**Statement of Work**

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SUBJECT: Statement of Work for Project: Urgent Healthcare Solutions

**Project Context:** Iyka brings innovative products, solutions, and services that simplify technology and technology processes to serve commercial, educational, and government clients. Iyka is an experienced IT services provider in Next Generation Data Analytics, IT services, Software Development, Engineering Services, and more.  
When someone is hurt, and you have to go to urgent care, there might be other people over there too and you don't know which urgent care facility is closest to you. Sometimes the urgent care wait time can be around 3 hours long. In the United States, we get 130 million visits for urgent care and the number of injury-related visits is 35 million. According to CDC, the percentage of visits with patients seen in fewer than 15 minutes is 43.5%, and the percentage of visits resulting in hospital admission is 12.5%. Currently, there is no single application in a place where the patient can check for the nearest urgent care facilities and their wait times at the same time.

**Objective:** The objective of this project is to build an app named “URGENT” which would recommend the nearest and lowest wait time urgent care facilities so that patients can feel a sense of ease of transportation that an emergency room patient might feel.

**Scope:** With easier access to the list of nearby and least wait time urgent care facilities, the customers can easily select the facility in an emergency. It's an application that everyone should have, especially people with a sick person in their household. A person can have to face a medical emergency anytime so it would be very helpful and useful in case of an emergency.

**Requirements Matrix:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Requirements Description** | **Test Cases** | **Test Results** | **Issues** |
| 1 | Build an Application that would recommend the nearest and lowest wait time for urgent care facilities | 1. Open the App  2. Enter the address and zipcode & Click on OK  3. The next page must display the output | The App should display the top 3 nearest and lowest wait time facilities, estimated by their time-to-care metric. |  |
| 2 | The facilities predicted by the App must be near to the User entered zipcode/address | 1. Open the App  2. Enter the address and zip code & Click on OK  3. The next page must display output  4. Check the location of the predicted facilities in Google. | The location of the predicted facilities must be near to the user's entered address/zipcode |  |
| 3 | Validate the wait time displayed in the app. | 1. Open the App  2. Enter the address and zip code & Click on OK  3. The next page must display the output. Check for the time-to-care output displayed on the App.  4. Enter the facility's name in Google Maps and check the time taken to reach the facility from the Users location  5. Check for the current wait time of the facility from ERTrack.net.  6. The total Time-to-care must be the sum of step4 and step5 | The time-to-care metric is the sum of the time taken to reach the facility from the Users location and the current wait time at the facility. Time taken to reach the facility can be obtained from Google and Wait time from ERTrack.net |  |

**Major deliverables:**

1. **Technical Design Specification:** A technical design specification document addresses the requirements and how the solution is designed and built. It is a detailed and comprehensive document describing all technical product development procedures.
2. **Unit Test Cases and Unit Test Results**: The developer will perform Unit testing and the corresponding test cases and results will be consolidated into a document.
3. **Working Prototype of the Urgent App**

**Project Schedule and Milestones:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Week Of** | | | | | | | | | | | | |  |
| **TASK** | **% Compl** | **23-Jan** | **30-Jan** | **6- Feb** | **13-Feb** | **20-Feb** | **27-Feb** | **6- Mar** | **13-Mar** | **20-Mar** | **27-Mar** | **3- Apr** | **10-Apr** | **17-Apr** | **24-Apr** | **1- May** |
| Organize Team and Conduct Initial Team Meeting | 100% |  |  |  |  |  |  |  |  | S  P  R  I  N  G  -  B  R  E  A  K |  |  |  |  |  |  |
| Draft Project Plan and Statement of Work | 100% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Initial Sponsor Meeting | 100% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Finalize Project Plan & Statement of Work | 100% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Requirements Definition | 50% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Design | 25% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Development |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementation/Rollout |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Prepare Final Presentation/Report and Package Final Deliverables for Project Sponsor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

*Organize Team and Conduct Initial Team Meeting*: The initial meeting to understand the skill set of the team members. The client was first contacted to schedule Kickoff meeting and obtain any existing paperwork.

*Draft Project Plan and Statement of Work*: The project plan and statement of work to be created based on client's documentation.

*Initial Sponsor Meeting*: A meeting is scheduled with the client to go over the project specifications and to clarify a few key issues.

*Finalize Project Plan & Statement of Work*: Based on feedback from the client and mentors, validate the proposed solution and prepare a Project Plan and update the SOW.

*Requirements Definition*: The Technical Design Specification (TDS) document will be created by the team after finalizing the requirements.

*Design*: Designing the technical solution and recording it in the TDS document.

*Development*: Developing the application.

*Testing*: The UIC development team will do unit testing, recording the test cases and outcomes in the Unit Test Cases and Results document.

*Implementation/Rollout*: Final adjustments/amendments will be made in accordance with the client's requests, and a demo will be given to the client for review. The project's future scope will also be explored.

*Prepare Final Presentation/Report and Package Final Deliverables for Project Sponsor*: Final presentation by the UIC team and the handover of the deliverables and documentations.

**Required Technical Environment:** Python, Scikit Learn, Kivy/KivyMD, SQL, Google Colab, Visual Studio, GitHub, PyCharm

**Team and Client Responsibilities:**

**Daily Stand-up:** We will be conducting a daily status call of 10 mins within the team to check the status of everyone’s work. This would help us to discuss the progress and identify blockers.

**Weekly Reporting (with sponsor):** Weekly calls (Friday 5:30-6pm) with the sponsor to discuss the project’s progress.Weekly Reports will be sent out to the sponsors 24 hours before the call. It will comprise:

1. Items Accomplished Last Week
2. Items Planned but not Accomplished Last Week
3. Item Planned for Next Week
4. Issues Faced
5. Feedback from the Client

**Weekly Reporting (with mentor):** Weekly calls (Wed 5:30-6pm) with the mentor to discuss the project’s progress and receive guidance on issues faced by the team. Agenda for upcoming meetings will be shared by the team before Tuesday 5 pm and Minutes of the meetings along with other documentation will be uploaded on the Blackboard on a timely basis.

**Risk Matrix – high level:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Description** | **Owner** | **Probability** | **Impact** |  | **Prevention Plan** | **Contingency Plan** | **Trigger** | **Responsibility** |
| 1 | Risk of increasing amount of incoming traffic, multiple users using the application at the same time |  | High | High |  | Identify ways to prevent the application from hanging or crashing. | Ensure that the infrastructure is scalable to handle increased traffic. Implement caching to reduce the load on the server and improve performance. Regularly conduct load testing to simulate high-traffic scenarios and identify potential issues. | Crashing of the application | Project Manager, Team Members |
| 2 | Risk of API leading to slower processing |  | Medium | Medium |  | Identify and implement methods such as parallelism to reduce the processing time of the algorithm. | Find out the exact time taken to show results, replace the algorithm with lesser accuracy but faster processing time. | Taking more than 1 minute to show results | Team Members |
| 3 | Risk of the ERTrack database crashing or being lost |  | Low | High |  | Backing up the database. Identify a method to secure the api to prevent loss of access, maybe by using authentication security. | Add a security key to access api | Loss of access to data, no results shown | Project Manager, Team Members |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  | **Probability** | | |  |  |  |  |
|  |  |  | Low | Medium | High |  |  |  |  |
|  |  | Low |  |  |  |  |  |  |  |
|  | **Impact** | Medium |  |  |  |  |  |  |  |
|  |  | High | 1 | 2 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

**Assumptions**

There are a few assumptions about the product that we believe to be true based on knowledge, experience, or current information. Typically, these include

1. A good percentage of users will see enough value in the product to become regular users
2. We can develop the product in the proposed timeframe
3. Up-to-date data will always be available
4. App developers will continuously update the application
5. The App will only display the hospital/facilities present in the ERTrack.net database
6. If the App is unable to fetch the wait times for a particular hospital from the ERTrack.net database, the hospital will not be displayed in the App.

**Constraints**

There are a few limitations that we as teams must work within, typically scope, budget, and time; also aspects like risk tolerance, resources/staff, quality requirements, limited storage and processing power and app store policies and regulations

**Exclusions**

Exclusions in mobile app development refer to limitations or areas that are not included in the scope of a mobile app development project. Some common exclusions are

1. Hardware and infrastructure
2. Third-party software and services
3. Ongoing maintenance and support
4. Customization and integration with other systems
5. User training and documentation

**Addendum:**

1. In the solution proposed, KNN algorithm was suggested for finding the top 3 hospitals given the waiting times and distance.

Suggested Change: Upon our research, we found there is no need for KNN algorithm as we get the real time wait time and distance from the ERTrack.net and Google Maps API, respectively, which can be used directly to list out the top 3 facilities.