Application for Integrated Data Analytics and Business Intelligence
A Project for Police Department

Introduction

Police department had a requirement for design and development of a new web application for Integrated Data Analytics and Business Intelligence. Under this project qualified IT Technical Manpower is also required to be deployed onsite. These manpower resources will study existing web applications developed by the department and develop a new portal which will have functionality of all the existing web applications, developed by the department. The new application will also involve integration of various internal projects of Police for the purpose of Data Analysis and Business Intelligence reporting.

Objectives of the Project

The overall objective of the project is to develop an application that can assist department in managing law and order situation of the state in a proactive manner. Currently, Department A, Department B and Department C, are operational in Police Department. Department A Project pertains to help provided by Police to aggrieved callers. Department B pertains to CCTV cameras installed in various public places and control rooms in various cities. The control room is connected to all control rooms and data can be fetched from them, if so required by using high speed internet connectivity. Department C aims to integrate all the data and records of crime into a Core Application Software. Data relevant to cases filed with Police is available in Department C. We have data performing to location of points of interest necessary for conducting location based search. There are other applications used by Police like social media analysis and their database is hosted at datacenter of Police department, proposed application will also be hosted in this datacenter. Back end database of above mentioned projects are MYSQL/MSSQL. It is envisaged that data from all the above mentioned projects would be fetched by proposed application and used for subsequent analysis and reporting.

Proposed Solution

The proposed solution will include following activities:

Study of the existing projects and applications developed by department to finalize the required solution. AS-IS, TO-BE reports should be prepared to gather FRS (Function Requirement Specification). Requirement Team would need to consult regularly with department to arrive at appropriate user defined algorithms and use cases for data analysis and reporting formats for presentation. Databases in above-mentioned projects have fields like date, time, location, names etc., it should be possible to search in various

databases (Department A, Department B, Department C, etc.) by firing a query in any or all of these data fields. API would have to be developed as per user requirement to fetch data relevant to the query from various sources.

Solution team is required to integrate Department A, Department B, Department C and data available in special branch. Integrated Application for Data Analytics would be developed which would fetch data from these sources, present it in customized user interface and provide its analysis.

Deployment of manpower resources as per RFP conditions.

Solution team is required to develop Dashboards. Data obtained from query may be presented in form of separate dashboard with separate windows for various data sources. These dashboards may have hyperlinks or similar means to drill down the data if user so desires. Data obtained from query would be analyzed using unstructured data analysis and similar techniques on basis of user requirement as finalized in FRS (Function Requirement Specification). Solution team will ensure that solution gets correlated data from datasets of different projects. Result of analysis would be presented with help of appropriate BI tools.

Solution team will choose suitable platform which gives user acceptable, resilient and stable solution for integrated web portal and proposed application. The solution will be scalable and future ready to integrate with future applications. Analysis of semi structured data will be done and so appropriate front and back end platform should be chosen. Also most importantly solution platform will be open source platform, so that solution cost will be very economical.

Specialized feature of the Proposed Solution

Analytics on WhatsApp, Facebook and Web Scrapping

- Web scrapping for the list of Websites configured/provided
- Extract public data from Facebook pages. It should be possible to run keyword based queries on public data available in Facebook
- Extract data from WhatsApp groups (applicable for groups in which user is a member) through APIs and perform various analytics I.e. identifying and categorizing viral messages, Trending patterns and key word-based analytics, machine learning for predicting trends and patterns
- It should be possible to perform free text search on web and get results in a structured form

Text Analytics and Advance Text Search feature

- The Web Application provide Text Analytics and Advance Text Search feature from various unstructured and multi-language data sources.

Sentiment Analytics from Various Social Media Sources

- The Web Application provide Keyword based Sentiment Analytics from various unstructured and multi-language data sources.

Correlation/Associativity functionality

- The Web Application provide Associativity/correlation functionality where any visual chart or widget will work as a filter and will provide correlated/associated information from that visual

Integration functionality

- The Web Application will be able to load data from various data sources like: JSON Data Set, CSV File, RDBMS Database, Web Services (APIs)

Export Capability

- The Web Application will be able to export data into various formats, like – PDF, Excel, CSV, PPT, etc.

Drill-Down Functionality

- The Web Application have Drill Down functionality which allow users to Drill-Down from the high level view to lowest level to identify more detailed and granular information

Ability to view/search video clip

- The Web Application is capable of searching and viewing specific pre-recorded/live video clips as per the metadata provided.

Ability to search and listen recorded calls

- The Web Application is capable of searching and playing specific pre-recorded/live audio call incidents

Predictive Analytics

- The Web Application is capable of using Machine learning, Data Science algorithms and advance analytics techniques to work on predicting trends, patterns and meaningful behaviors from the available data sources

GIS

- The Web Application will use .shp files provided by department to implement various business process. For example, it might be pertinent to a query to get data about such points of interest which are within proximity of 500m. Application would be able to execute this query, when locations of such points is provided, appropriate GIS tool would be needed.