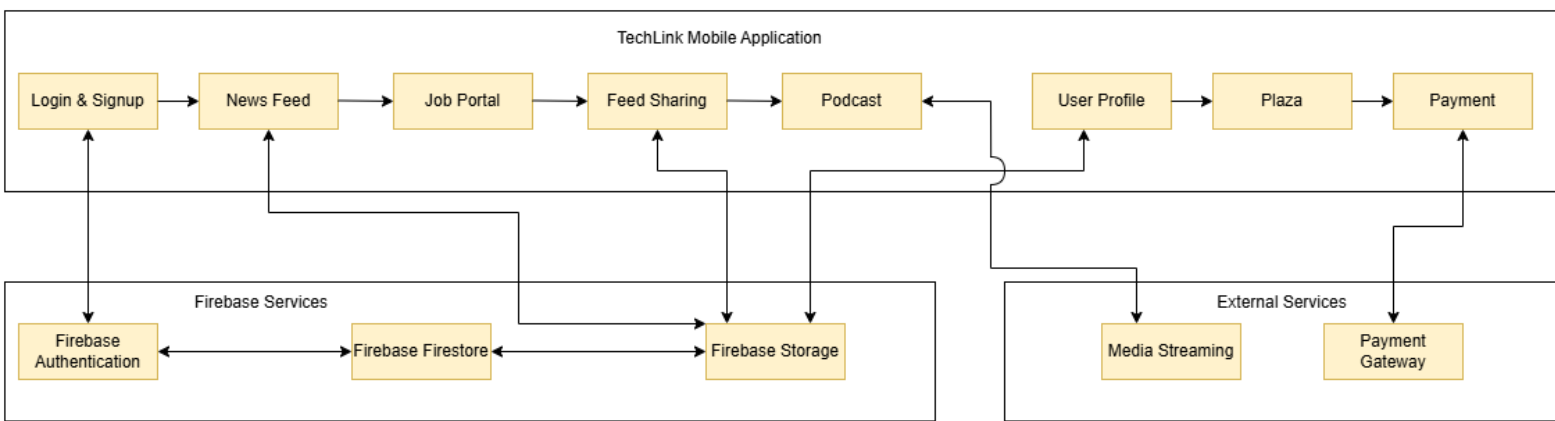## 3.2. High-Level Diagram

Figure 2 - High-level Diagram
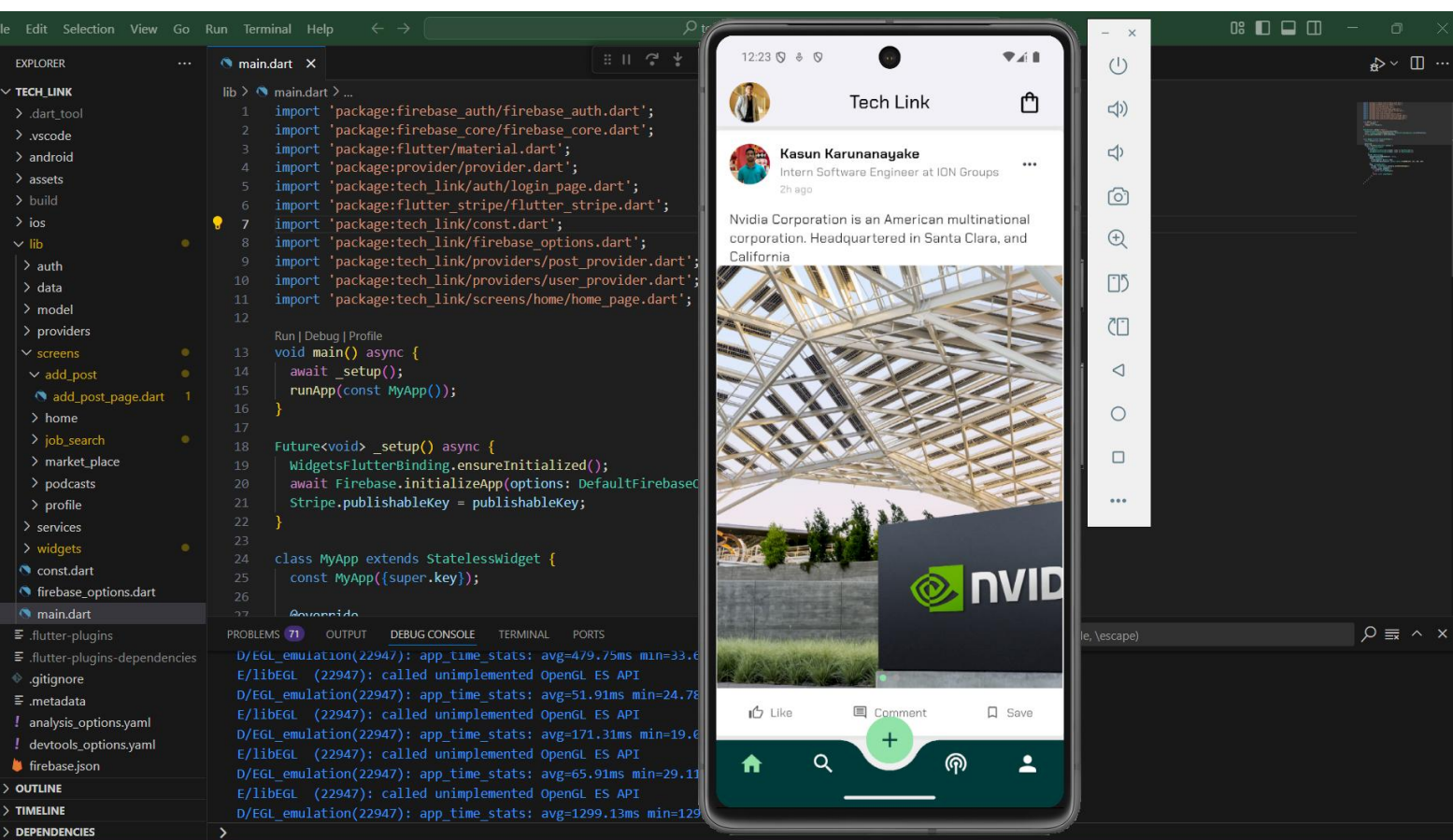
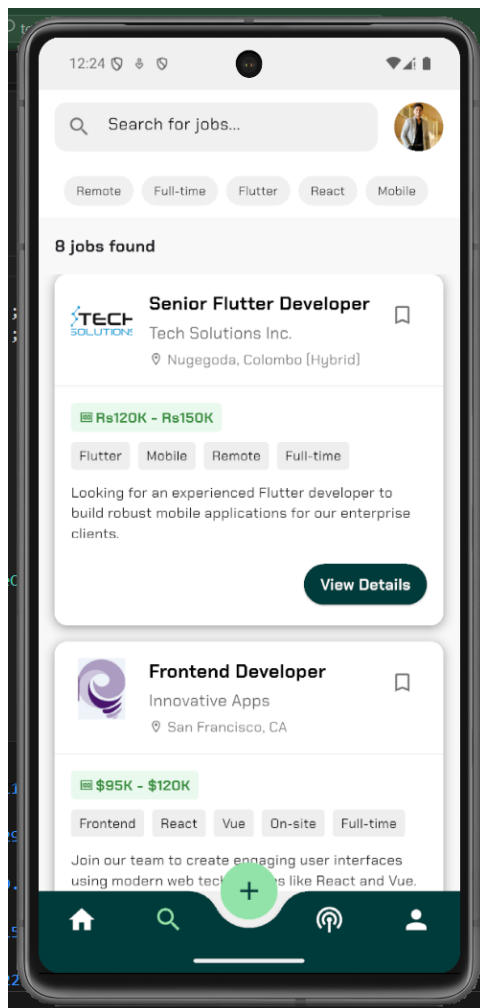## 3.3. User Interfaces of the developed System

Figure 3 - News Feed
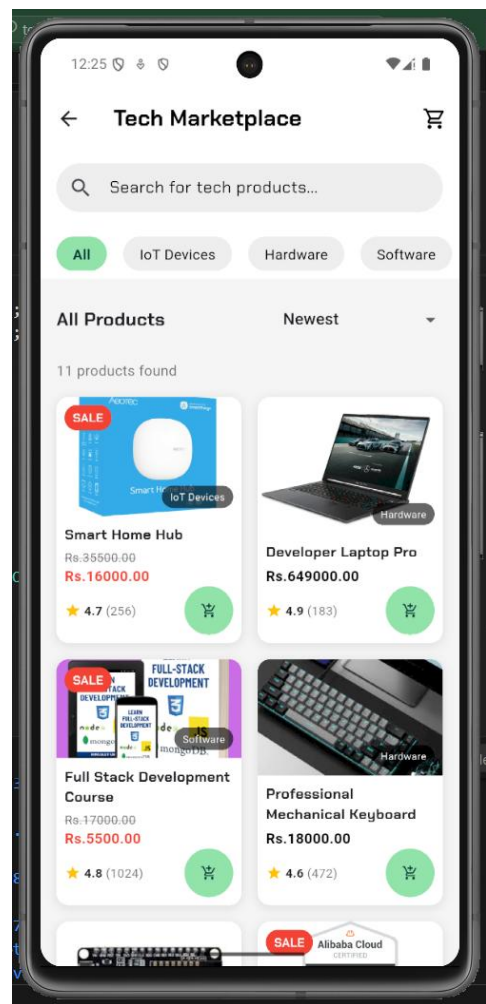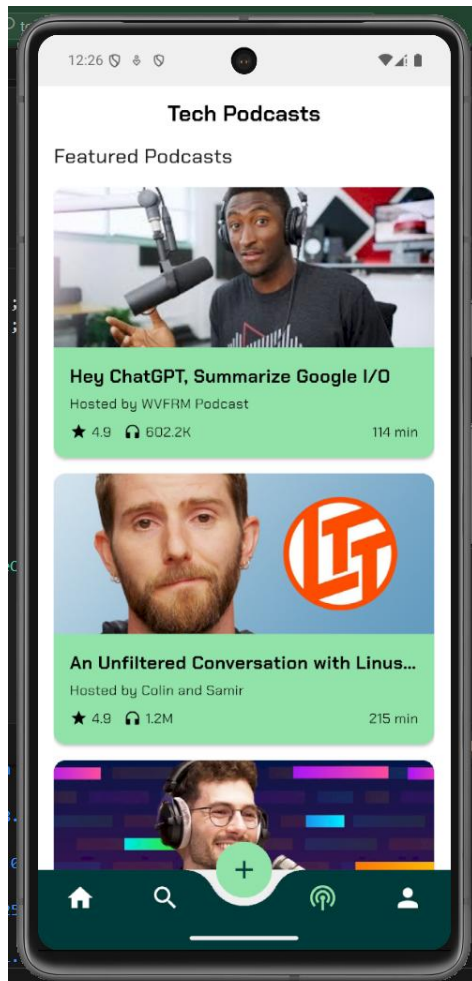
Figure 4 - Job Portal
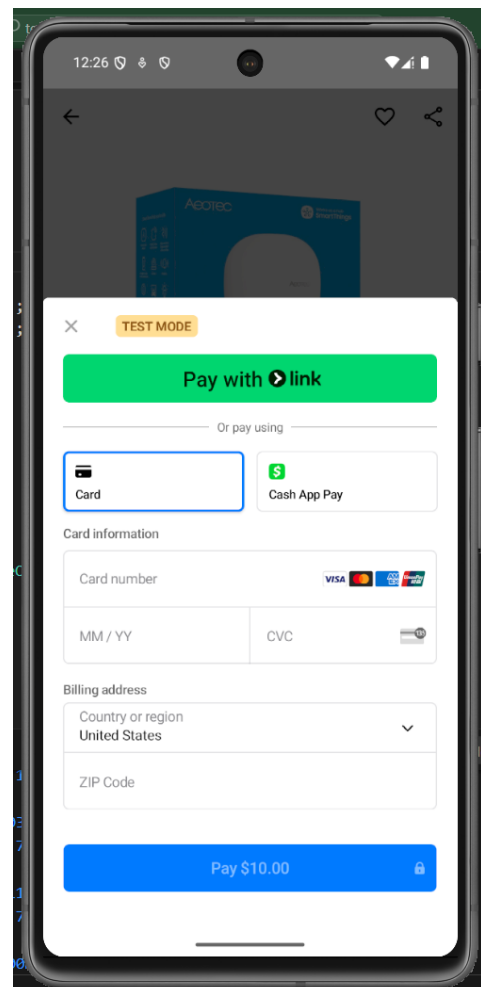

Figure 5 - Plaza

Figure 6 - Podcast

Figure 7 - Payment

Chapter – 04

4.1. Development Methodology

4.1.1. Agile Development Methodology
Agile is an incremental and iterative development methodology that enables continuous testing and refinement throughout the project life cycle.

4.1.2. Phases of the Development
1. Analysis of Requirements – Conducted requirement gathering options to define core features.
2. Planning and Design – Create Wireframes using Figma for UI/UX design and Define database structure and technology stack. (Flutter, Firebase)
3. Development process sprints – This was divided to phases.
   - Sprint 01:- Implement Project structure and Firebase.
   - Sprint 02:- Add main screens and contents.
   - Sprint 03:- Enhancing UI elements.
   - Sprint 04:- Learning resources and final refinements.
4. Testing and debugging – Conducted Uni testing, UI testing and functionality testing after each phase.
5. Deployment – Tested the application on local servers and emulators.

4.2. Technologies and Tools used
- Flutter SDK (version 3.29.1)
- Dart (version (3.7.0)
- Android Studio / VS Code
- Git

4.3. Future Implementation
TechLink is currently developed and tested on local servers, but there are several developments that are being planned in future. This is meant to be an attempt to add functionality, make the experience convenient and bring it to a bigger crowd than the initial one.

- Improved Cloud deployment and Scalability.
- Advanced Authentication methods for secure logins (2 factor).
- Secure payment gateway methods for the Marketplace.
- AI powered suggestions for the Marketplace and Job Portal.
- Implement both Private and Public chat platforms.
- App store deployment.

Chapter – 05

5.1. Individual Contribution

1. 10952523 – Jayawardena Kavinda :- News Feed / UI Enhancements (As the leader well management and update Feed's files as structured and helped to build navigations)

2. 10952463 – Dulaj Hewage :- Payment Gateway / Firebase Implementation (Well Contributed to the project and helped finalize the full project and implementing firebase)

3. 10952470 - Unagollage Wijesinghe :- Market Place (Plaza) / Main Screens (Creating main screens according to wireframes helped to get the app to a one structure)

4. 10952545 - Witharamalage Sirimewan :- Login & Signup / Firebase (As the first displays of the app haned the codes timely and helped with firebase)

5. 10952565 - Pathiranage Didula Theekshana :- User Profile (Developed user profile adjusted according to the structure and finalized timely)

6. 10953075 - Duwage Perera :- Podcast (Implemented the platform as group members requests and to the structure)

7. 10952645 - Chamathka Abeykoon :- Job Portal (As a main platform done with the time management and help to some implements)

8. 10952629 - Rathnayaka Rathnayaka :- Post Sharing (Handed the files timely and helped other members to finalize the dart files)

5.2. Github repository link

- https://github.com/dulaj03/PUSL2023_MAD-TechLinkApp

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