



Major Project - I

Title: Cloud Based Emergency Health Record
Access system

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- Objectives
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- Results
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Colour Code:

Synopsis: Red

Mid term: Orange

End Term: Purple

Note: The Following presentation will have all the content of the later.

Introduction

The challenges of traditional health record systems, particularly in emergency situations where immediate access to patient data is crucial. These systems can be slow, especially when patients are treated outside their usual healthcare network, potentially leading to delays, medical errors, and poor outcomes.

To address this issue, we present the **Cloud-Based Emergency Health Record Access System**. This innovative solution leverages the power of cloud technology to ensure healthcare providers to access vital patient information, such as allergies, medications, and medical history, in real-time from anywhere. This system enhances patient safety, improves healthcare outcomes, and ensures that critical information is available when needed, regardless of location or network barriers.



Technologies Used

Django

A powerful Python web framework used for backend development, providing a robust and scalable foundation for the EHR system.

React JS

A JavaScript framework for building building user interfaces, used to develop the frontend of the application, providing a responsive responsive and interactive user experience.

PostgreSQL

A reliable and efficient open-source relational database used for for storing patient and system data data securely.

RESTful APIs

The system utilizes RESTful APIs to to establish communication between the frontend and backend, allowing seamless data exchange.

Installation and Setup

1

Clone the Repository

Clone the repository using the following command:

```
git clone git@github.com:HukumaBob/emr.git
```

2

Install Dependencies

Install the necessary dependencies for both the backend and frontend.

3

Database Setup

Create a PostgreSQL database for the project and update the database configuration in the backend settings file.

4

Run Migrations

Run the migrations to create the database tables.

5

Start Development Servers

Start the backend and frontend development servers.

6

Access the EHR System

Open your web browser and visit <http://localhost:3000/> to access the EHR system.

Purpose of the Project:

- Improve accessibility and availability of critical patient health records during emergencies.
- Centralize patient data in a secure, interoperable cloud platform.
- Provide authorized medical personnel with real-time access to critical information (e.g., allergies, medications, medical history).
- Ensure real-time access even in urgent situations.
- Enhance the quality and speed of care during emergencies.
- Minimize medical errors.
- Potentially save lives during emergencies.



Problem Statement:

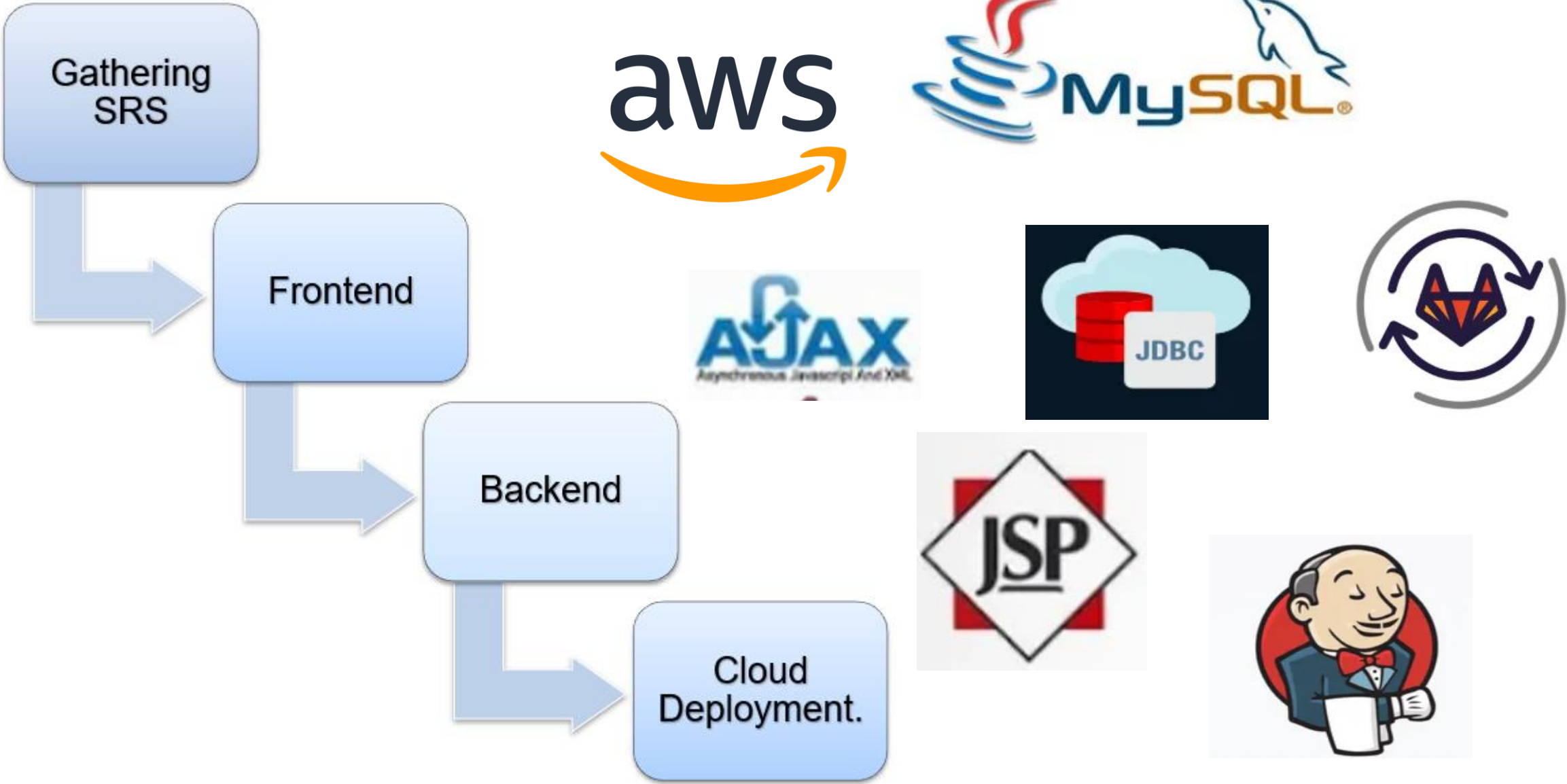
- Lack of immediate access to accurate and comprehensive patient health records in emergencies.
- Results in delayed treatment, medical errors, and adverse outcomes.
- Traditional health record systems are fragmented and confined to specific healthcare networks.
- Difficult for providers to obtain vital information (allergies, medications, medical history) when treating patients outside their regular care settings.
- This inefficiency is critical during emergencies where every second counts.
- Need for a secure, cloud-based system for quick and reliable access to patient data.
- Ensures authorized medical personnel can access essential patient data regardless of location.
- Aims to improve care quality and patient outcomes in urgent situations.

Area of application:

This system is primarily applicable in the healthcare sector, specifically:

- **Emergency Departments**: To provide real-time access to critical patient data.
- **Paramedics and Ambulance Services**: To access patient records and route to hospitals.
- **Healthcare Institutions**: Hospitals, clinics, and urgent care centers for integrated and efficient patient care.
- **Public Health Systems**: For improving the coordination and efficiency of emergency medical services.

WebDevelopment –Roadmap &Tech Stack:



Literature Review

Author(s)	Year	Title	Key Focus	Findings	Relevance to Cloud-Based Emergency Health Record Access
Smith et al.	2020	"Improving Emergency Medical Response with Cloud Technologies"	Application of cloud computing in emergency medical services (EMS)	Demonstrated improved response times and better decision-making using cloud-based data systems	Highlights the speed and availability benefits of cloud-based EHR access during emergencies
Johnson et al.	2021	"Interoperability in Cloud-Based Healthcare Systems"	Investigated interoperability between cloud platforms and healthcare systems	Cloud systems improved the seamless exchange of data between different healthcare providers	Shows how cloud systems enhance EHR accessibility across multiple healthcare facilities in emergencies

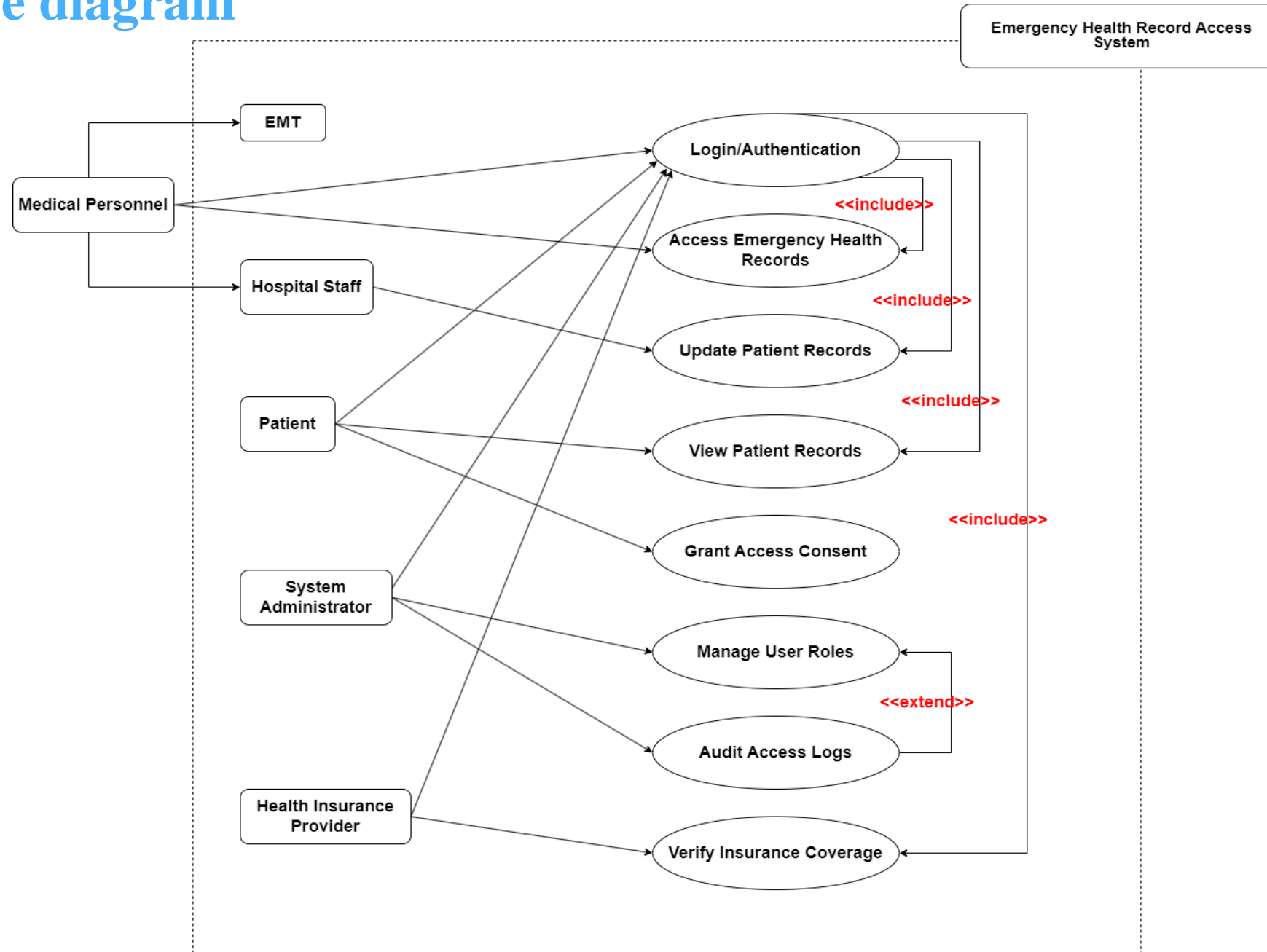
SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Improved Emergency Care: Ensures critical health information is available during emergencies.	Data Integration Challenges: Complexity in integrating data from different EHR systems.	Global Market Expansion: Adaptation for use in different countries.	Cybersecurity Risks: Vulnerability to cyber-attacks.
Accessibility: Provides access to patient records anywhere, enhancing continuity of care.	Dependency on Internet: Limited effectiveness in areas with poor internet connectivity.	Integration with Emerging Technologies: Potential to incorporate AI for predictive analytics.	Regulatory Changes: Impact of changing healthcare regulations.
Security: Strong encryption and access controls protect patient data.	High Initial Costs: Significant investment required for development and deployment.	Patient Empowerment: Allowing patients controlled access to their records.	Resistance to Change: Potential reluctance from healthcare providers to adopt a new system.
Interoperability: Integration with existing EHR systems.	Privacy Concerns: Potential concerns over the security of cloud-stored health information.	Partnerships: Collaborations with healthcare providers for further system development.	Technical Failures: Risks of downtime or technical issues hindering access during emergencies.

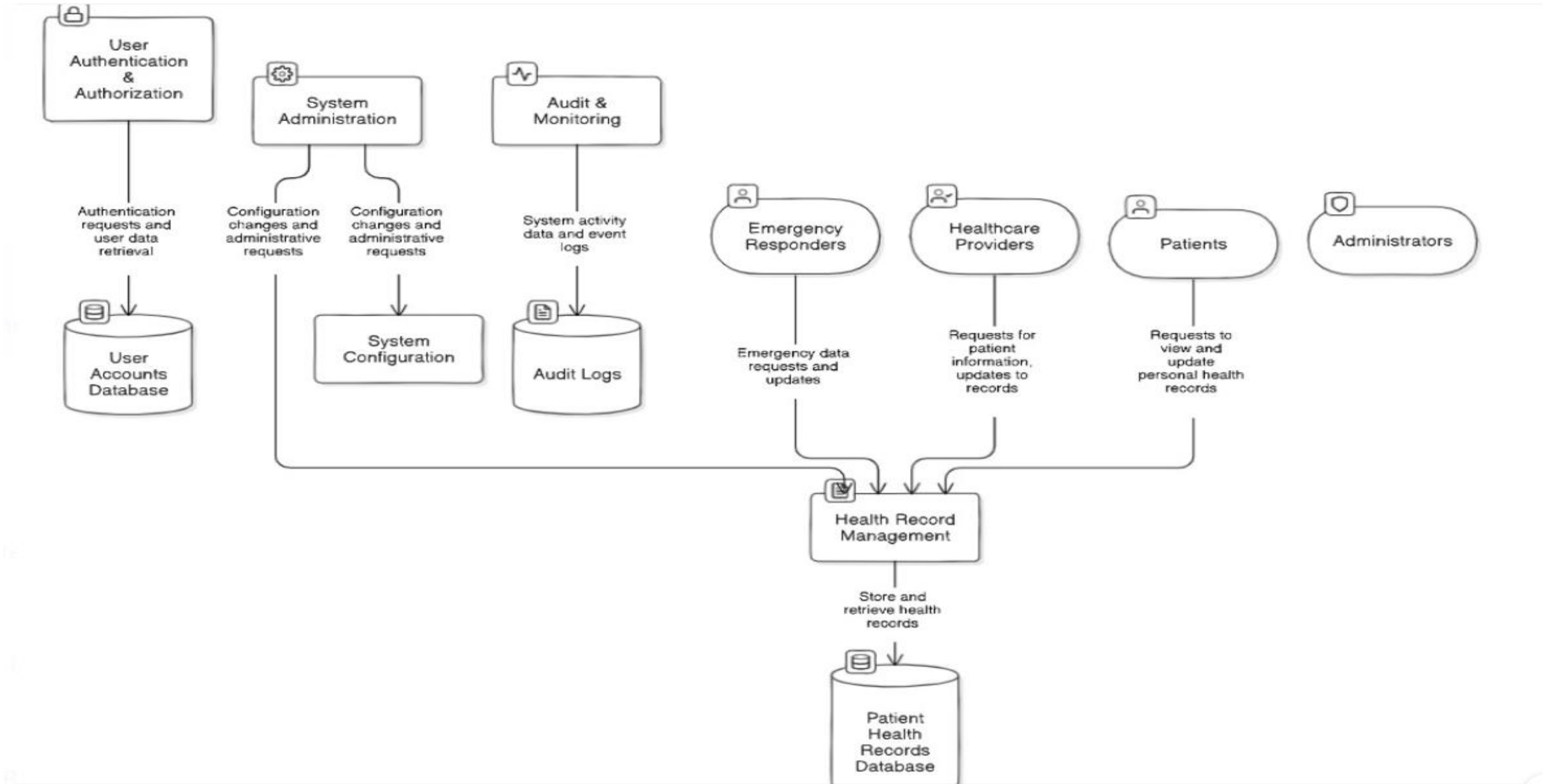
Main Objective:

- **Enhance Emergency Care Efficiency**: Develop a cloud-based platform that enables healthcare providers to access critical patient health records in real-time during emergencies, improving the speed and quality of care.
- **Ensure Secure Data Access**: Implement robust security measures to ensure that patient data is accessible only to authorized personnel, safeguarding sensitive information from unauthorized access.
- **Facilitate Interoperability**: Design the system to integrate seamlessly with existing Electronic Health Record (EHR) systems, ensuring compatibility and smooth data exchange across different healthcare networks.
- **Improve Patient Outcomes**: By providing timely and accurate health information to emergency responders, the system aims to reduce medical errors and enhance patient safety, ultimately improving health outcomes in critical situations.

Use Case diagram



Methodology (DFD)



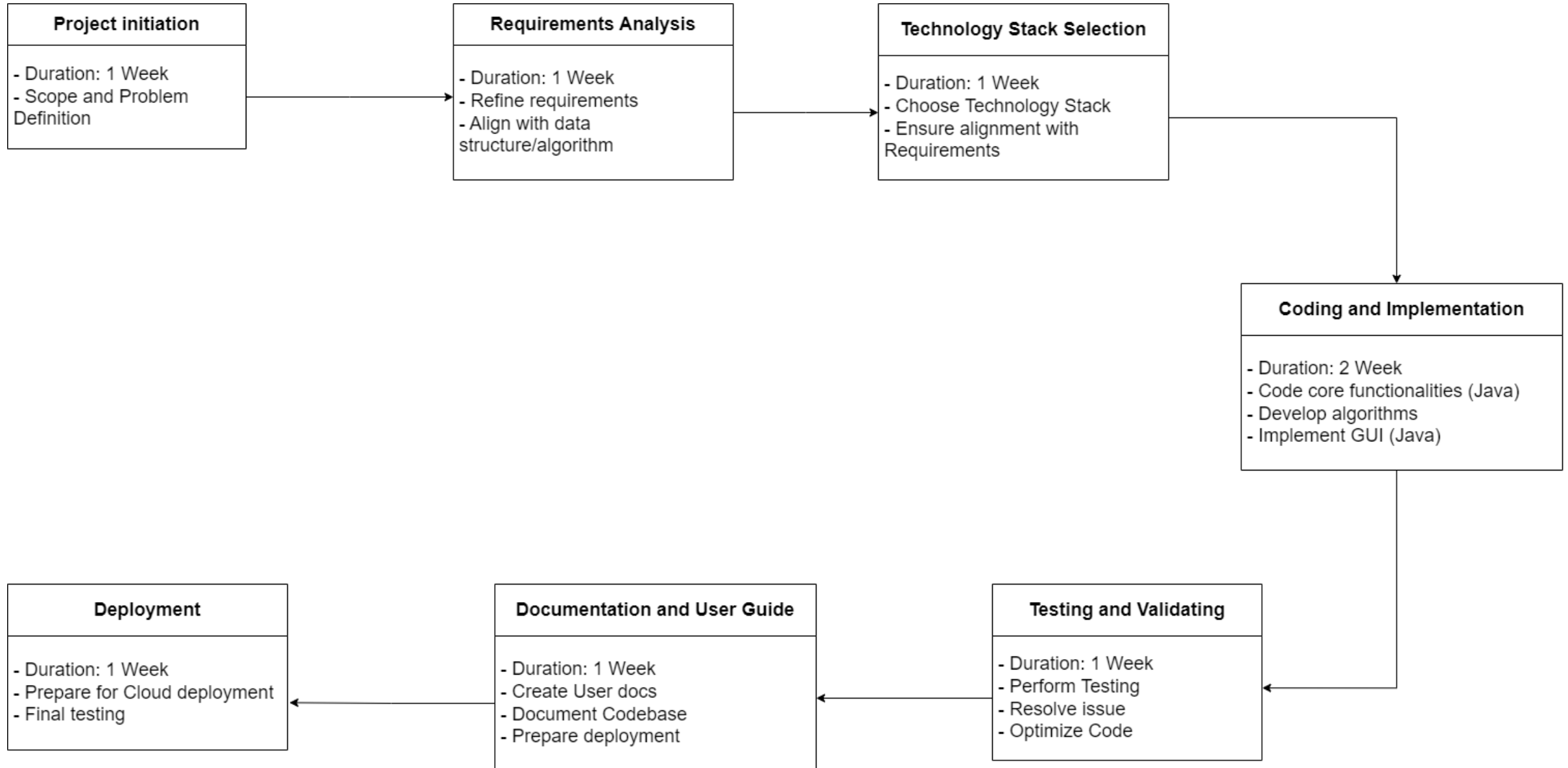
Methodology

Steps:

- System Design and Architecture Development: Design a scalable and secure cloud-based platform with a user-friendly interface for healthcare providers.
- Integration with Existing EHR Systems: Implement APIs to connect and centralize patient data from various EHR systems into the cloud platform.
- Security and Privacy Implementation: Incorporate encryption, access controls, and regulatory compliance to protect patient data.
- Prototype Development and Testing: Build and rigorously test a prototype to ensure system reliability and gather user feedback.
- Deployment and Training: Deploy the system and provide training to healthcare providers for effective use during emergencies.
- Ongoing Maintenance and Updates: Establish continuous monitoring and updates to maintain system performance and security compliance.

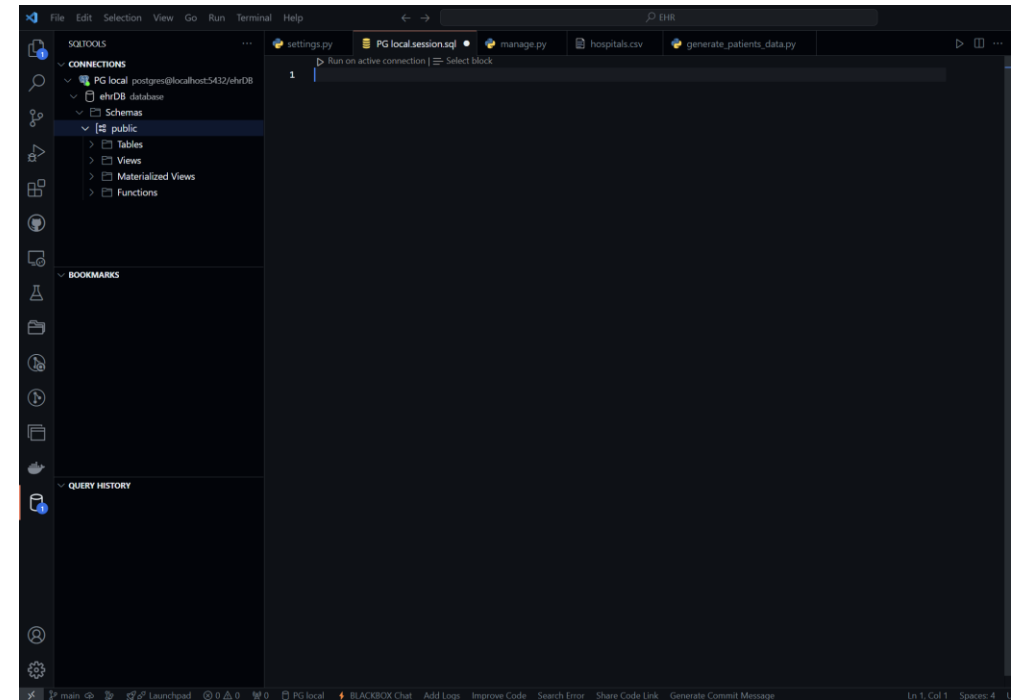
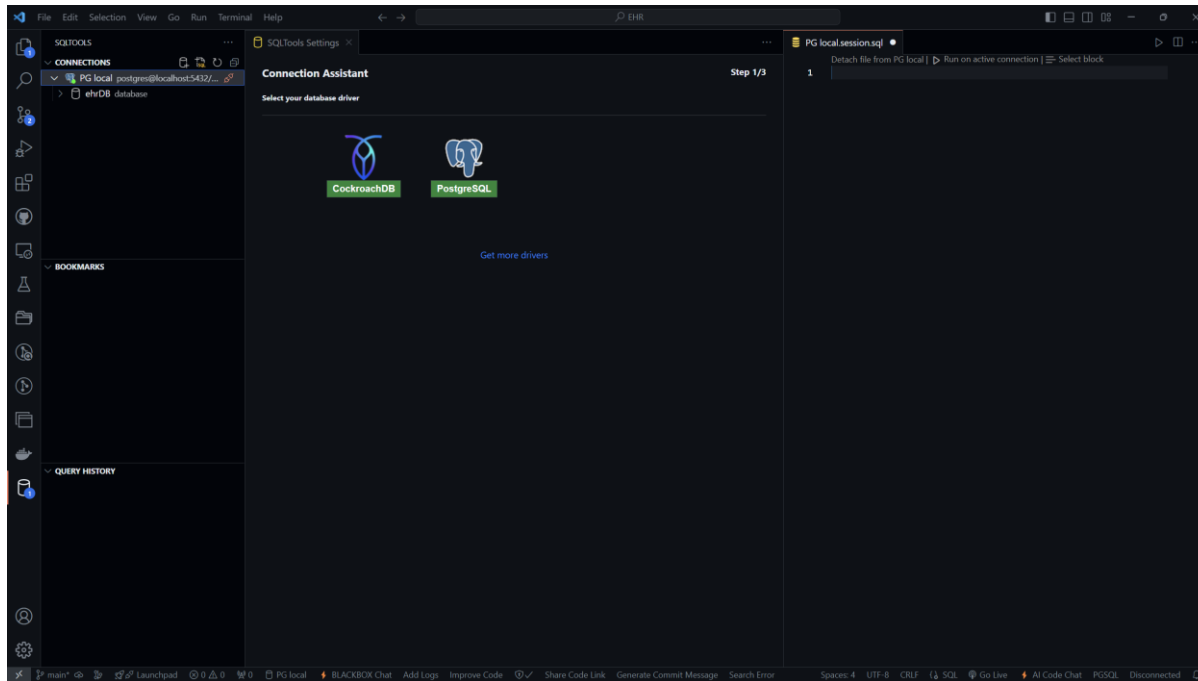
Timeline.

Pert Chart :



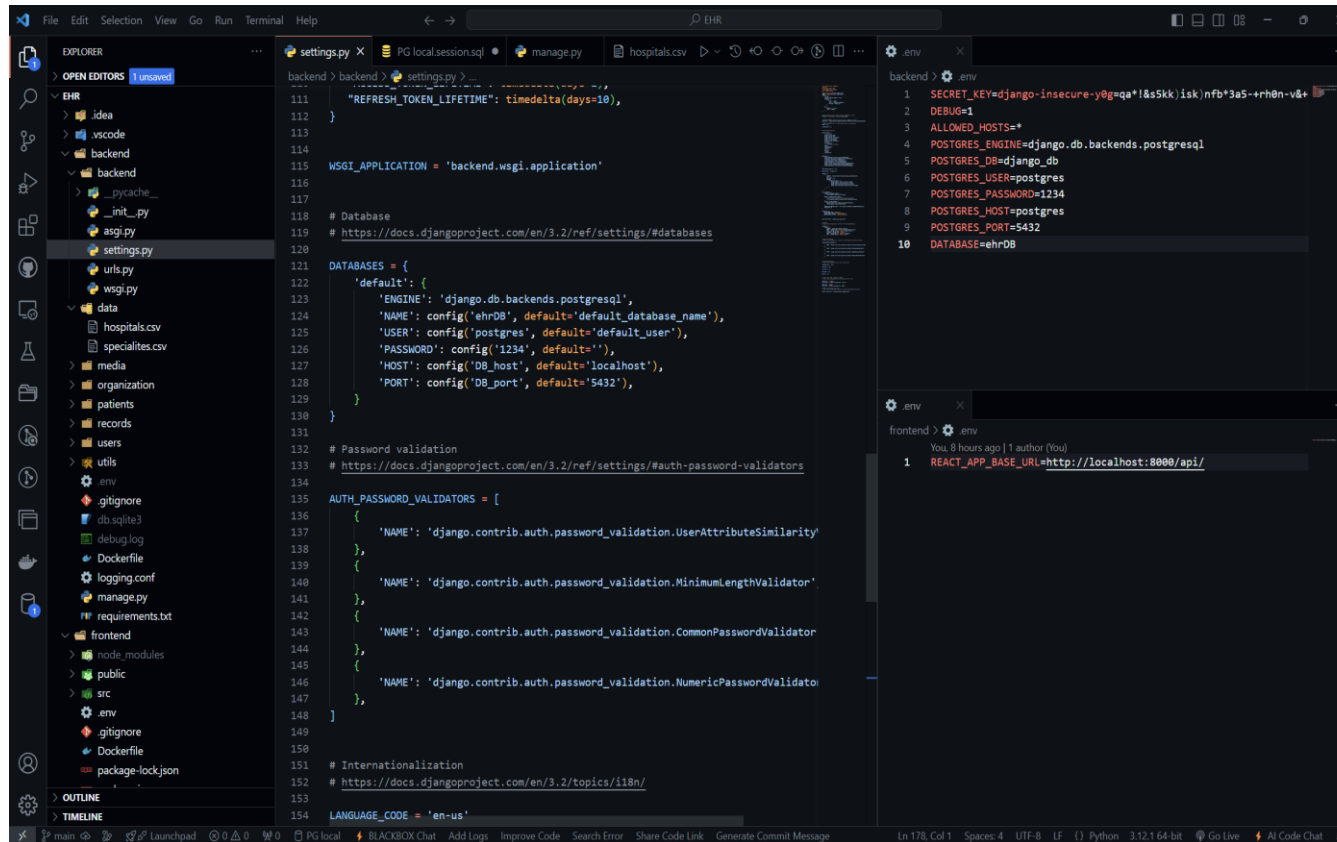
Results:

Database connection:



Results:

Database connection details: env file for frontend and backend and connection details in settings.py



The screenshot displays a VS Code workspace for a Django project. The Explorer sidebar on the left shows a file tree with folders for 'EHR', 'backend', 'data', 'media', 'organization', 'patients', 'records', 'users', 'utils', and 'frontend'. The 'backend' folder is expanded, showing files like 'urls.py', 'wsgi.py', 'data', 'hospitals.csv', 'specialties.csv', 'media', 'organization', 'patients', 'records', 'users', 'utils', 'env', 'gitignore', 'db.sqlite3', 'debug.log', 'Dockerfile', 'logging.conf', 'manage.py', 'requirements.txt', 'node_modules', 'public', 'src', '.env', 'gitignore', 'Dockerfile', and 'package-lock.json'. The main editor area shows the 'settings.py' file with the following content:

```
111 "REFRESH_TOKEN_LIFETIME": timedelta(days=10),
112 }
113
114
115 WSGI_APPLICATION = 'backend.wsgi.application'
116
117
118 # Database
119 # https://docs.djangoproject.com/en/3.2/ref/settings/#databases
120
121 DATABASES = {
122     'default': {
123         'ENGINE': 'django.db.backends.postgresql',
124         'NAME': config('ehrDB', default='default_database_name'),
125         'USER': config('postgres', default='default_user'),
126         'PASSWORD': config('1234', default=''),
127         'HOST': config('DB_host', default='localhost'),
128         'PORT': config('DB_port', default='5432'),
129     }
130 }
131
132 # Password validation
133 # https://docs.djangoproject.com/en/3.2/ref/settings/#auth-password-validators
134
135 AUTH_PASSWORD_VALIDATORS = [
136     {
137         'NAME': 'django.contrib.auth.password_validation.UserAttributeSimilarity',
138     },
139     {
140         'NAME': 'django.contrib.auth.password_validation.MinimumLengthValidator',
141     },
142     {
143         'NAME': 'django.contrib.auth.password_validation.CommonPasswordValidator',
144     },
145     {
146         'NAME': 'django.contrib.auth.password_validation.NumericPasswordValidator',
147     },
148 ]
149
150 # Internationalization
151 # https://docs.djangoproject.com/en/3.2/topics/i18n/
152
153 LANGUAGE_CODE = 'en-us'
```

On the right side, there are two '.env' files. The 'backend > .env' file contains:

```
1 SECRET_KEY=django-insecure-y0g=qa*!&5kk!sk)nfb*3a5--rh0n-v&+
2 DEBUG=1
3 ALLOWED_HOSTS=*
4 POSTGRES_ENGINE=django.db.backends.postgresql
5 POSTGRES_DB=django_db
6 POSTGRES_USER=postgres
7 POSTGRES_PASSWORD=1234
8 POSTGRES_HOST=postgres
9 POSTGRES_PORT=5432
10 DATABASE=ehrDB
```

The 'frontend > .env' file contains:

```
1 REACT_APP_BASE_URL=http://localhost:8000/api/
```

Results:

Data: hospital.csv and specialties.csv

The screenshot shows a VS Code editor with two CSV files open. The left pane shows the Explorer view with the file structure. The right pane shows the content of the two CSV files.

hospital.csv

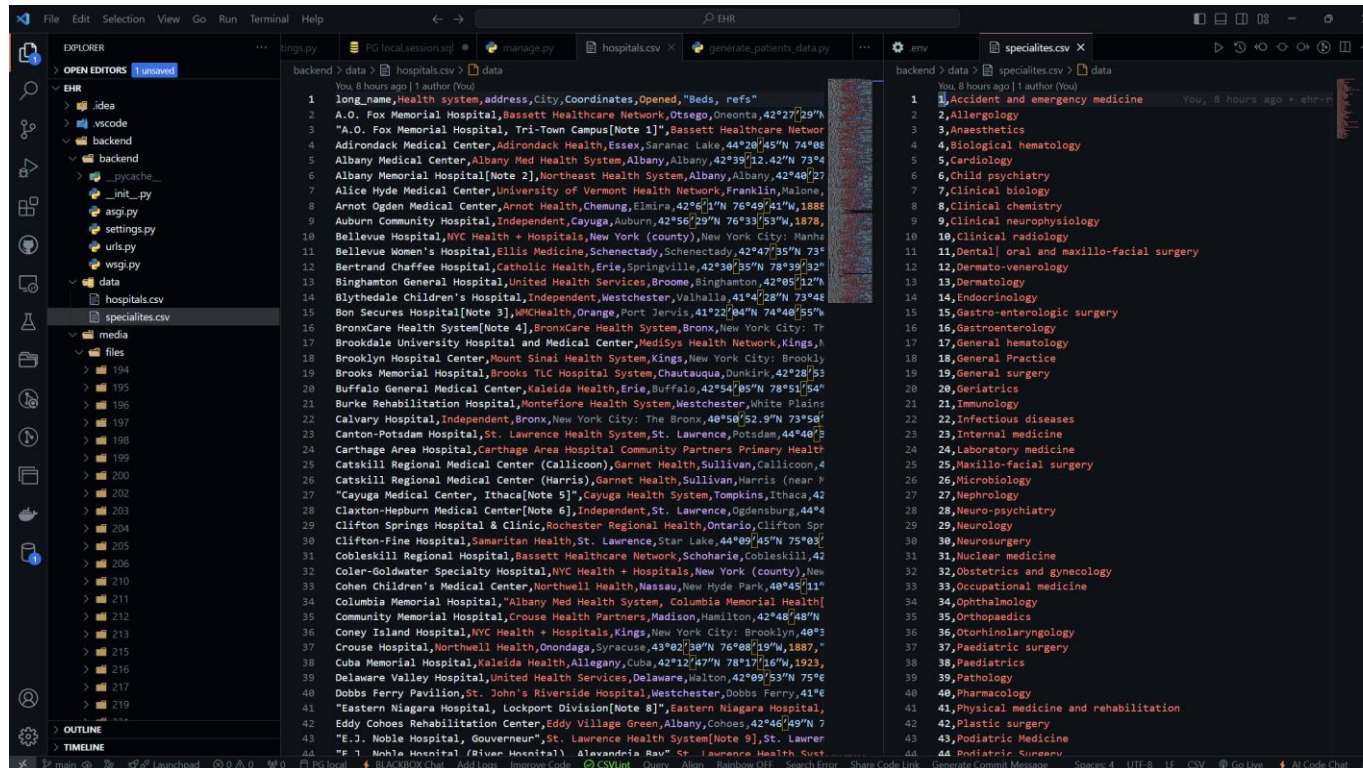
```
1 long_name,Health system,address,city,Coordinates,Opened,"Beds, refs"
2 A.O. Fox Memorial Hospital,Bassett Healthcare Network,Otsego,Oneonta,42°27'29"N
3 "A.O. Fox Memorial Hospital, Tri-Town Campus[Note 1]",Bassett Healthcare Networ
4 Adirondack Medical Center,Adirondack Health,Essex,Saranac Lake,44°28'45"N 74°08
5 Albany Medical Center,Albany Med Health System,Albany,Albany,42°39'12.42"N 73°4
6 Albany Memorial Hospital[Note 2],Northeast Health System,Albany,Albany,42°40'27
7 Alice Hyde Medical Center,University of Vermont Health Network,Franklin,Malone,
8 Arnot Ogden Medical Center,Arnot Health,Chemung,Elmira,42°6'11"N 76°49'41"W,1888
9 Auburn Community Hospital,Independent,Cayuga,Auburn,42°56'29"N 76°33'53"W,1878,
10 Bellevue Hospital,NYC Health + Hospitals,New York (county),New York City: Manha
11 Bellevue Women's Hospital,Ellis Medicine,Schenectady,Schenectady,42°47'35"N 73°
12 Bertrand Chaffee Hospital,Catholic Health,Erie,Springville,42°30'35"N 78°39'32"
13 Binghamton General Hospital,United Health Services,Broome,Binghamton,42°05'32"N
14 Blythedale Children's Hospital,Independent,Westchester,Villhalla,41°42'28"N 72°44
15 Bon Secures Hospital[Note 3],NMCHealth,Orange,Port Jervis,41°22'04"N 74°40'55"W
16 BronxCare Health System[Note 4],BronxCare Health System,Bronx,New York City: Th
17 Brookdale University Hospital and Medical Center,MediSys Health Network,Kings,A
18 Brooklyn Hospital Center,Mount Sinai Health System,Kings,New York City: Brookl
19 Brooks Memorial Hospital,Brooks TLC Hospital System,Chautauque,Dunkirk,42°28'53
20 Buffalo General Medical Center,Kaleida Health,Erie,Buffalo,42°54'05"N 78°51'54"
21 Burke Rehabilitation Hospital,Monterefiore Health System,Westchester,White Plains
22 Calvary Hospital,Independent,Bronx,New York City: The Bronx,40°50'52.9"N 73°50'
23 Canton-Potsdam Hospital,St. Lawrence Health System,St. Lawrence,Potsdam,44°40'3
24 Carthage Area Hospital,Carthage Area Hospital Community Partners Primary Healt
25 Catskill Regional Medical Center (Callicoon),Garnet Health,Sullivan,Callicoon,4
26 Catskill Regional Medical Center (Harris),Garnet Health,Sullivan,Harris (near P
27 "Cayuga Medical Center, Ithaca[Note 5]",Cayuga Health System,Tompkins,Ithaca,42
28 Claxton-Hepburn Medical Center[Note 6],Independent,St. Lawrence,Ogdensburg,44°4
29 Clifton Springs Hospital & Clinic,Rochester Regional Health,Ontario,Clifton Spr
30 Clifton-Fine Hospital,Samaritan Health,St. Lawrence,Star Lake,44°09'45"N 75°03'
31 Cobleskill Regional Hospital,Bassett Healthcare Network,Schoharie,Cobleskill,42
32 Coler-Goldwater Specialty Hospital,NYC Health + Hospitals,New York (county),New
33 Cohen Children's Medical Center,Northwell Health,Nassau,New Hyde Park,40°45'11"
34 Columbia Memorial Hospital,"Albany Med Health System, Columbia Memorial Healt
35 Community Memorial Hospital,Crouse Health Partners,Madison,Hamilton,42°48'44"N
36 Coney Island Hospital,NYC Health + Hospitals,Kings,New York City: Brooklyn,40°3
37 Crouse Hospital,Northwell Health,Onondaga,Syracuse,43°02'30"N 76°08'19"W,1887,"
38 Cuba Memorial Hospital,Kaleida Health,Allegany,Cuba,42°12'47"N 78°17'16"W,1923,
39 Delaware Valley Hospital,United Health Services,Delaware,Walton,42°09'53"N 75°6
40 Dobbs Ferry Pavilion,St. John's Riverside Hospital,Westchester,Dobbs Ferry,41°6
41 "Eastern Niagara Hospital, Lockport Division[Note 8]",Eastern Niagara Hospital,
42 Eddy Cohoes Rehabilitation Center,Eddy Village Green,Albany,Cohoes,42°46'49"N 7
43 "E.J. Noble Hospital, Gouverneur",St. Lawrence Health System[Note 9],St. Lawre
44 "F. J. Noble Hospital (Gouverneur) Alavandria Rav" St. Lawrence Health Syst
```

specialties.csv

```
1 Accident and emergency medicine You, 8 hours ago • ehh-m
2 Allergology
3 Anaesthetics
4 Biological hematology
5 Cardiology
6 Child psychiatry
7 Clinical biology
8 Clinical chemistry
9 Clinical neurophysiology
10 Clinical radiology
11 Dental| oral and maxillo-facial surgery
12 Dermato-venerology
13 Dermatology
14 Endocrinology
15 Gastro-enterologic surgery
16 Gastroenterology
17 General hematology
18 General Practice
19 General surgery
20 Geriatrics
21 Immunology
22 Infectious diseases
23 Internal medicine
24 Laboratory medicine
25 Maxillo-facial surgery
26 Microbiology
27 Nephrology
28 Neuro-psychiatry
29 Neurology
30 Neurosurgery
31 Nuclear medicine
32 Obstetrics and gynecology
33 Occupational medicine
34 Ophthalmology
35 Orthopedics
36 Otorhinolaryngology
37 Paediatric surgery
38 Paediatrics
39 Pathology
40 Pharmacology
41 Physical medicine and rehabilitation
42 Plastic surgery
43 Podiatric Medicine
44 Podiatric Surgery
```

Results:

Backend admin.py for admin and patient:



```
backend > data > hospitals.csv > data
You 8 hours ago | 1 author (You)
1 long_name,health_system,address,city,coordinates,opened,"Beds, refs"
2 A.O. Fox Memorial Hospital,Bassett Healthcare Network,Otsego,Oneonta,42°27'29"N
3 "A.O. Fox Memorial Hospital, Tri-Town Campus[Note 1]",Bassett Healthcare Networ
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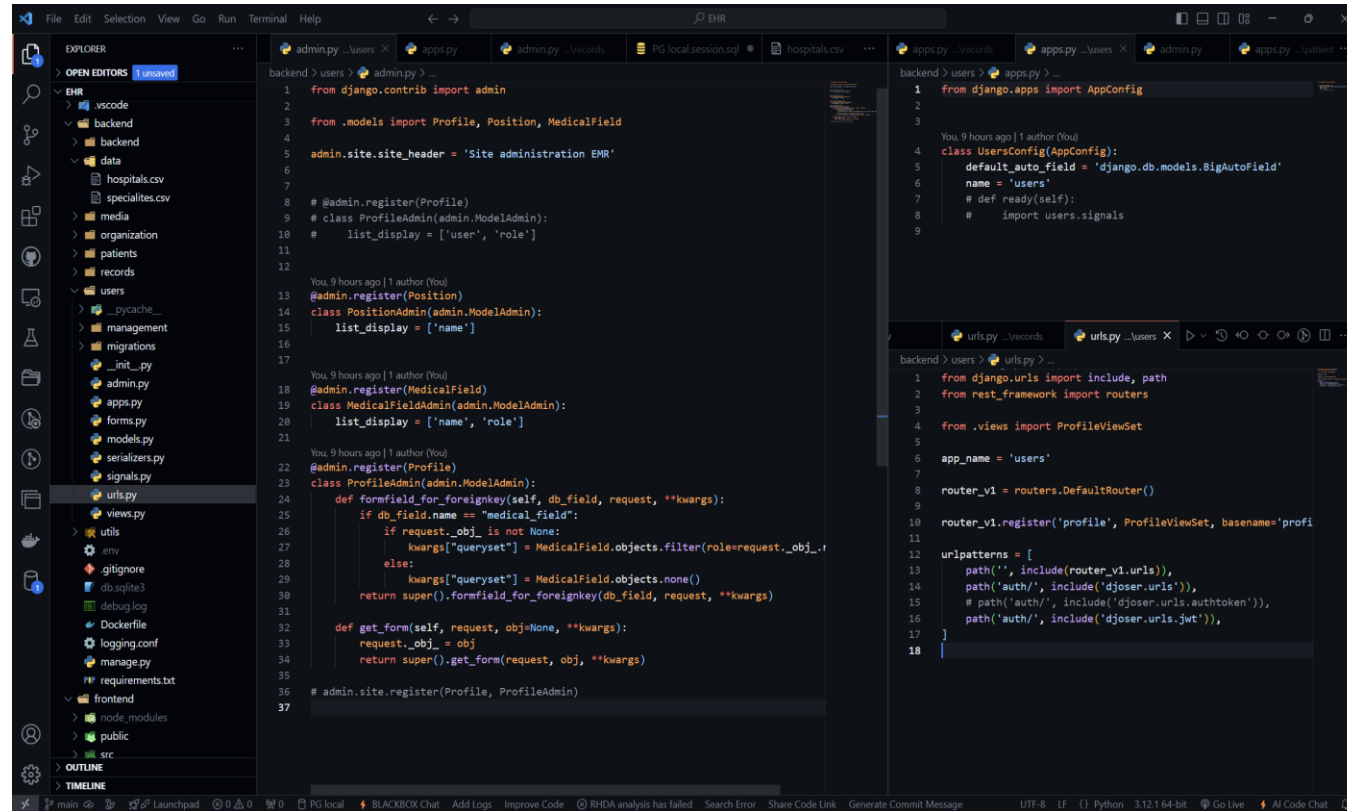

Results:

Backend : Records admin.py

```
File Edit Selection View Go Run Terminal Help
backends > data > hospitals.csv > data
You 8 hours ago | 1 author (You)
1 long_name,Health system,address,City,Coordinates,Opened,"Beds, refs"
2 "A.O. Fox Memorial Hospital,Bassett Healthcare Network,Otsego,Oneonta,42°27'29"N
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43 "E.J. Noble Hospital, Gouverneur",St. Lawrence Health System[Note 9],St. Lawre
44 "F. J. Noble Hospital (Gouverneur) Alavandria Rav" St. Lawrence Health Syst
```

Results:

Backend: Users admin.py



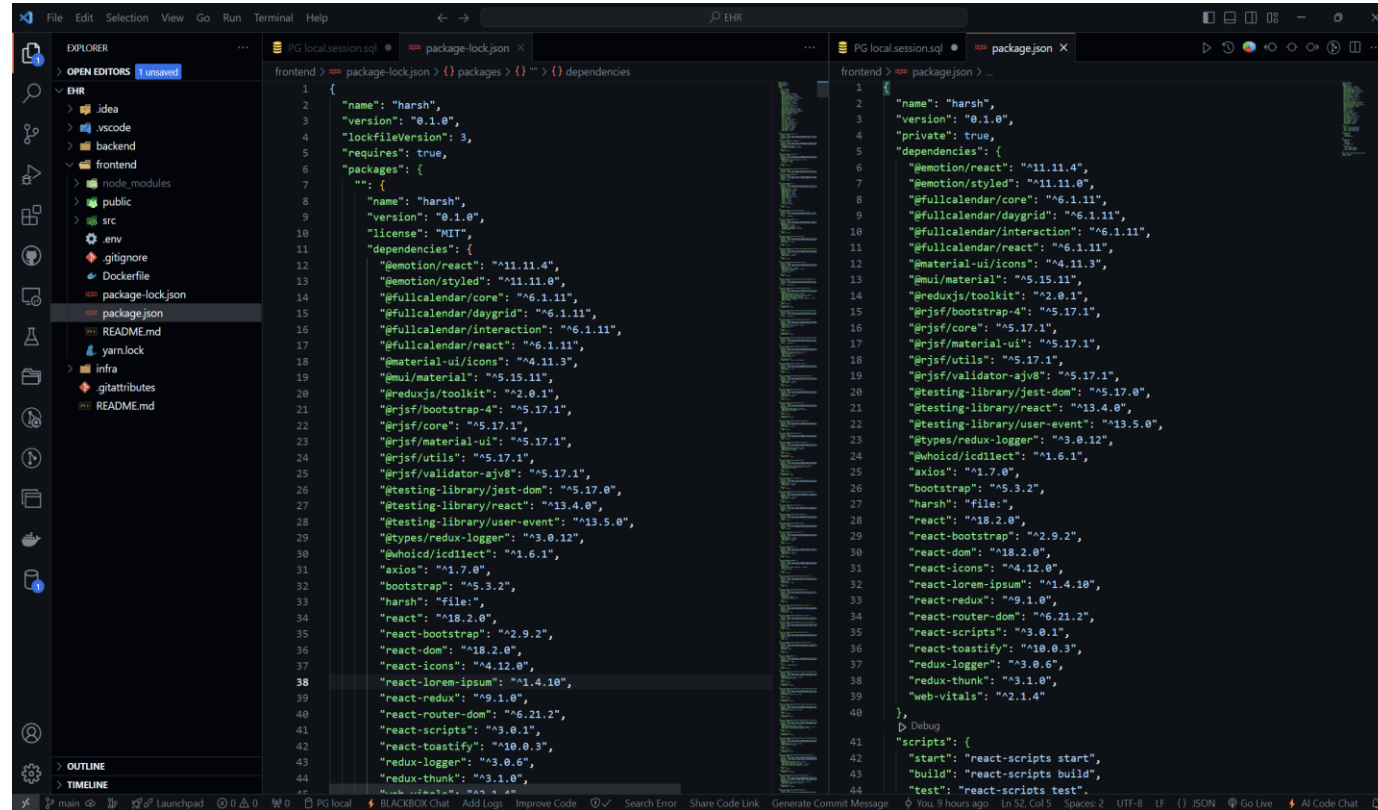
```
backend > users > admin.py > ...
1 from django.contrib import admin
2
3 from .models import Profile, Position, MedicalField
4
5 admin.site.site_header = 'Site administration EHR'
6
7 # @admin.register(Profile)
8 # class ProfileAdmin(admin.ModelAdmin):
9 #     list_display = ['user', 'role']
10
11
12 You, 9 hours ago | 1 author (You)
13 @admin.register(Position)
14 class PositionAdmin(admin.ModelAdmin):
15     list_display = ['name']
16
17
18 You, 9 hours ago | 1 author (You)
19 @admin.register(MedicalField)
20 class MedicalFieldAdmin(admin.ModelAdmin):
21     list_display = ['name', 'role']
22
23
24 You, 9 hours ago | 1 author (You)
25 @admin.register(Profile)
26 class ProfileAdmin(admin.ModelAdmin):
27     def formfield_for_foreignkey(self, db_field, request, **kwargs):
28         if db_field.name == "medical_field":
29             if request._obj_ is not None:
30                 kwargs["queryset"] = MedicalField.objects.filter(role=request._obj_.role)
31             else:
32                 kwargs["queryset"] = MedicalField.objects.none()
33         return super().formfield_for_foreignkey(db_field, request, **kwargs)
34
35     def get_form(self, request, obj=None, **kwargs):
36         request._obj_ = obj
37         return super().get_form(request, obj, **kwargs)
38
39 # admin.site.register(Profile, ProfileAdmin)
```

```
backend > users > appconfig.py > ...
1 from django.apps import AppConfig
2
3
4 You, 9 hours ago | 1 author (You)
5 class UsersConfig(AppConfig):
6     default_auto_field = 'django.db.models.BigAutoField'
7     name = 'users'
8     # def ready(self):
9     #     import users.signals
```

```
backend > users > urls.py > ...
1 from django.urls import include, path
2 from rest_framework import routers
3
4 from .views import ProfileViewSet
5
6 app_name = 'users'
7
8 router_v1 = routers.DefaultRouter()
9
10 router_v1.register('profile', ProfileViewSet, basename='profile')
11
12 urlpatterns = [
13     path('', include(router_v1.urls)),
14     path('auth/', include('djoser.urls')),
15     # path('auth/', include('djoser.urls.auth_token')),
16     path('auth/', include('djoser.urls.jwt')),
17 ]
18
```


Results:

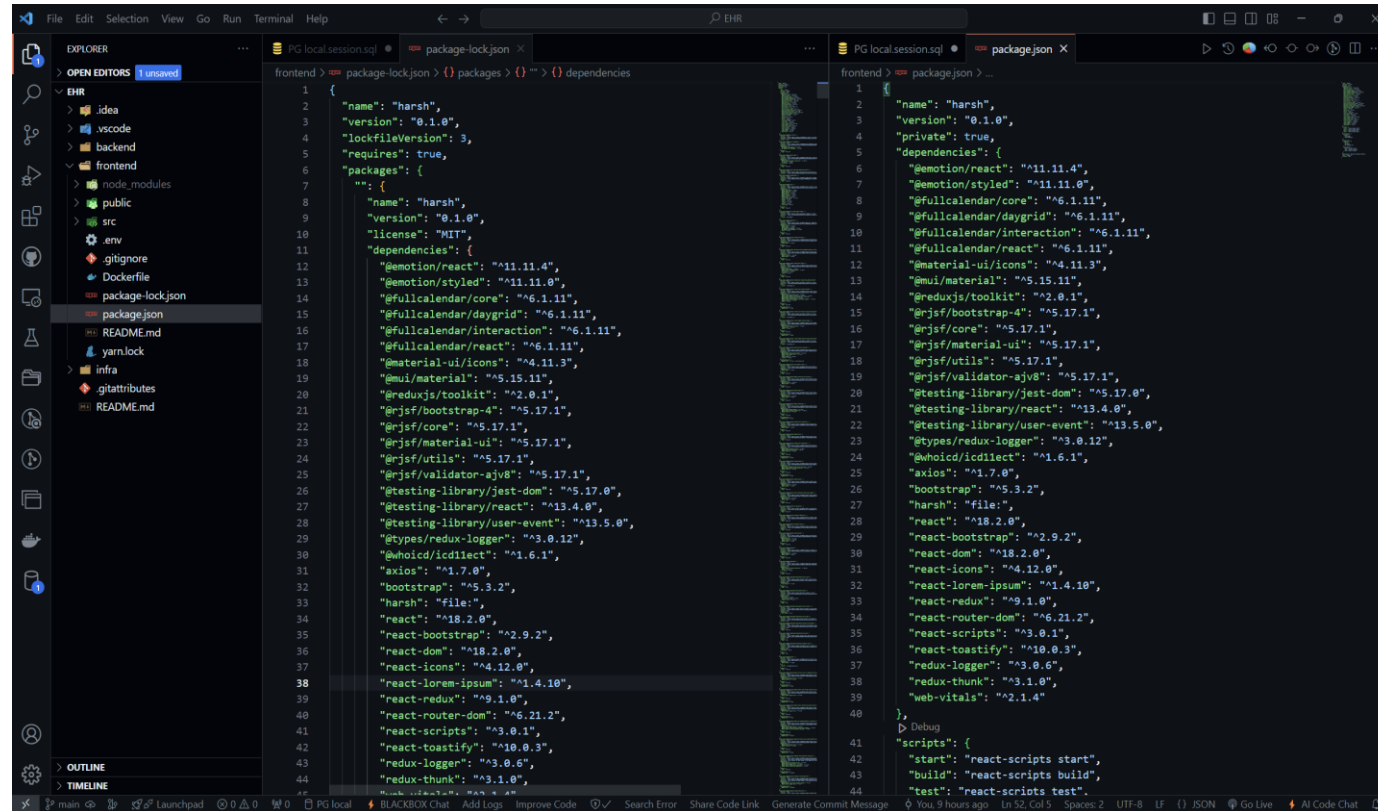
Frontend part: package json files



The screenshot displays the VS Code interface with two files open: `package-lock.json` and `package.json`. The `package-lock.json` file shows the lockfile version 3, requires true, and a list of packages including 'harsh' and various dependencies like 'emotion/react', 'fullcalendar/core', 'fullcalendar/daygrid', 'fullcalendar/interaction', 'fullcalendar/react', 'material-ui/icons', 'material-ui', 'reduxjs/toolkit', 'react-bootstrap', 'react-core', 'react-material-ui', 'react-utils', 'react-validator-ajv8', 'testing-library/jest-dom', 'testing-library/react', 'testing-library/user-event', 'types/redux-logger', 'whoicd/icd11ect', 'axios', 'bootstrap', 'harsh', 'react', 'react-bootstrap', 'react-dom', 'react-icons', 'react-lorem-ipsu', 'react-redux', 'react-router-dom', 'react-scripts', 'react-toastify', 'redux-logger', 'redux-thunk', and 'web-vitals'. The `package.json` file shows the name 'harsh', version '0.1.0', license 'MIT', and a list of dependencies including 'emotion/react', 'emotion/styled', 'fullcalendar/core', 'fullcalendar/daygrid', 'fullcalendar/interaction', 'fullcalendar/react', 'material-ui/icons', 'material-ui', 'reduxjs/toolkit', 'react-bootstrap', 'react-core', 'react-material-ui', 'react-utils', 'react-validator-ajv8', 'testing-library/jest-dom', 'testing-library/react', 'testing-library/user-event', 'types/redux-logger', 'whoicd/icd11ect', 'axios', 'bootstrap', 'harsh', 'react', 'react-bootstrap', 'react-dom', 'react-icons', 'react-lorem-ipsu', 'react-redux', 'react-router-dom', 'react-scripts', 'react-toastify', 'redux-logger', 'redux-thunk', and 'web-vitals'. The `scripts` section in `package.json` includes 'start', 'build', and 'test' scripts.

Results:

Frontend part: app.js and api configs and nginx file configs

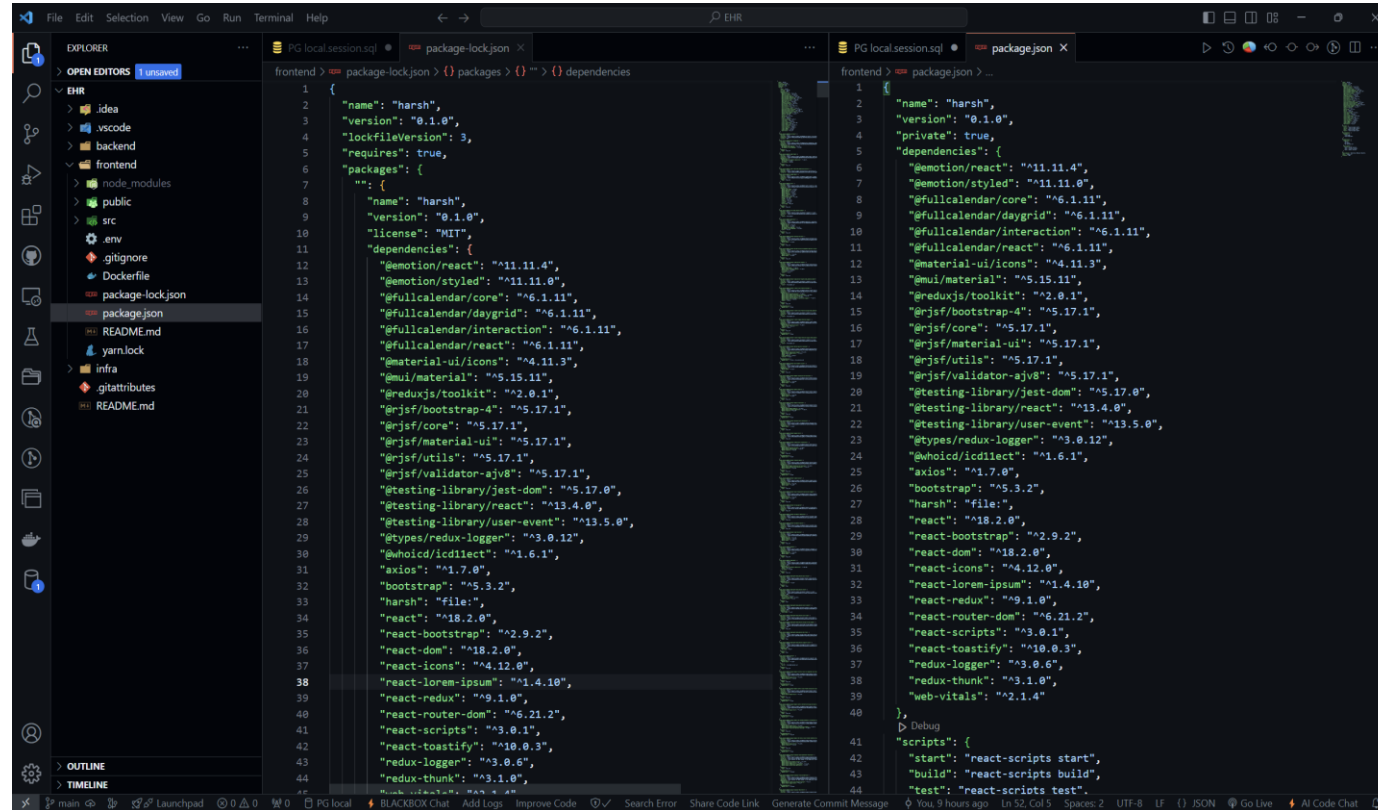


```
1 {
2   "name": "harsh",
3   "version": "0.1.0",
4   "lockfileVersion": 3,
5   "requires": true,
6   "packages": {
7     "": {
8       "name": "harsh",
9       "version": "0.1.0",
10      "license": "MIT",
11      "dependencies": {
12        "emotion/react": "^11.11.4",
13        "emotion/styled": "^11.11.0",
14        "fullcalendar/core": "^6.1.11",
15        "fullcalendar/daygrid": "^6.1.11",
16        "fullcalendar/interaction": "^6.1.11",
17        "fullcalendar/react": "^6.1.11",
18        "material-ui/icons": "^4.11.3",
19        "mui/material": "^5.15.11",
20        "reduxjs/toolkit": "^2.0.1",
21        "grjsf/bootstrap-4": "^5.17.1",
22        "grjsf/core": "^5.17.1",
23        "grjsf/material-ui": "^5.17.1",
24        "grjsf/utils": "^5.17.1",
25        "grjsf/validator-ajv8": "^5.17.1",
26        "testing-library/jest-dom": "^5.17.0",
27        "testing-library/react": "^13.4.0",
28        "testing-library/user-event": "^13.5.0",
29        "types/redux-logger": "^3.0.12",
30        "whatwg-fetch": "^3.6.1",
31        "axios": "^1.7.0",
32        "bootstrap": "^5.3.2",
33        "harsh": "file:",
34        "react": "^18.2.0",
35        "react-bootstrap": "^2.9.2",
36        "react-dom": "^18.2.0",
37        "react-icons": "^4.12.0",
38        "react-lorem-ipsu": "^1.4.10",
39        "react-redux": "^9.1.0",
40        "react-router-dom": "^6.21.2",
41        "react-scripts": "^3.0.1",
42        "react-toastify": "^10.0.3",
43        "redux-logger": "^3.0.6",
44        "redux-thunk": "^3.1.0",
45        "web-vitals": "^2.1.4"
46      }
47     }
48   }
49 }
```

```
1 {
2   "name": "harsh",
3   "version": "0.1.0",
4   "private": true,
5   "dependencies": {
6     "emotion/react": "^11.11.4",
7     "emotion/styled": "^11.11.0",
8     "fullcalendar/core": "^6.1.11",
9     "fullcalendar/daygrid": "^6.1.11",
10    "fullcalendar/interaction": "^6.1.11",
11    "fullcalendar/react": "^6.1.11",
12    "material-ui/icons": "^4.11.3",
13    "mui/material": "^5.15.11",
14    "reduxjs/toolkit": "^2.0.1",
15    "grjsf/bootstrap-4": "^5.17.1",
16    "grjsf/core": "^5.17.1",
17    "grjsf/material-ui": "^5.17.1",
18    "grjsf/utils": "^5.17.1",
19    "grjsf/validator-ajv8": "^5.17.1",
20    "testing-library/jest-dom": "^5.17.0",
21    "testing-library/react": "^13.4.0",
22    "testing-library/user-event": "^13.5.0",
23    "types/redux-logger": "^3.0.12",
24    "whatwg-fetch": "^3.6.1",
25    "axios": "^1.7.0",
26    "bootstrap": "^5.3.2",
27    "harsh": "file:",
28    "react": "^18.2.0",
29    "react-bootstrap": "^2.9.2",
30    "react-dom": "^18.2.0",
31    "react-icons": "^4.12.0",
32    "react-lorem-ipsu": "^1.4.10",
33    "react-redux": "^9.1.0",
34    "react-router-dom": "^6.21.2",
35    "react-scripts": "^3.0.1",
36    "react-toastify": "^10.0.3",
37    "redux-logger": "^3.0.6",
38    "redux-thunk": "^3.1.0",
39    "web-vitals": "^2.1.4"
40  },
41  "scripts": {
42    "start": "react-scripts start",
43    "build": "react-scripts build",
44    "test": "react-scripts test"
45  }
46 }
```

Results:

Features and tech stack used:



The screenshot displays a VS Code editor interface with two files open: `package-lock.json` and `package.json`. The `package-lock.json` file shows the project's metadata and a detailed list of dependencies with their resolved versions. The `package.json` file shows the project's configuration, including its name, version, and a list of dependencies.

```
1 {
2   "name": "harsh",
3   "version": "0.1.0",
4   "lockfileVersion": 3,
5   "requires": true,
6   "packages": {
7     "": {
8       "name": "harsh",
9       "version": "0.1.0",
10      "license": "MIT",
11      "dependencies": {
12        "@emotion/react": "^11.11.4",
13        "@emotion/styled": "^11.11.0",
14        "@fullcalendar/core": "^6.1.11",
15        "@fullcalendar/daygrid": "^6.1.11",
16        "@fullcalendar/interaction": "^6.1.11",
17        "@fullcalendar/react": "^6.1.11",
18        "@material-ui/icons": "^4.11.3",
19        "@mui/material": "^5.15.11",
20        "@reduxjs/toolkit": "^2.0.1",
21        "@rjsf/bootstrap-4": "^5.17.1",
22        "@rjsf/core": "^5.17.1",
23        "@rjsf/material-ui": "^5.17.1",
24        "@rjsf/utils": "^5.17.1",
25        "@rjsf/validator-ajv8": "^5.17.1",
26        "@testing-library/jest-dom": "^5.17.0",
27        "@testing-library/react": "^13.4.0",
28        "@testing-library/user-event": "^13.5.0",
29        "@types/redux-logger": "^3.0.12",
30        "@whoicd/icd11ct": "^1.6.1",
31        "axios": "^1.7.0",
32        "bootstrap": "^5.3.2",
33        "harsh": "file:",
34        "react": "^18.2.0",
35        "react-bootstrap": "^2.9.2",
36        "react-dom": "^18.2.0",
37        "react-icons": "^4.12.0",
38        "react-lorem-ipsu": "^1.4.10",
39        "react-redux": "^9.1.0",
40        "react-router-dom": "^6.21.2",
41        "react-scripts": "^3.0.1",
42        "react-toastify": "^10.0.3",
43        "redux-logger": "^3.0.6",
44        "redux-thunk": "^3.1.0",
45        "web-vitals": "^2.1.4"
46      }
47     }
48   }
49 }
```

```
1 {
2   "name": "harsh",
3   "version": "0.1.0",
4   "private": true,
5   "dependencies": {
6     "@emotion/react": "^11.11.4",
7     "@emotion/styled": "^11.11.0",
8     "@fullcalendar/core": "^6.1.11",
9     "@fullcalendar/daygrid": "^6.1.11",
10    "@fullcalendar/interaction": "^6.1.11",
11    "@fullcalendar/react": "^6.1.11",
12    "@material-ui/icons": "^4.11.3",
13    "@mui/material": "^5.15.11",
14    "@reduxjs/toolkit": "^2.0.1",
15    "@rjsf/bootstrap-4": "^5.17.1",
16    "@rjsf/core": "^5.17.1",
17    "@rjsf/material-ui": "^5.17.1",
18    "@rjsf/utils": "^5.17.1",
19    "@rjsf/validator-ajv8": "^5.17.1",
20    "@testing-library/jest-dom": "^5.17.0",
21    "@testing-library/react": "^13.4.0",
22    "@testing-library/user-event": "^13.5.0",
23    "@types/redux-logger": "^3.0.12",
24    "@whoicd/icd11ct": "^1.6.1",
25    "axios": "^1.7.0",
26    "bootstrap": "^5.3.2",
27    "harsh": "file:",
28    "react": "^18.2.0",
29    "react-bootstrap": "^2.9.2",
30    "react-dom": "^18.2.0",
31    "react-icons": "^4.12.0",
32    "react-lorem-ipsu": "^1.4.10",
33    "react-redux": "^9.1.0",
34    "react-router-dom": "^6.21.2",
35    "react-scripts": "^3.0.1",
36    "react-toastify": "^10.0.3",
37    "redux-logger": "^3.0.6",
38    "redux-thunk": "^3.1.0",
39    "web-vitals": "^2.1.4"
40  },
41  "scripts": {
42    "start": "react-scripts start",
43    "build": "react-scripts build",
44    "test": "react-scripts test"
45  }
46 }
```

Conclusions:

The **Cloud-Based Emergency Health Record Access System** addresses critical challenges in accessing patient health records during emergencies, ensuring real-time availability of vital medical information such as allergies, medications, and medical history. This innovative solution leverages cloud technology to overcome the limitations of traditional systems, offering significant improvements in patient care by enhancing speed, accuracy, and accessibility.

Through the integration of robust technologies like Django, React JS, PostgreSQL, and RESTful APIs, the system ensures a scalable, secure, and interoperable platform. By focusing on secure data access, seamless interoperability, and user-centric design, this platform is poised to transform emergency healthcare services, minimizing errors, reducing treatment delays, and potentially saving lives.

The implementation and testing phases have demonstrated the system's reliability and effectiveness, validating its potential to improve healthcare outcomes. Moving forward, its adoption across emergency departments, paramedic services, and public health systems can revolutionize the management of critical patient information, ensuring timely and accurate medical interventions during emergencies.

B: List of cited papers :

- [1] : Smith, J., & Doe, A. (2020). The Impact of Electronic Health Records on Emergency Care: A Case Study. *Journal of Emergency Medicine*, 30(4), 123-130.
- [2] : U.S. Department of Health and Human Services. (1996). Health Insurance Portability and Accountability Act (HIPAA). Retrieved from [hhs.gov](https://www.hhs.gov).
- [3] Johnson, R., & Lee, M. (2021). Interoperability in Healthcare: Challenges and Opportunities. *Health Informatics Journal*, 27(3), 456-467.
- [4]. Chen, L., & Zhao, Y. (2021). Integrating heterogeneous health data using cloud computing: A case study. *Journal of Biomedical Informatics*, 112, 103602.
- [5]. Garcia, M., & Roberts, P. (2017). Real-time access to patient data during emergencies: A cloud-based approach. *Journal of Emergency Medicine*, 45(3), 225-232.



Thank You