HealVision

A DIGITAL SOLUTION TO COMBAT SUBSTANCE USE DISORDERS

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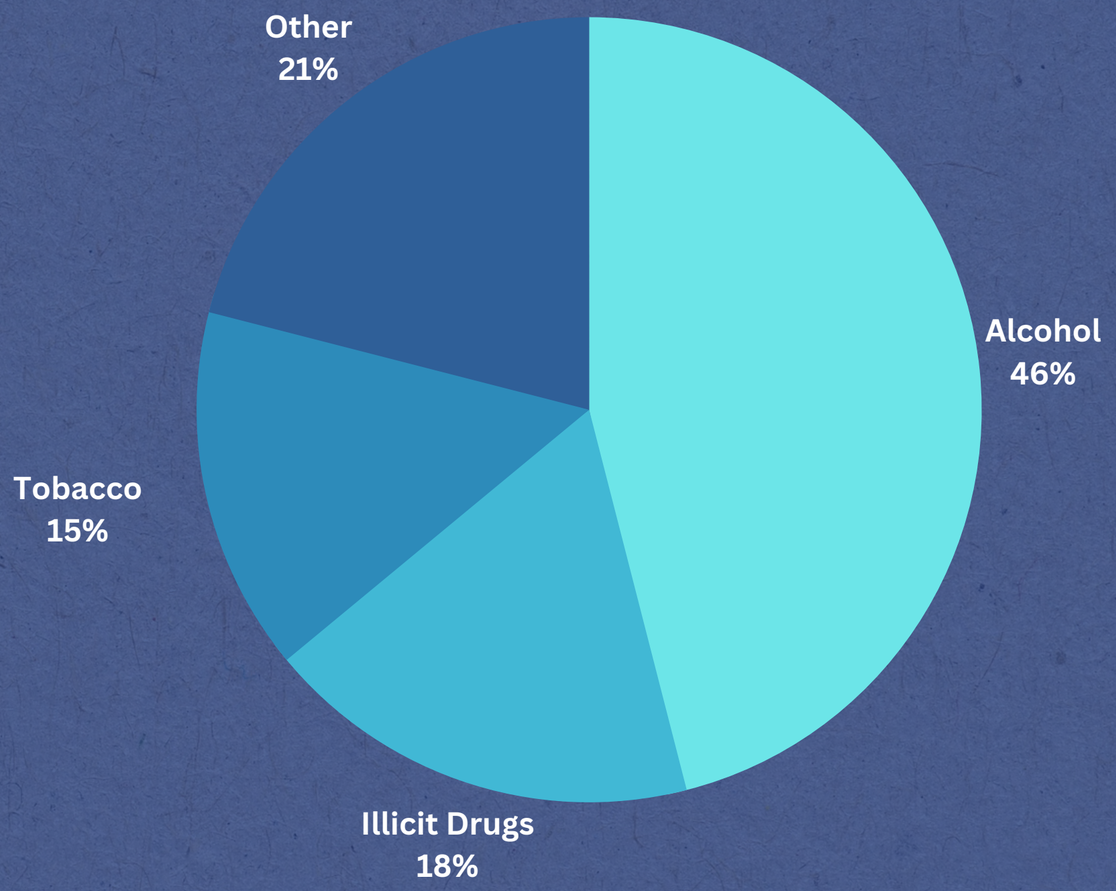
Introduction

According to the World Health Organization, an estimated 284 million people aged 15-64 used an illicit drug in 2020, and 265 million people used alcohol at harmful levels.

	Global
Gender Distribution	Male: 60%, Female: 40%
Age	15-64 years
Users	284 million
Addicts	39.5 million
Rate at Which Addicts Are Increasing	2.1% per year

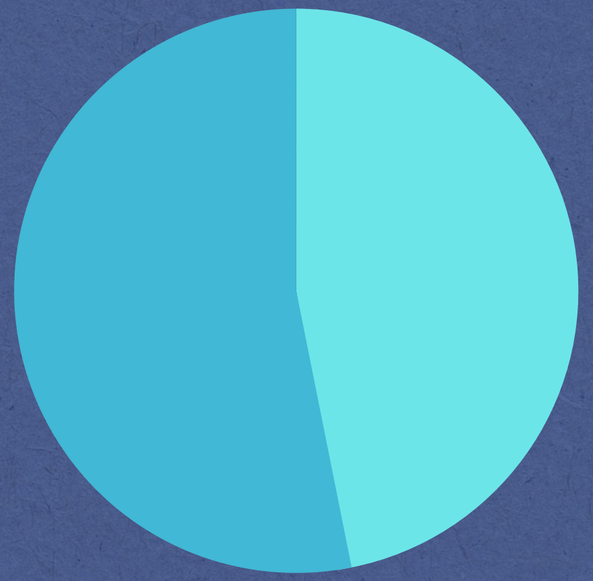


Global Prevalence of Substance Use Disorder (2020)

Introduction

In Pakistan, the total number of drug addicts, as per a UN report, is 7.6 million, 78% of whom are male, while the remaining 22% are female. Increasing at the rate of 40,000 per year, making Pakistan one of the most drug-affected countries in the world.

	Pakistan
Gender Distribution	Male: 78%, Female: 22%
Age	15-64 years
Users	6.7 million
Addicts	7.6 million
Rate at Which Addicts Are Increasing	1.8% per year



Contribution

- Accessibility to therapy
- Personalized support anywhere offers targeted therapy modules
- Incorporates real-time monitoring and assistance.

Accessible treatment

SDG 3

Affordable

SDG 10

Reduced Crime Rates

SDG 16

Contributions aligned with SDGs

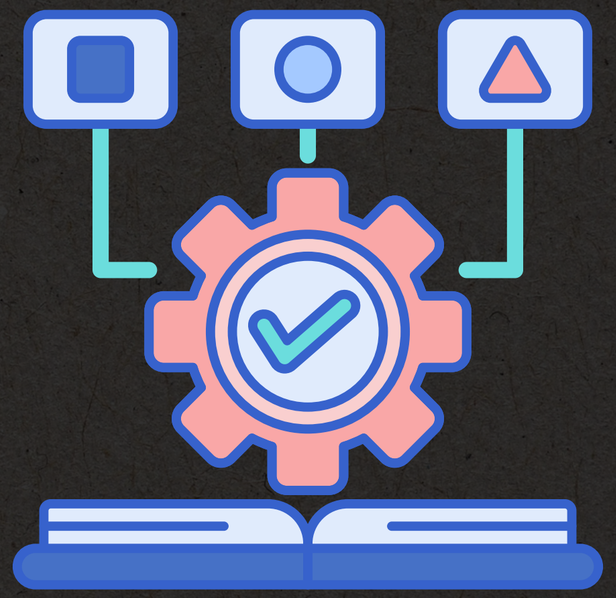
Problem Statement

Substance Use Disorder (SUD) is a chronic disease that affects millions of people worldwide. Traditional therapy for SUD can be expensive, difficult to access, and stigmatizing. As a result, many people with SUD go untreated.

Objectives

HealVision aims to provide accessible, effective, and personalized support to individuals battling Substance Use Disorders, addressing the barriers to traditional therapy.

- Affordable and accessible
- Therapy with AI feedback
- Online support groups and peer coaching



HealVision is helping to break down the barriers to traditional therapy and make it easier for people to get the help they need to overcome SUDs.

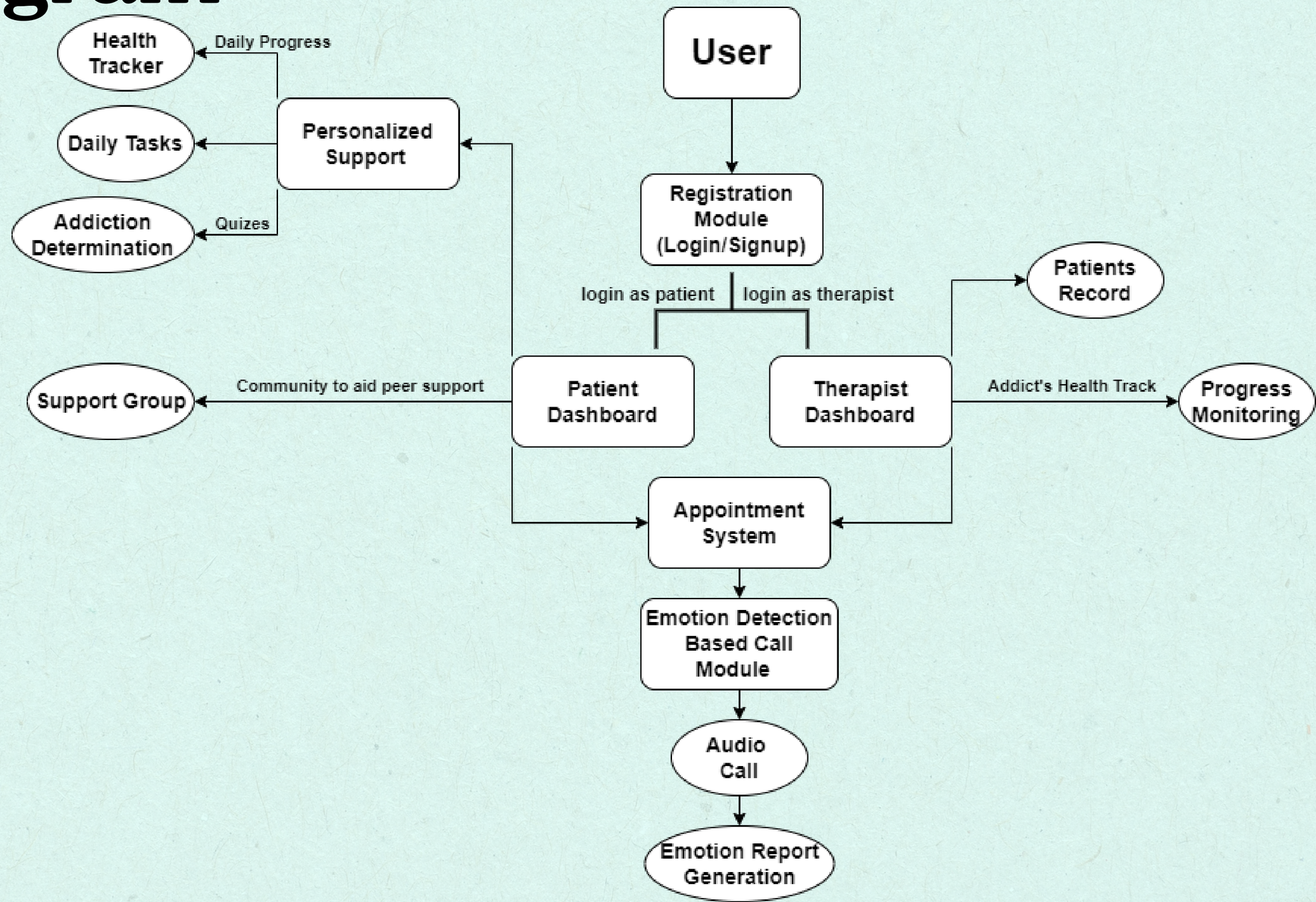
Competitive Benchmarking

Functionalities	HealVision	I Am Sober	BetterHelp
Health Tracker	Yes	No	No
Addiction Determination	Yes	No	No
Daily Tasks	Yes	Yes	No
Support Groups	Yes	Yes	No
ED Based Audio Call	Yes	No	No
Appointment System	Yes	No	Yes

Literature Review

Title	Year	Method	Overview	Dataset
Transformer-Based Speech Emotion Recognition Advancements [1]	2023	Fine-tuned on arousal, dominance, and valence using MSP-Podcast, IEMOCAP, and MOSI datasets for evaluation.	Explore individual fairness and language-dependent valence. advancing the field towards a holistic understanding of communication	yes
Emotion Recognition from Speech Using Wav2vec 2.0 Embeddings [2]	2021	Wav2vec 2.0 features are combined with trainable weights, improving emotion recognition. Different layers of wav2vec 2.0 are explored for enhanced performance.	Further optimization, preserving information during finetuning. Advances emotion recognition methods	yes
ABAW: Valence-Arousal Estimation, Expression Recognition, Action Unit Detection & Emotional Reaction Intensity Estimation Challenges [3]	2023	Affective computing competition on valence-arousal, expression, action unit, and emotional reaction intensity estimation using extensive datasets and baseline models.	Baseline models offer room for improvement; future work can explore advanced techniques and real-world applications.	yes

Block Diagram



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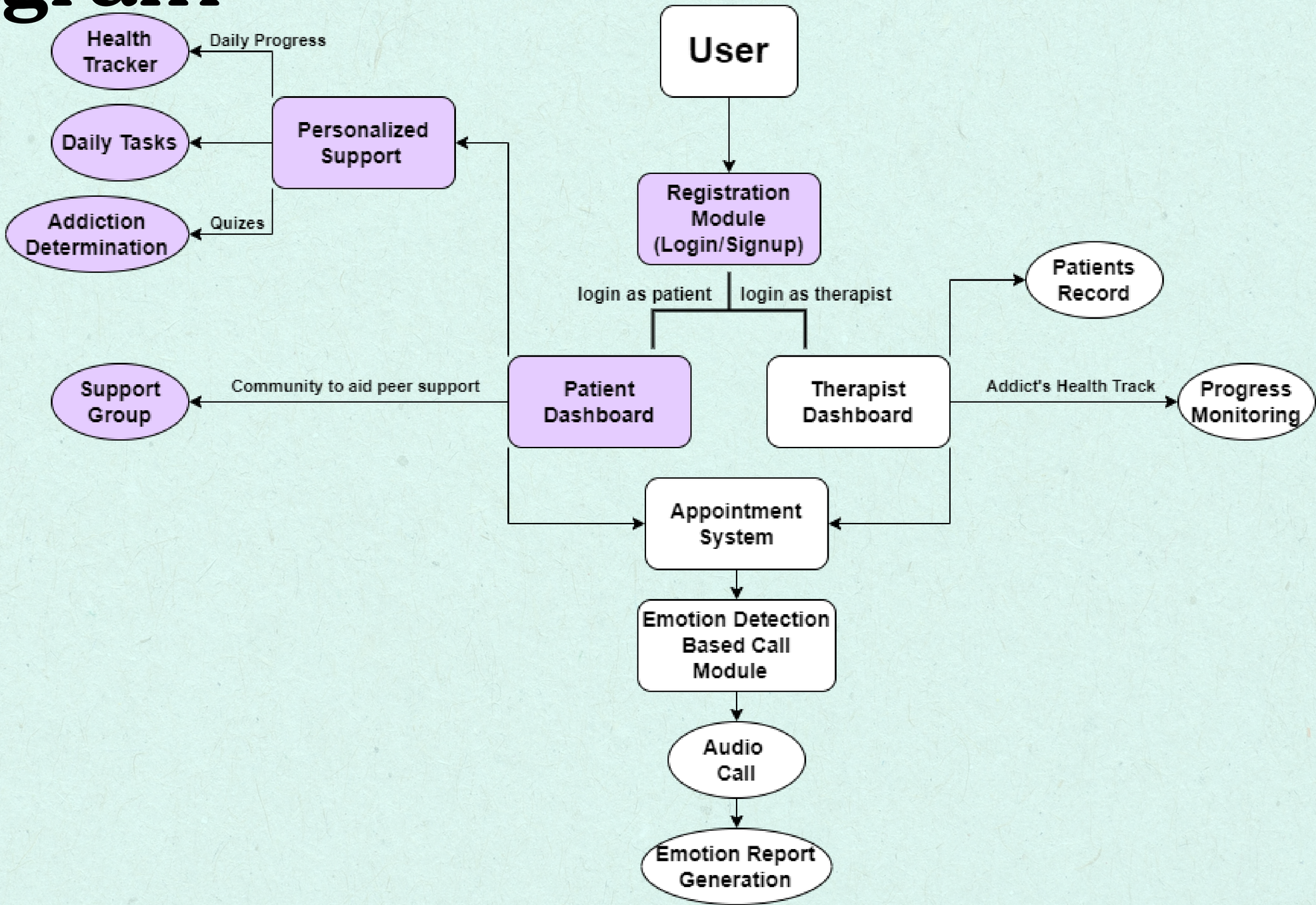

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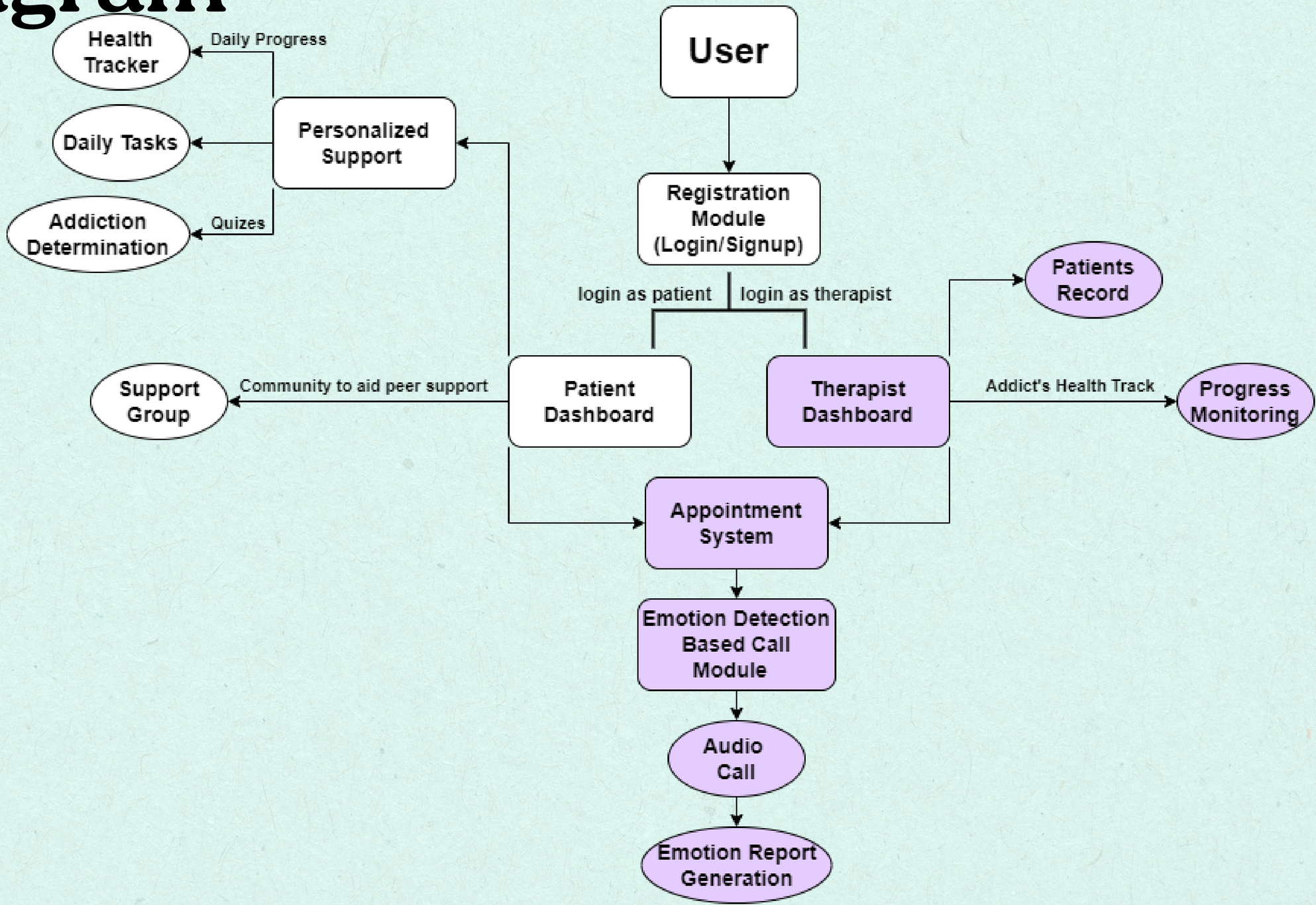

Deliverables Timeline

Organizing

- Researching datasets for sentiment analysis
- Analyzing ML & DL techniques for best results
- Gathering the previous work done so far from research papers

Completion

- All use cases diagrams
- Module architectures
- Finalized UI
- ML training

Emotion Detection Call module

- Completed Appointment booking system (for both users)
- Audio Call between Therapist and Patient
- Emotion Report Generation through Sentiment Analysis (to therapist)

Compiled Modules

- Integrated modules to a cohesive system
- Module testing
- Integrated testing
- performance optimization

Data Gathering

Documentation

Appointment System

Integration

Oct - Nov | Nov - Dec | Dec - Jan | Jan - Feb | Feb - March | March- April | April - May | May - June

Architecture

Patient Dashboard

Therapist Dashboard

Validation

Structuring

- Creating databases needed
- Research on flutter frameworks
- Designing UI

Implementation

- Developed Health Tracker, Daily Tasks, and addiction determination (to the patient)

Therapist Dashboard & Support group

- Support group module accessible to patients
- patient records module accessible to therapists
- Progress Tracker for monitoring patient health

Testing

- Test Cases
- User acceptance testing
- Recommendations

7th semester

8th semester

Work Division

Syeda Farwa Rizvi	Mujtaba Abbas
SER - Model Training	Patient Dashboard
Therapist Dashboard	Database Creation
Appointment Booking	Flutter Framework
Designing UI	Documentation
Therapy Session - Call	Appointment Integration

References

[1] Wagner, J., Triantafyllopoulos, A., Wierstorf, H., Schmitt, M., Burkhardt, F., Eyben, F., & Schuller, B. W. (2023). Dawn of the transformer era in speech emotion recognition: Closing the valence gap. IEEE Transactions on Pattern Analysis and Machine Intelligence, 45(9), 10745-10759.

[2] Pepino, L., Riera, P., & Ferrer, L. (2022). Emotion recognition from speech using wav2vec 2.0 embeddings. arXiv preprint arXiv:2205.07694.

[3] ABAW: Valence-Arousal Estimation, Expression Recognition, Action Unit Detection & Emotional Reaction Intensity Estimation Challenges; Dimitrios Kollias, Panagiotis Tzirakis, Alice Baird Alan Cowen Stefanos Zafeiriou (2023)

Thank You