**PROJECT PLAN**

**TITLE: Big Data Analysis for Effective cardiovascular heart attack**

**Prediction using AWS.**

**Names and Roles:**

* Bhavya Edara: Role- Analytics and Model Building using Machine Learning
* Ramya Harshitha: Role- Admin and User Module creation
* Pragna Pothina: Role- Storage and connectivity.
* Sai Vignesh Kanamatareddy: Role- Cloud Deployment

**Motivation and Purpose:**

Detecting and predicting cardiovascular heart attacks is a pressing global health concern, emphasizing the need for early identification to ensure effective prevention and management. Fortunately, advancements in big data analytics and cloud computing facilitate the collection and analysis of significant amounts of information to develop predictive models that aid in identifying high-risk patients. This project seeks to leverage Amazon Web Services (AWS) cloud computing platform and big data analytics to establish an efficient predictive model for cardiovascular heart attack. Specifically, the project will employ AWS services such as Amazon S3 for data storage, Amazon EC2 for computing, and Amazon Machine Learning for developing the predictive model. To develop the predictive model, a vast dataset of patient information will be collected from various sources, including electronic health records. The patient data will consist of demographic details, medical history, lifestyle factors, and biomarkers. The data will be analyzed using machine learning algorithms to create an accurate predictive model for cardiovascular heart attack. To refine and enhance the model's accuracy, additional data will be incorporated and tested. The objective is to provide a seamless user experience, with intuitive interfaces and clear instructions, making it easy to use the heart disease prediction system for both administrators and end-users.

**Modules:**

**Admin:** User management, data management, model management and reporting/analytics. Firstly, the user management feature allows the administrator to control and create user accounts while managing roles and permissions. Secondly, data management is included in this system so that all datasets may be uploaded for quality assurance purposes as well as predictive model training. Thirdly, utilizing the model management aspect will enable administrators to effectively create or alter already-existing predictive models along with monitoring accuracy performance information. Finally, tracking analytics based on successful predictions made by the system through its reporting and analytics feature gives valuable insights into usage behavior while also gauging overall effectiveness of the entire system.

**Users:** User Module allows patients to input their medical history, lifestyle preferences, and other relevant information to create a predictive model for their risk of heart diseases. The system then generates personalized recommendations for the patient to take steps to reduce their risk. The system also provides a comprehensive view of the patient's inputs and predictions over time to monitor progress and make appropriate adjustments to living standards.

**UI:**

**Home page-**

The home page would typically include a banner with the system's name and logo, followed by a navigation menu with links to different sections of the system, such as the user module, admin module, about us, and contact us.

The main section of the home page would feature a prominent call-to-action button, inviting users to input their data and receive predictions on their risk of developing heart disease. This section would also include a brief description of the system and its key features, along with any relevant information on how to use the system.

Feature a section with testimonials or success stories from users who have benefited from the system, as well as any relevant news or updates related to heart disease prevention.

The Login and Signup options can be placed in the top right corner of the home page, along with the navigation menu. Users can click on the Signup option to create a new account by providing their name, email address, password, and other required details. Once they have created an account, they can login to the system using their email and password.

We will add a notification feature to the system, which would notify users via email or message when there is a high risk of developing heart disease based on their input data. This would allow users to take timely action and make necessary lifestyle changes to reduce their risk of developing these diseases.

And for the cloud deployment, please use the technologies specified below and EC2.

We have specified the role of each person that was submitted in the project plan which is at the top of this document.

**Utilized Cloud Technologies:**

We will use AWS cloud technologies to store, manage, and analyze large amounts of healthcare data for heart disease prediction. AWS S3 provided reliable and secure storage, while AWS EC2 will create virtual machines to handle heavy computing. With the help of AWS Sage Maker, we will build and deploy predictive models and automated tasks with AWS Lambda. We will be able to develop a dependable, scalable, and affordable platform that can satisfy the needs of our users by employing these cloud technologies.