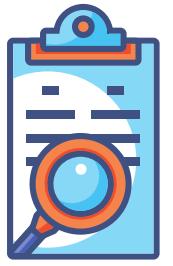


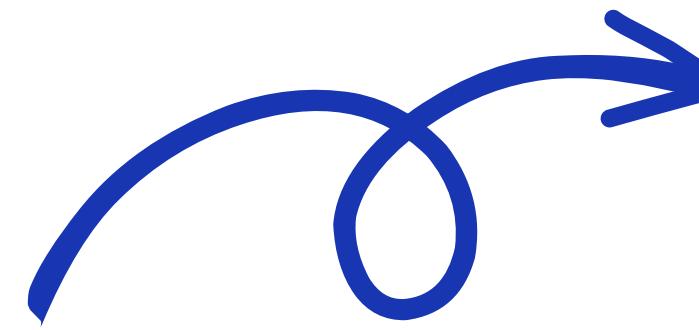


Problems



Problem 1

Unavailability of
Preliminary
Diagnosis Service



Anxiety

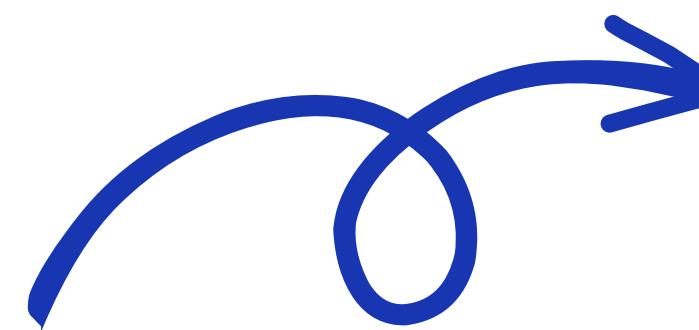
Delayed treatment

Inaccurate self-diagnosis



Problem 2

Difficulty Finding
Suitable Doctors

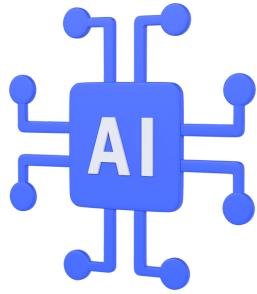


Suboptimal treatment
outcomes

Frustrating healthcare
experience

Solutions

Solution 1



AI-Driven Preliminary Diagnosis

Our AI-driven solution provides users with a preliminary diagnosis service, utilizing advanced algorithms and medical knowledge. This empowers individuals to seek appropriate medical attention.

Solution 2

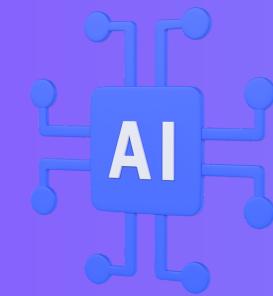


Personalized Doctor Recommendations

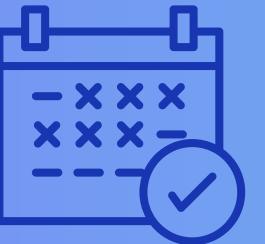
Utilizing an extensive dataset of specialized doctors, users can connect with doctors with expertise and experience to address their unique needs, enhancing their experience and access to specialized doctors.

Product

Our health startup offers a comprehensive range of innovative products and services that address the key challenges faced by individuals seeking preliminary medical diagnosis and accessing suitable doctors.



Preliminary Diagnosis Service

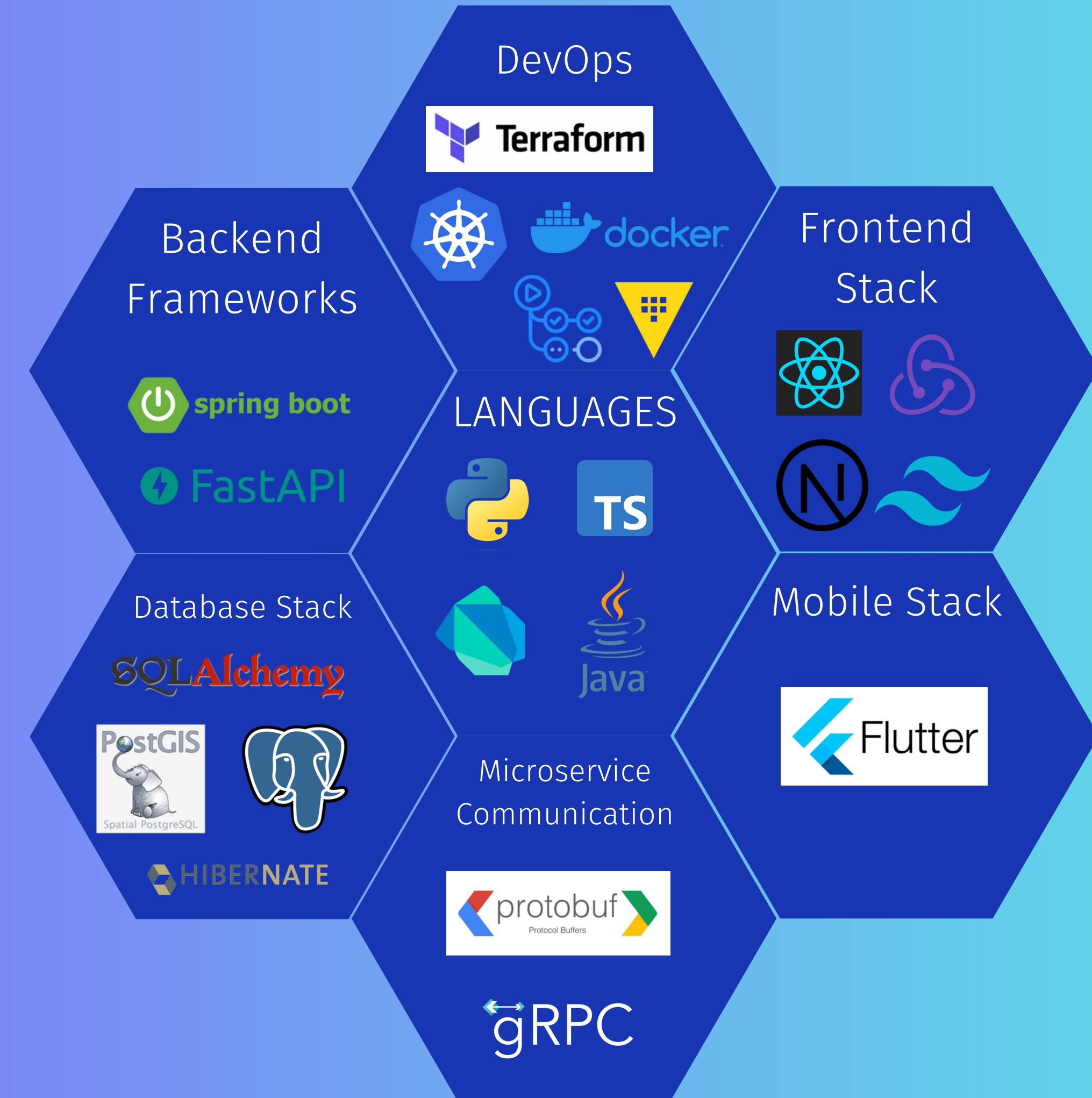


Doctor Discovery and Booking



Health Records Management

Technology Stack



Website Demo

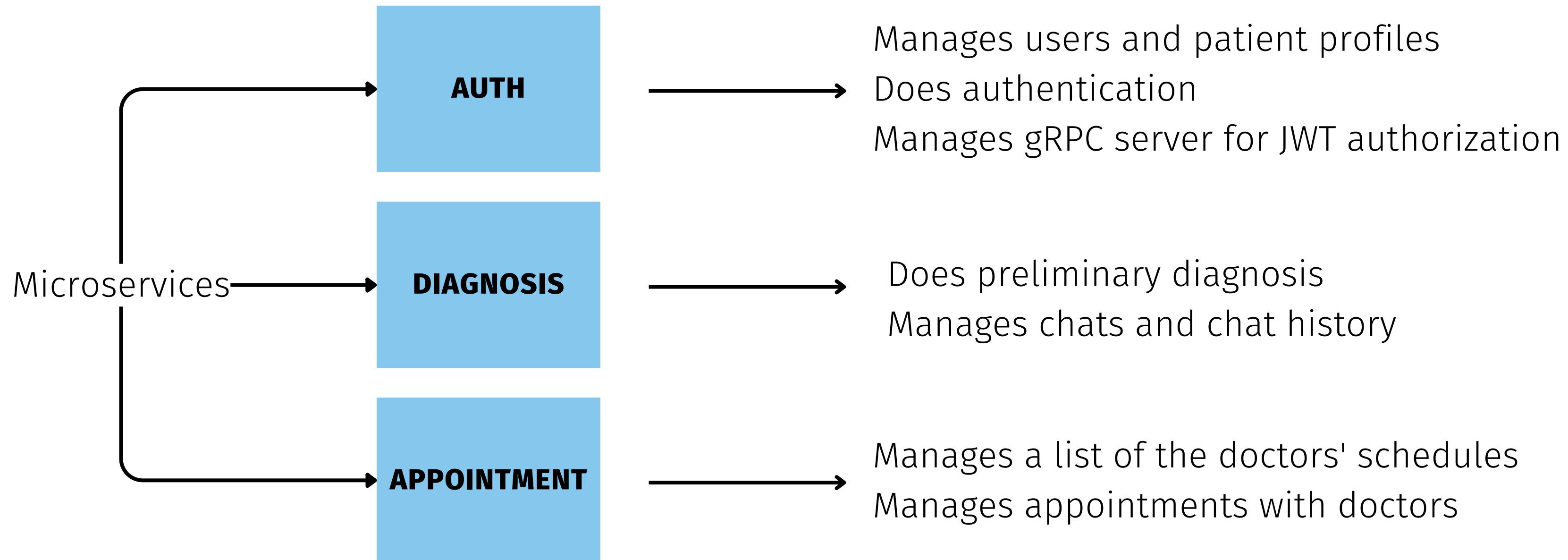
Website Demo

Mobile Application Demo

Mobile App Demo

BackEnd

Architecture



Utilities

Scraper



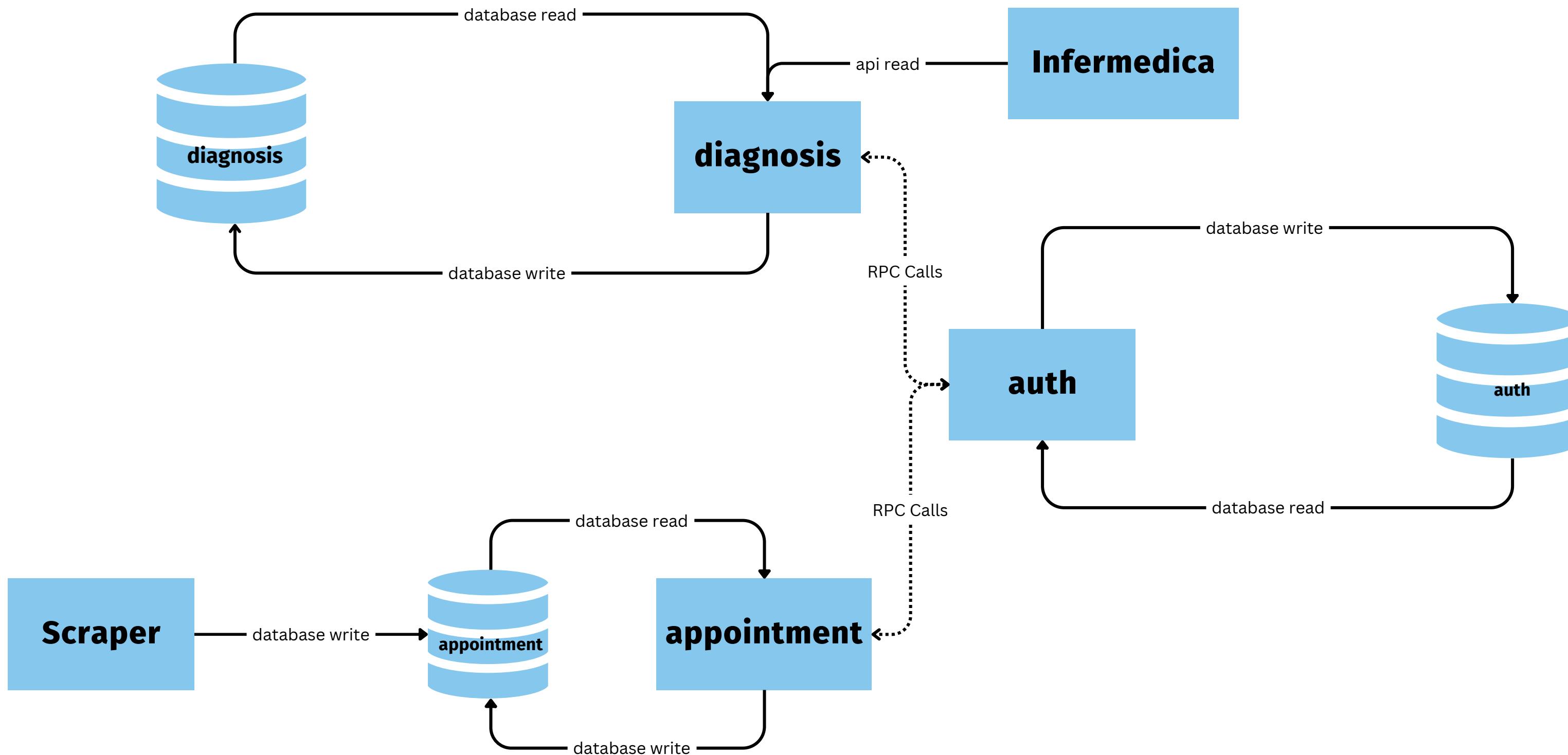
Collects data about 1400 doctors in Bangladesh Data includes: names, specializations, schedules, etc.

**Python
Infermedica
Library**



Provides abstraction for API calls to Infermedica endpoints
Manage states for the stateless Infermedica api

Component Diagram



Swagger Documentation

FastAPI 0.1.0 OAS 3.1

</auth/openapi.json>

Servers
[/auth](#) ▾

Authorize 

default

[GET](#) / Index



auth

[POST](#) /register Register



[POST](#) /confirm Confirm Registration



[POST](#) /login Login



profile

[POST](#) /profile/create Create Profile



[GET](#) /profile/current-profile Current Profile



API Specification

default

GET / Index

auth

POST /register Register

POST /confirm Confirm Registration

POST /login Login

profile

POST /profile/create Create Profile

GET /profile/current-profile Current Profile

Schemas

BaseResponse > Expand all object

ConfirmRegistration > Expand all object

CreateProfile > Expand all object

HTTPValidationError > Expand all object

POST /login Login

Parameters

No parameters

Request body required

application/json

Example Value | Schema

```
{ "identifier": "string", "password": "string" }
```

Responses

Code	Description	Links
200	Successful Response	No links
	Media type application/json	Controls Accept header.
	Example Value Schema	
	{ "success": true, "message": "string", "token": "string" }	
422	Validation Error	No links
	Media type application/json	
	Example Value Schema	
	{ "detail": [{ "loc": ["string", 0], "msg": "string", "type": "string" }] }	

Interactivity

POST /login Login

Parameters Cancel

No parameters

Request body required application/json

```
{ "identifier": "string", "password": "string" }
```



Execute

POST /login Login

Parameters

No parameters

Request body required

application/json

```
{ "identifier": "rfd@gmail.com", "password": "1234" }
```

G 1 ↻

Execute Clear

Responses

Curl

```
curl -X 'POST' \
'https://api/ayoto.health/auth/login' \
-H 'accept: application/json' \
-H 'Content-Type: application/json' \
-d '{
  "identifier": "rfd@gmail.com",
  "password": "1234"
}'
```

Request URL

https://api/ayoto.health/auth/login

Server response

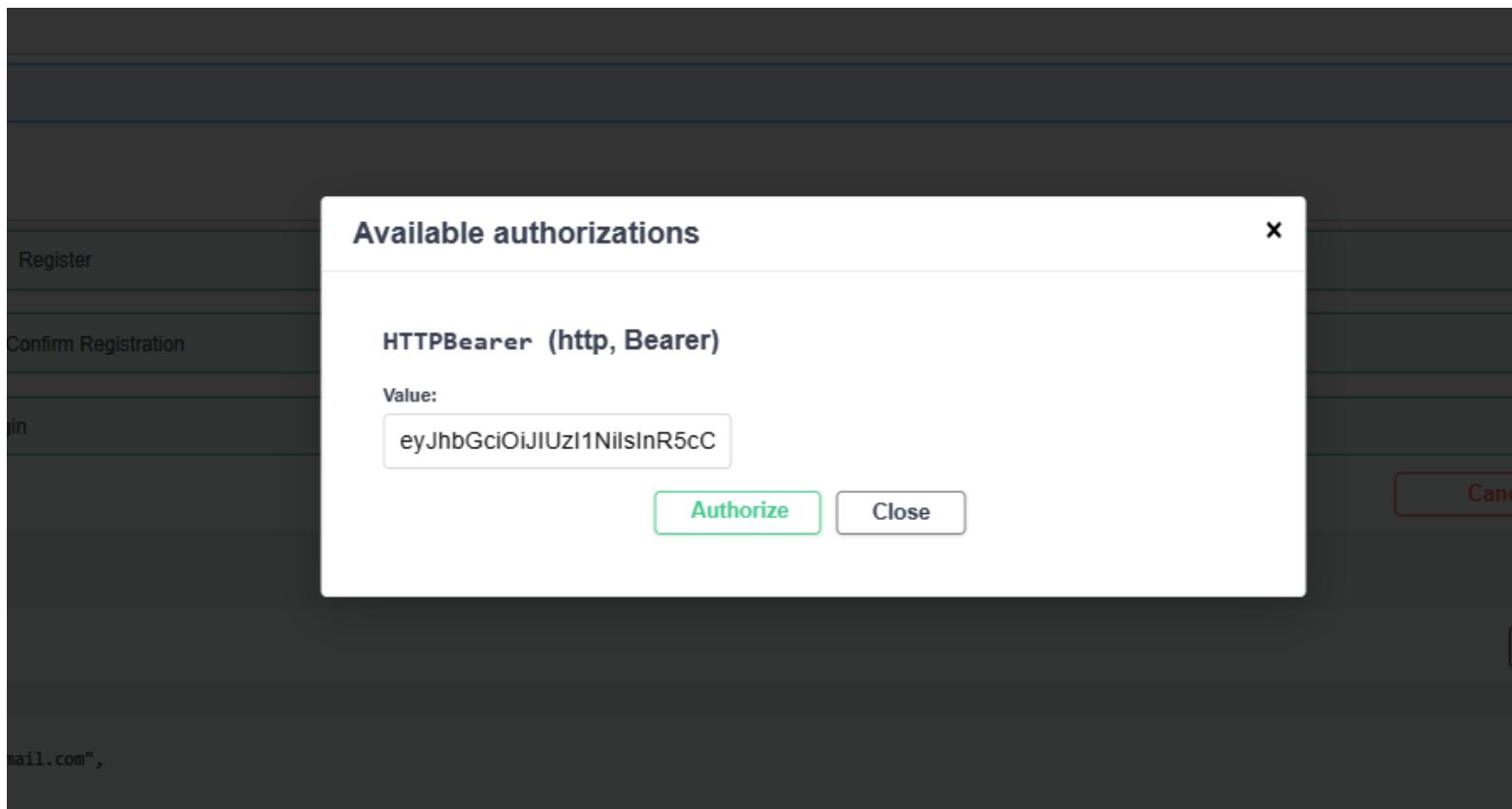
Code Details

200 Response body

```
{ "success": true, "message": "Login successful", "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpxVCJ9.eyJwdWIiOiIxZGY1NjFjYy00MTA1LTQ5MTEtYTItZS1jNDdiNTIzMjZmQjIiLCJWXRpzW50Ijoia2k4ZDNlNGEtNjuZYy00MjZhLNFjmjqTyUyNDVjZDFKM2IzIiivdWFeOjivhieSMiCw" }
```

Download

Authorization



GET /profile/current-profile Current Profile

Parameters

No parameters

Responses

Curl

```
curl -x 'GET' \
  'https://api/ayoto.health/auth/profile/current-profile' \
  -H 'accept: application/json' \
  -H 'Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiI0ZGY1NjFjYy00MTA1LTQ5MTctYTI4ZS1jNDdiNTIiZmVjZmQiLCJwYXRpZW50IjoiaNzk4ZDNlNGEtNjUzYy00MWhLWFjmjQtYzUyNDVjZDFkM2IzIiwiawF0IjoxNjgSMjC
```

Request URL

https://api/ayoto.health/auth/profile/current-profile

Server response

Code Details

200 Response body

```
{
  "id": "4df561cc-4105-4917-a28e-c47b59bfecfd",
  "patient_id": "798d3e4a-653c-41fa-ac24-c5245cd1d3b3",
  "name": "Rfd",
  "age": "20 years, 9 months",
  "height": 17500,
  "weight": 75,
  "latitude": 23.8517183,
  "longitude": 90.4188884,
  "sex": "male",
  "email": "r*d@gmail.com",
  "phone": "+880199*****14"
}
```

Download

Security and Privacy

Security

- Secrets management on the deployment stage only (using Vault)
- JWT tokens for authentication
- SSL enabled for all subdomains
- GRPC calls only within the cluster network
- Protection against common cyber attacks (DDoS, path traversal, etc.)

Privacy

Compliant to GDPR and HIPAA

- User data is pseudonymized
- Automatic removal of chat history after 7 days
- Short authorization token expiry time
- Accurate personal data (excl. name) is never shown on the screen

DevOps

DigitalOcean Apps

DigitalOcean Apps

Create App

1 Resources

2 Environment Variables

3 Info

4 Review

Create Resource From Source Code

Service Provider



GitHub



GitLab



DigitalOcean Container Registry



Docker Hub



Other: Choose Sample App

Repository

AyotoAI/ayoto-backend-diagnosis



DigitalOcean Apps

(✓) Environment Variables

(✓) Info

4 Review

Name	ayoto-backend-diagnosis	Edit
Resource Type	Web Service Python	Edit
Build Phase	STEPS	Edit
	1 Python Buildpack v2.231.4	
	2 Procfile Buildpack v0.0.3	
	3 Custom Build Command Buildpack v0.1.1	
	No build command defined	
Run Command		
Run Command	<pre>alembic upgrade head unicorn main:app --root-path /diagnosis --host 0.0.0.0 --port 8080</pre>	

Kubernetes

Kubernetes

The screenshot shows the Kubernetes dashboard interface. The top navigation bar includes the Kubernetes logo, a dropdown for 'All namespaces', a search bar, and icons for '+' (Create), a bell (Notifications), and a user profile.

The main header is 'Workloads' with a sub-header 'Workload Status'. Below this, there are four large green circles representing the status of different workload types:

- Daemon Sets: Running: 6
- Deployments: Running: 10
- Pods: Running: 23
- Replica Sets: Running: 50

The left sidebar contains several sections:

- Workloads**: Cron Jobs, Daemon Sets, Deployments, Jobs, Pods, Replica Sets, Replication Controllers, Stateful Sets.
- Service**: Ingresses, Ingress Classes, Services.
- Config and Storage**: Config Maps, Persistent Volume Claims, Secrets.
- Cluster**: Cluster Role Bindings, Cluster Roles, Events, Namespaces, Network Policies, Nodes.

The 'Daemon Sets' section is currently selected and displays a table with the following data:

Name	Namespace	Images	Labels	Pods	Created
do-node-agent	kube-system	docker.io/digitalocean/do-agent:3.16.2	app: do-node-agent c3.doks.digitalocean.com/component: do-no-de-agent c3.doks.digitalocean.com/plane: data	2 / 2	4 days ago
csi-do-node	kube-system	registry.k8s.io/sig-storage/csi-node-driver-registrator:v2.8.0 docker.io/digitalocean/do-csi-plugin:v4.6.1	c3.doks.digitalocean.com/component: csi-node-service c3.doks.digitalocean.com/plane: data doks.digitalocean.com/managed: true app: cpc-bridge-proxy	2 / 2	4 days ago
cpc-bridge-proxy	kube-system	digitalocean/cpbridge:1.24.0	c3.doks.digitalocean.com/component: cpc-bridge-proxy c3.doks.digitalocean.com/plane: data	2 / 2	4 days ago

Terraform

Terraform

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Security](#) [Insights](#) [Settings](#)

 ayoto-tf-digitalocean Private

[Edit Pins](#) [Unwatch](#) 1 [Fork](#) 0 [Star](#) 0

[main](#) [1 branch](#) [0 tags](#)

[Go to file](#) [Add file](#) [Code](#)

ahmedXDR Update AUTH_RPC_HOST ✓ a05357f 14 hours ago 70 commits

.gitignore	init	last week
.terraform.lock.hcl	Update AUTH_RPC_HOST	14 hours ago
README.md	Create README.md	last week
backendauth.tf	Update AUTH_RPC_HOST	14 hours ago
backenddiagnosis.tf	Update AUTH_RPC_HOST	14 hours ago
certmanager.tf	add backenddiagnosis to kubernetes	last week
cloudflare.tf	Add authrpc	2 days ago
dataserver.tf	Add db creds to dataserver	4 days ago
digitalocean.tf	Bug fixes	4 days ago
provider.tf	change domain	last week
traefik.tf	Add dataserver	4 days ago
webfrontend.tf	Bug fixes	4 days ago

[README.md](#) 

About

No description, website, or topics provided.

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No releases published [Create a new release](#)

Packages

No packages published [Publish your first package](#)

Languages

HCL 100.0%

Terraform

Workspaces

ayoto-tf-digitalocean

Overview

Runs

States

Variables

Settings

ayoto

Latest Run

View all runs

Update AUTH_RPC_HOST

ahmedXDR triggered a run 14 hours ago via main -o a05357f

✓ Applied

Policy checks: Add Estimated cost change: Enable Plan & apply duration: Less than a minute Resources changed: +0 ~1 -0

See details

Resources 38 Outputs 0

Current as of the most recent state version.

NAME	PROVIDER	TYPE	MODULE	CREATED
api-main-cluster	cloudflare/clo...	cloudflare_r...	root	Jul 11 2023
ayoto	digitalocean/di...	data.digital...	root	Jul 8 2023
ayoto	digitalocean/di...	digitalocean...	root	Jul 8 2023
ayoto_secrets	hashicorp/hcp	data.hcp_vau...	root	Jul 8 2023
backend	hashicorp/kuber...	kubernetes_n...	root	Jul 8 2023
backendauth	hashicorp/kuber...	kubernetes_s...	root	Jul 8 2023
backendauth	hashicorp/kuber...	kubernetes_d...	root	Jul 8 2023
backendauth	hashicorp/kuber...	kubernetes_i...	root	Jul 8 2023

Filter resources Q

Metrics (last 21 runs)

Average plan duration < 1 min

Average apply duration < 1 min

Total failed runs 7

Policy check failures 0

Tags (0)

Add a tag

Tags have not been added to this workspace.

Run triggers

No source workspaces have been selected. Adding run triggers will allow runs to queue automatically in this workspace.

Contributors (1)

o

Github Actions

GitHub Actions

Code Issues Pull requests Actions Projects 1 Security Insights Settings

← Build and deploy

Add deployment workflow #1

Summary

Re-run triggered 4 days ago Status Total duration Billable time Artifacts

ahmedXDR -o- f58c90b develop Success 1m 16s 5m -

Jobs

- build_and_push
- restart_deployment

Run details

Usage Workflow file

deploy-on-push.yml
on: push

```
graph LR; A[build_and_push] -- "51s" --> B(restart_deployment)
```

This screenshot shows the GitHub Actions interface for a repository. The 'Actions' tab is selected. A workflow named 'Add deployment workflow #1' is displayed. The 'Summary' section shows a recent run by user 'ahmedXDR' on branch 'develop' was successful in 1m 16s. The 'Jobs' section lists two jobs: 'build_and_push' and 'restart_deployment', both of which have passed. Below the jobs is a 'Run details' section with 'Usage' and 'Workflow file' links. The main content area displays the workflow configuration 'deploy-on-push.yml' with the trigger 'on: push'. It shows a sequence of steps: 'build_and_push' followed by 'restart_deployment'. The 'build_and_push' step took 51 seconds and the 'restart_deployment' step took 6 seconds.

Business Plan

Business Model

Customer Segments

Individual Users

We target individuals who require preliminary medical diagnosis and assistance in finding suitable doctors.

Corporate Clients

We also target corporate clients, including hospitals and individual doctors, who seek to provide value-added healthcare services to their customers.

Revenue Streams

Doctor Booking Fees

Percentage from the doctor and diagnosis appointment fees

Advertising and Sponsorships

We offer advertising opportunities to relevant stakeholders who want to reach our user base

Premium Accounts

Enhanced features and benefits
Subscription-based model, generating recurring revenue

Key Partnerships

Healthcare Professionals and Institutions

Collaborations with doctors, specialists, clinics, and hospitals to ensure a diverse and comprehensive network of healthcare providers

Health Insurance Companies

Partnerships with health insurance providers to offer our services as part of their offerings, providing added value to their policyholders

Market Size

169.4 M

Total Available Market (TAM)

90 M

Serviceable Available Market (SAM)

35M

Serviceable Obtainable Market (SOM)

Direct Competitors

- ◆ Praava
- ◆ DoctorKoi
- ◆ Pulse
- ◆ Hia
- ◆ Lifeplus
- ◆ Doctime

Indirect Competitors

- ◆ Traditional Brick-and-Mortar Clinics
- ◆ General Health Information Websites

Competitive Advantages

◆ **Advantage 1**

AI-driven diagnosis: The game changer. Unprecedented in the country.

◆ **Advantage 2**

Personalized doctor recommendations in stead of generic doctor name lists.

◆ **Advantage 3**

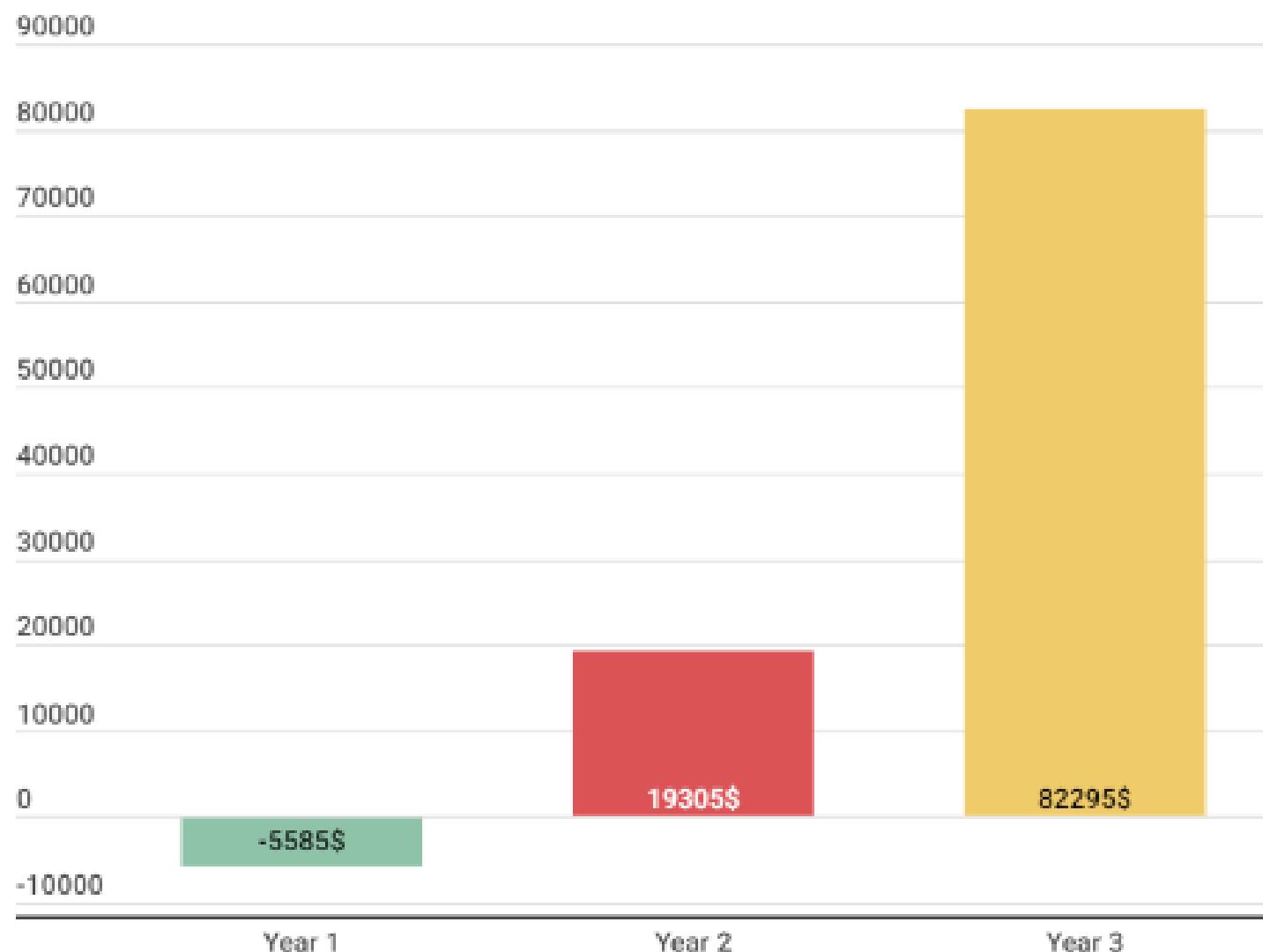
Partnerships with hospitals and diagnostic centers.

◆ **Advantage 4**

Discounts on in-house appointments

Break-Even Analysis

Break-even Analysis



The following table shows the projected profit and loss for the first 3 years:

Item	Year 1	Year 2	Year 3
Hosting and APIs	4,055\$	2,530\$	2,530\$
Marketing	1,680\$	1,680\$	1,680\$
Developing our own models	3,050\$	0\$	0
Total Expenses	8,785\$	4,210\$	45,010\$
Total Revenue	3,200\$	29,100\$	108,000\$
Profit	-5,585\$	19,305\$	82,295\$

Expected Costs & Revenue of First 3 years

Year 1			
Item	No. of Items	AVG. Price	Total
Commission Per Visit	10000	0.3\$	3,000\$
Premium Accounts	100	2\$	200\$
Total			3,200\$
Year 2			
Item	No. of Items	AVG. Price	Total
Commission Per Visit	75000	0.3\$	22,500\$
Advertisement	36	100\$	3,600\$
Premium Accounts	750	4\$	3,000\$
Total			29,100\$
Year 3			
Item	No. of Items	AVG. Price	Total
Commission Per Visit	300000	0.3\$	90,000\$
Advertisement	60	100\$	6,000\$
Premium Accounts	3000	4\$	12,000\$
Total			108,000\$

Item	Unit	No. of Units	No. of Items	Unit Price	Total
Team Salaries					
CEO	Month	12	1	500\$	6,000\$
COO	Month	12	1	400\$	4,800\$
Fronend web developer	Month	12	1	500\$	6,000\$
Backend Developer	Month	12	2	500\$	12,000\$
DevOps Engineer	Month	12	1	100\$	1,200\$
Mobile Developer	Month	12	2	450\$	10,800\$
Salaries Total					40,800\$
Others					
Domain	Year	3	2	15\$	90\$
Web hosting & APIs	Month	36	1	200\$	7,200\$
PlayStore Account	Account	1	1	25\$	25\$
AppStore Account	Year	3	1	100\$	300\$
Infermedica API	API Call	3000	1	1\$	1,500\$
Paid Ads	Month	36	1	10\$	360\$
Graphics Freelancer	Month	36	1	30\$	1,080\$
Influencers Payment	Person	18	2	100\$	3,600\$
ML Engineer Payment	Model	2	1	450\$	900\$
High Performance GPUs	Month	3	1	50\$	150\$
Data Annotators	Month	4	5	100\$	2,000\$
Others Total					17,205\$

Our Team



Mostafa Kira
Business Manager



Md Motasim Bhuiyan
PR Manager, Backend Developer



Zeyad Alagamy
Frontend Developer



Fedor Krasilnikov
Backend Developer



Ahmed Soliman
DevOps Engineer



Mohamed Nguira
Mobile Developer



Pavel Roganin
Mobile Developer

Acknowledgement



Abrar Auhin

Helped us to collect data about the market in Bangladesh



Mohamed Ayoub Chebbi

Helped us to make a beautiful design for our platform



Arnold Etaba

Helped us designing our database schema based on pseudonymization



Abdullah Al Noman

Helped us go through HIPAA and GDPR policies



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