1. What problem your application solves? If it’s a new product, what is the size of the market it can address? If it A. I solution how much money can it save and what are the risks.

In current society, heart disease is one of main concerns as it is biggest cause of mortality. Heart disease is a group of disorder that can affect the heart. Calculating the chances of developing heart disease manually on the basis of risk factors if very difficult. Using machine learning techniques, we anticipate the outcome of existing data. This new product can analyse the new patients diagnosis information and show the prediction of having heart disease in future. This application can address up to 100-200 customer issues at a time and even saves the patients diagnosis information for future data modelling. Using this application a person with diagnosis can analyse and understand his current hear condition and can prevent himself from heart disease risks. Once this application in place this could save hospital’s time and effort of analysing a person’s diagnosis. They could get the results in minutes rather than days of efforts to calculate prediction manually. To avoid the risks like providing the analysis to wrong person, we would recommend to consult a doctor if the pain continues or any symptoms exists.

1. What was the performance of your method using metrics?

Support Vector Machines (SVM), Logistic regression and k-Nearest Neighbor (kNN) are two common machine learning algorithms. As part of the algorithms, we performed SVM, Logistic regression and kNN, as they are successfully applied to challenging pattern-recognition problems in biology and medicine. Both the algorithms return positive results when it comes to accuracy but SVN provides significantly better classification accuracy and classification speed than kNN. The SVM is extremely fast in comparison with kNN model as kNN model takes 4 to 5 times more time than SVM for classifying data. Like in our response of accuracy we can see, the accuracy of kNN is 78% and accuracy of logistic regression is 79% whereas SVM’s accuracy is 80%. As part of data splitting we set training data as 65% of the data and the rest as test data for both the models.

1. What is the monetary value and Risks of your application after its performance? How much money can you save?

As per our assumptions, development of this application would cost around $17,000.

**Monetary value:**

* The expenses on human resources for performing manual predictions for every patient will be saved. This would save $8000 of the expenses for the organization every month.
* The current system of analysing is costly as it is done manually, introducing this application can save the patient’s money. Previously if 5 users approach for prediction which costs $1500, introducing this system which costs $700 can get at least 15 users per month.
* As every organization does not have this system in place, we can attract more public with reasonable prices.

**Risks:**

* Sometimes there could be machine errors while performing the predictions, to solve this there should be a person to verify the report before handing it over to the patients.
* As machine dependency is more this case, the machines should be of high end otherwise else there would be system issues.

1. Risks and benefits

**Benefits:**

* Doctor’s help will be available for the user at any point of time.
* User can talk about their Heart Disease and get instant diagnosis.
* As the doctor is available online users will be attracted more
* Very useful in case of emergency

**Risks:**

* Accuracy Issues: A computerized system alone does not ensure accuracy, and the warehouse data is only as good as the data entry that created it.
* The system is not fully automated, it needs data from user for full diagnosis