**Deliverable-1**

**Project Title: eMed-a complete pharmacy cart at your doorstep.**

**Group Name: Team Delta**

**Group Members:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Full Name** | **Student ID** | **Email** |
| **1.** | Shabana Syed | 11723237 | ShabanSyed2@my.unt.edu |
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| **3.** | Rishika Kandrigal | 11699010 | rishikakandrigal@my.unt.edu |
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**Description:**

The Aim of our eHealth website is to bridge the gap between patients and health care Facilities. As we know it is a difficult task to bridge the gap between them. Our project aims to provide a seamless -user interface with all the information a user needs such as Booking Doctor appointments, blood donors information and ordering medicines online through safe and secure gateways. We will be using MongoDB to store all the data related to patients and health care facilities. Along with that, we will be using a wide number of programming languages like HTML, CSS, JavaScript, other frameworks etc. to have a built-in security integration into our website.

**Key Features:**

* **User Authentication & Registration:**

Users can sign up by creating an account along with their personal information. With the help of secure authentication account protection is ensured which includes account verification and password reset options via Gmail.

* **Medicine Browsing & Purchase:**

Users can go through a detailed list of medicines and can easily add required items to a cart for easy purchase. Users can get an instant discount by applying promo codes with real-time price differences as they adjust their carts.

* **Doctor Profiles and Appointment Scheduling:**

Users can access the doctor's information and schedule appointments based on their requirements. From the time of booking to confirmation, the system manages flawless appointment administration.

* **Blood Donation and Emergency Requests:**

This platform provides an advanced search system to find blood donors and users can announce urgent blood requests in an emergency.

* **Admin Control Panel:**

Admins have total control over the system and every service they provide. they can modify or delete content and fulfill orders and services.

* **User-Admin Communication:**

A live chat feature will help users to communicate with professionals and clear their queries regarding orders, or any other matters regarding the medical field.

* **Ambulance and Emergency Response Services:**

For immediate assistance during an emergency, users can request ambulance services.

* **Payment And Checkout Options:**

With the help of this platform, consumers can choose a payment platform option and manage their shipping addresses.

* **SEO-Optimized Category Pages:**

This website is equipped with category pages that are geared toward search engines to make sure consumers can find patient health records.

* **Remote Health Monitoring:**

The platform enables quick and remote health monitoring, providing real-time insight into patients' health information.

**Environment used:**

**Front-end:**

1. Web structuring will be done using HTML5
2. Styling and layout of the page using CSS.
3. Interactive functionality will be added to HTML5 elements through ‘JavaScript’.
4. React.js framework to build a dynamic and interactive interface which uses the structure provided through HTML5.
5. React.js for state management.
6. PayPal SDK (client side) integration functionality provided by PayPal.
7. Material UI or Bootstrap for UI.
8. Axios for HTTP requests to interact with API’s.
9. React Router- a library for navigation.

**Backend:**

1. Node.js with Express.js frameworks for backend development.
2. JSON web tokens to be used for authentication.
3. PayPal SDK.
4. Security will be integrated through bcrypt.js, Helment.js.
5. Node mailer a Node.js for simplifying the process of sending emails.

**Database language:**

1. Managing and storing data will be done in a flexible way like JSON-like format through MongoDB.

**PROJECT MILESTONES:**

1. Research and planning
2. System design
3. Implementation of user registration, log in, authentication
4. Medicine Management System
5. Doctor Appointment System
6. Blood donation and emergency requests
7. Admin Panel
8. User communication and support
9. SEO Optimization and Performance improvement
10. Testing and debugging
11. Deployment and launch
12. Post launch maintenance and updates

**Risk Analysis Plan**

**1. Technical Risks**

* **Integration Issues:**
  + **Risk:** Difficulties integrating Java and Python components or integrating the backend with the frontend.
  + **Mitigation:** Establish clear communication protocols between frontend and backend teams. Use well-documented APIs and conduct integration tests early.
* **Database Scalability:**
  + **Risk:** MongoDB may face performance issues as user data grows.
  + **Mitigation:** Design a scalable database schema. Implement indexing and regularly monitor database performance.
* **Vulnerabilities in security:**
  + **Risks:** There could be a potential for security breaches, especially given the sensitive for the health data.
  + **Mitigation plan :** Here, Implementation of a robust encryption for data in both rest and in transit . Regularly update and patch security vulnerabilities. Conduct security audits and penetration testing.

**2. Operational Risks**

* **System Downtime:**
  + **Risk:** Possible downtime due to server issues or maintenance.
  + **Mitigation:** Use reliable cloud services with high availability and disaster recovery options. Implement redundancy and load balancing.
* **User Adoption and Usability:**
  + **Risk:** Users may find the system difficult to navigate or use.
  + **Mitigation:** Conduct user experience (UX) testing and gather feedback throughout development. Provide clear documentation and user training.
* **Compliance and Legalility Issues:**
  + **Risk:** Possibility of failure for healthcare regulations like HIPAA -Health Insurance Portability and Accountability Act or GDPR -General Data Protection Regulation.
  + **Mitigation:** Consulting with legal experts to ensure conformity. Constantly review and update privacy policies and its respective practices .

**3. Project Management Risks**

* **Scope Creep:**
  + **Risk:** Addition of features beyond the original scope leading to delays and budget overruns.
  + **Mitigation:** Clearly define project scope and requirements. Use a change management process to handle feature requests.
* **Resource Availability:**
  + **Risk:** Some of the team members may be unavailable at some point due to some circumstances.
  + **Mitigation:** Crosstrain team members and maintain detailed documentation. Have a backup plan for key roles.
* **Budget Overruns:**
  + **Risk:** Project costs may exceed the budget due to unforeseen issues.
  + **Mitigation:** Develop a detailed budget and track expenses regularly. Maintain a contingency fund for unexpected costs.

**4. External Risks**

* **Vendor Reliability:**
  + **Risk:** Issues with third-party vendors (e.g., hosting providers or API services).
  + **Mitigation:** Choose reputable vendors with a proven track record. Have contingency plans for vendor failures.
* **Regulatory Changes:**
  + **Risk:** Changes in regulations that could impact the project.
  + **Mitigation:** Stay informed about relevant regulatory changes and be prepared to adapt your system as needed.
* **Market Competition:**
  + **Risk:** New competitors entering the market with better solutions.
  + **Mitigation:** Continuously analyze market trends and user feedback. Innovate and improve the system based on competitive analysis.

**Risk Management Plan**

**1. Monitoring Risks**

**Regular Risk Assessment Meetings**

* Hold weekly or biweekly stand-ups to cover risky areas such as security, payment issues, site downtime, and compliance.
* Focus on critical areas such as:
  + **Data Security**: Ensure patient and payment data are protected.
  + **Payment Gateways**: Ensure Stripe and PayPal run smoothly with minimal issues.
  + **Emergency Features**: Ensure features like blood requests work without failure.

**Key Performance Indicators (KPIs)**

* Track the following KPIs:
  + **Uptime**: Measure platform availability.
  + **Transaction Success**: Monitor payment success rates.
  + **User Satisfaction**: Gather feedback on medicine purchases and consultations.
  + **Security**: Monitor data breaches and suspicious activities.

**Stakeholder Communication**

* Maintain open communication with stakeholders (e.g., doctors, pharmacies).
* Use automated alerts to notify stakeholders of any critical risks or issues.

**2. Reevaluation of Risks**

**Risk Response Evaluation**

* Regularly reassess the likelihood and impact of each risk, adjusting strategies as needed.
  + *Example*: If video consultations become more prevalent, ensure the system can handle increased traffic and calls.

**3.Contingency Plans for Risks:**

* **Mitigation:** Give specific mitigation instructions for every risk identified, including safeguards against consequences, backup plans and testing of payment to prevent downtime.
* **Resource Allocation:** If a serious problem arises, divert more resources to the situation. Be ready to reallocate resources for unexpected traffic spikes or payment issues.
* **Alternative Approach:** Use hybrid cloud services to isolate issues and reduce impact. Develop an offline wallet system where users can load funds for future transactions.

**Contingency plan examples**

**Risk: Technical Failures**

* **Mitigation:** Regular Backups and using reliable cloud Infrastructure.
* **Contingency Plan:** Deploy alternative servers or cloud resources to set uptime and inform users of downtime and update on restoring progress.

**Risk: Payment System Issue**

* **Mitigation**: Include numerous Payment channels, apply measures such as encryption and set a refund system for failed transactions.
* **Contingency** **Plan**: Offer alternative methods like bank transfer, cash on delivery and pause transaction in case of major issue.

**Risk: Data security Breaches**

* **Mitigation:** Implementmulti factor authentication and regular security checks to prevent unwanted access to data.
* Contingency Plan: Shutdown required services for further prevention and lock affected accounts and restore secure backups and fix it.

**Risk: Administrative Failures**

* **Mitigation**: Automate regular tasks and use role-based access controls for mismanagement of key functions.
* **Contingency** **Plan**: Prioritize essential operations like blood requests or emergency appointments and call secondary team to step in and allocate additional resources till problem is solved.

**Roles Assignment:**

|  |  |
| --- | --- |
| **Task** | **Top preference** |
| **Project Management Lead** | Rishika Kandrigal |
| **Requirements Lead** | Ganesh Gundekarla |
| **Design Lead** | Vivek Nelluri |
| **Implementation Lead for front end** | Ganesh Gundekarla |
| **Implementation Lead for back end** | Vishnu Priya Vulichi |
| **Configuration Management Lead** | Vivek Nelluri |
| **Testing Lead** | Shabana Syed |
| **Documentation Lead** | Ajay Kumar Reddy Sammeta |
| **Demo and presentation Lead** | Pranav Chalasani |
| **System Administrator Lead** | Md Ariful Hasan |

**SKILLS ASSIGNMENT:**

|  |  |
| --- | --- |
| **Language/Technology** | **Assigned to:** |
| **Node.js with Express.js** | Ganesh Gundekarla, Pranav Chalasani |
| **MongoDB (via Mongoose)** | Vishnu Priya Vulichi, Shabana Syed |
| **React.js** | Ganesh Gundekarla, Rishika Kandrigal, Pranav Chalasani |
| **Axios for API requests** | Vishnu Priya Vulichi, Ajay Kumar Reddy Sammeta |
| **PayPal SDK (client-side)** | Ajay Kumar Reddy Sammeta, Ganesh Gundekarla |
| **JavaScript Object Notation** | Md Ariful Hasan, Vivek Nelluri |
| **JavaScript** | Vivek Nelluri, Md Ariful Hasan |
| **HTML5, CSS** | Shabana Syed, Rishika Kandrigal |

**Team members Description:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Member name** | **Contribution description** | **Overall Contribution (%)** | **Note**  **(if applicable)** |
| Shabana Syed | Helped in gathering information and worked on project overview and presentation. | 12.5% |  |
| Ganesh Gundekarla | Worked on finalizing tech stacks to be used to develop the project and gathered environment specific information | 12.5% |  |
| Rishika Kandrigal | Worked on project milestones, timeline, presentation, scheduling and distributing tasks. | 12.5% |  |
| Md Ariful Hasan | Gathered information on risk analysis | 12.5% |  |
| Vishnu Priya Vulichi | Contributed to presentation design about project conclusion part and gathered information for deliverable report. | 12.5% |  |
| Vivek Nelluri | Worked on Contingency plan of the project | 12.5% |  |
| Pranav Chalasani | Helped in creating report and gathering information on risk management | 12.5% |  |
| Ajay Kumar Reddy Sammeta | Worked on Key features of the project | 12.5% |  |

**Conclusion:**

This eHealth platform is designed to improve healthcare accessibility by offering a comprehensive, user-friendly online system. It aims to streamline services such as medicine purchasing, doctor appointments, and emergency responses, while providing secure and efficient management of health information. Key features include user registration, diverse payment options, and real-time support. Additionally, the platform supports administrative functions for managing and optimizing operations, with a focus on accessibility and convenience for users.