VISHWANIKETAN

Vishwaniketan's Institute of Management Entrepreneurship and Engineering Technology

# HACK TO CRACK 1.0

Hack To Crack 1.0

# Team intro

- **Team Name : MONARCH**
- **Problem Statement : Doctor Availability & Appointment Management**
- **Team Leader Name : Aditya Chouhan**

❖ **The Team**

- ○ **Aditya Chouhan FY Information Technology**
- ○ **Arjun Marar FY Computer Science**
- ○ **Soumyaranjan Maharana FY Computer Science**
- ○ **Devang Wani FY Computer Science**

# Problem Statement Description

In the realm of healthcare, participants are tasked with designing a Doctor Availability and Appointment Management system.

The objective is to create an efficient platform that automates and optimizes the scheduling of doctor appointments.

Participants should focus on developing a user-friendly interface for both healthcare providers and patients, incorporating features such as real-time availability updates, appointment scheduling, and reminders.

The solution aims to streamline the appointment process, reduce waiting times, and improve overall patient experience

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# Idea Details

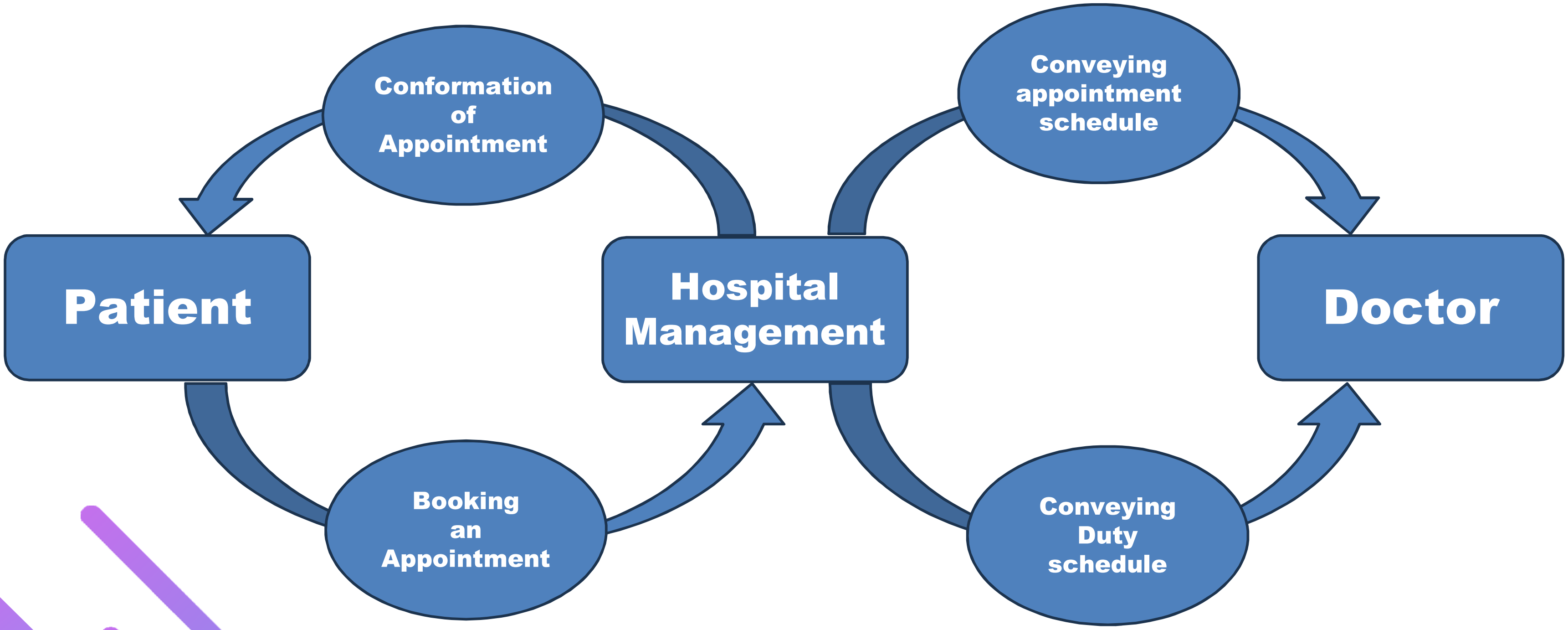
Creating a platform with unique interfaces for the patient, the doctor and the management at the hospital.

A patient can use the platform to choose and book a appointment according to availability and their convenience.

A doctor is informed about his schedule as per the bookings of appointment and his work duties around the hospital.

The role of the management is to act as a bridge for booking of the appointments and conveying the details to the respective doctor.

# Flowchart / Architecture



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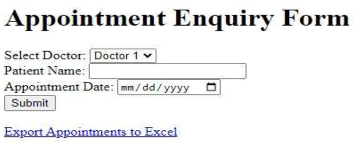
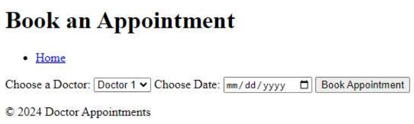
# Visual Library



### Appointment Enquiry Form

Select Doctor: Doctor 1
Patient Name:
Appointment Date: mm / dd / yyyy
Submit

Export Appointments to Excel



### Book an Appointment

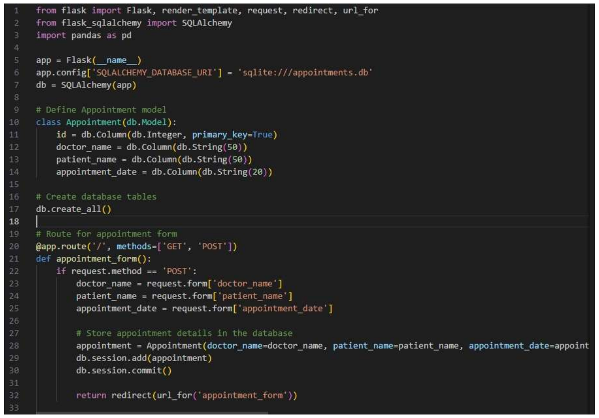
- Home

Choose a Doctor: Doctor 1 Choose Date: mm / dd / yyyy Book Appointment

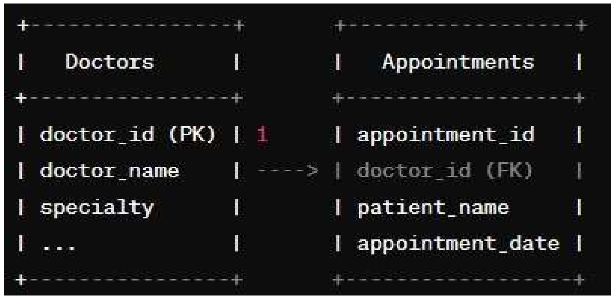
© 2024 Doctor Appointments

**Extremely simplified landing page for the patient (testing phase).**

**Example for sample code for storing data(work in progress).**



```
from flask import Flask, render_template, request, redirect, url_for
from flask_sqlalchemy import SQLAlchemy
import pandas as pd

app = Flask(__name__)
app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///appointments.db'
db = SQLAlchemy(app)

# Define Appointment model
class Appointment(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    doctor_name = db.Column(db.String(50))
    patient_name = db.Column(db.String(50))
    appointment_date = db.Column(db.String(20))

# Create database tables
db.create_all()

# Route for appointment form
@app.route('/', methods=['GET', 'POST'])
def appointment_form():
    if request.method == 'POST':
        doctor_name = request.form['doctor_name']
        patient_name = request.form['patient_name']
        appointment_date = request.form['appointment_date']

        # Store appointment details in the database
        appointment = Appointment(doctor_name=doctor_name, patient_name=patient_name, appointment_date=appoint
        db.session.add(appointment)
        db.session.commit()

        return redirect(url_for('appointment_form'))

```



```
+----------------+        +------------------+
|   Doctors      |        |   Appointments   |
+----------------+        +------------------+
| doctor_id (PK) | 1      | appointment_id   |
| doctor_name    | ---->  | doctor_id (FK)   |
| specialty      |        | patient_name     |
| ...            |        | appointment_date |
+----------------+        +------------------+
```

**Visualization of data storage using database.**

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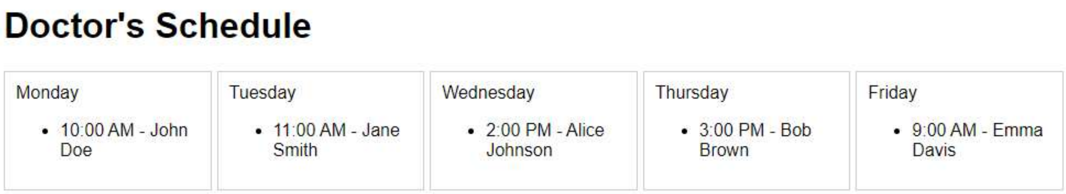
# Visual Library

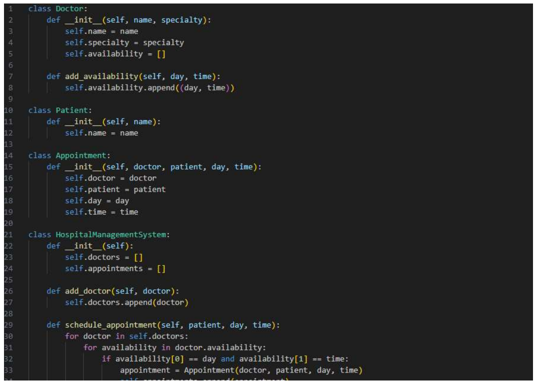


## Doctor's Schedule

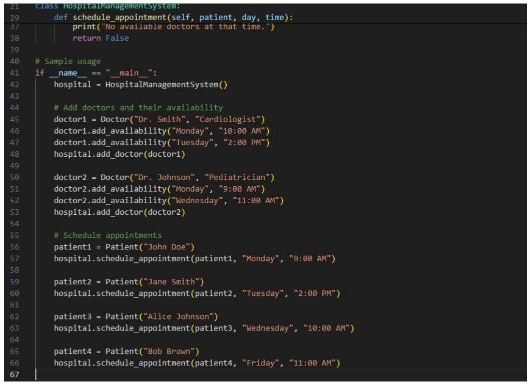
| Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|
| • 10:00 AM - John Doe | • 11:00 AM - Jane Smith | • 2:00 PM - Alice Johnson | • 3:00 PM - Bob Brown | • 9:00 AM - Emma Davis |

**Extremely simplified landing page for the doctor (testing phase).**

**Example for sample code for assigning of apppointments(work in progress).**



```python
class Doctor:
    def __init__(self, name, specialty):
        self.name = name
        self.specialty = specialty
        self.availability = []

    def add_availability(self, day, time):
        self.availability.append((day, time))

class Patient:
    def __init__(self, name):
        self.name = name

class Appointment:
    def __init__(self, doctor, patient, day, time):
        self.doctor = doctor
        self.patient = patient
        self.day = day
        self.time = time

class HospitalManagementSystem:
    def __init__(self):
        self.doctors = []
        self.appointments = []

    def add_doctor(self, doctor):
        self.doctors.append(doctor)

    def schedule_appointment(self, patient, day, time):
        for doctor in self.doctors:
            for availability in doctor.availability:
                if availability[0] == day and availability[1] == time:
                    appointment = Appointment(doctor, patient, day, time)
                    self.appointments.append(appointment)
```



```python
class HospitalManagementSystem:
    def schedule_appointment(self, patient, day, time):
        print("No available doctors at that time.")
        return False

# Sample usage
if __name__ == "__main__":
    hospital = HospitalManagementSystem()

    # Add doctors and their availability
    doctor1 = Doctor("Dr. Smith", "Cardiologist")
    doctor1.add_availability("Monday", "10:00 AM")
    doctor1.add_availability("Tuesday", "2:00 PM")
    hospital.add_doctor(doctor1)

    doctor2 = Doctor("Dr. Johnson", "Pediatrician")
    doctor2.add_availability("Monday", "9:00 AM")
    doctor2.add_availability("Wednesday", "11:00 AM")
    hospital.add_doctor(doctor2)

    # Schedule appointments
    patient1 = Patient("John Doe")
    hospital.schedule_appointment(patient1, "Monday", "9:00 AM")

    patient2 = Patient("Jane Smith")
    hospital.schedule_appointment(patient2, "Tuesday", "2:00 PM")

    patient3 = Patient("Alice Johnson")
    hospital.schedule_appointment(patient3, "Wednesday", "10:00 AM")

    patient4 = Patient("Bob Brown")
    hospital.schedule_appointment(patient4, "Friday", "11:00 AM")
```

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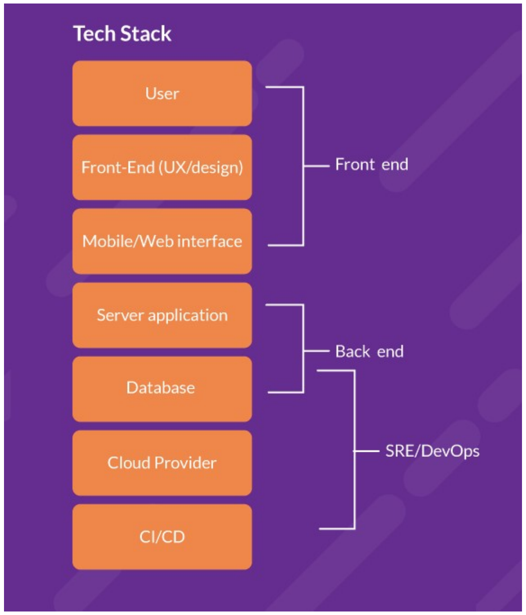
# Tech Stack Used

1. HTML
2. CSS
3. JAVASCRIPT
4. PYTHON
5. SQL
6. JAVA
7. LAMP
8. NODEJS
9. MEAN



Tech Stack

User

Front-End (UX/design)

Mobile/Web interface

Server application

Database

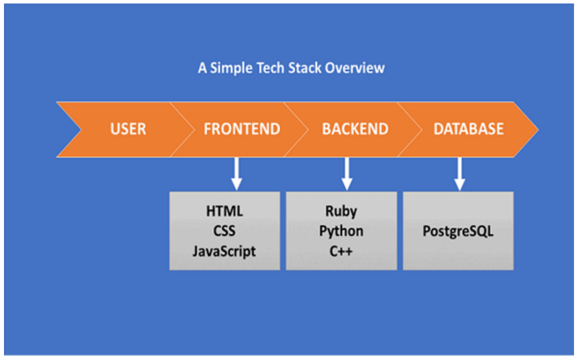
Cloud Provider

CI/CD

Front end

Back end

SRE/DevOps



A Simple Tech Stack Overview

USER

FRONTEND

BACKEND

DATABASE

HTML<br>CSS<br>JavaScript

Ruby<br>Python<br>C++

PostgreSQL