Hypertrophic Cardiomyopathy (HCM), an inherited heart disease, presents the most common reason for sudden cardiac death in athletes. The medical data required for successful diagnosis, especially in the case of athletes with \textit{grey zone} cardiac hypertrophy, is high-dimensional, i.e., consists of a large number of clinically monitored parameters with complex dependencies between them, thus causing a lot of difficulties in diagnosing HCM. The diagnostic challenge is to differentiate between the malign cases of particular clinical heterogeneous mild HCM and the \textit{Athlete's Heart"}, which is a benign natural cardiac adaptation to exercise training. The primary goal of this project is to produce a data-parallel implementation of a diagnostic algorithm that can be used as an assessment tool for differentiating HCM from physiological cardiac hypertrophy in athletes with \textit{grey zone" myocardial hypertrophy}. In the core of this application we define a rule-based scoring function that is used to classify medical records into groups depending on their pathological or physiological status. Because of the low prevalence of HCM in the available real life databases, studies based on large-scale datasets of athletes are necessary in order to evaluate the disease frequency and improve the ways of diagnosis. Thus, we assess the scoring function by applying it to a large-scale auto-generated dataset of realistic athletes. The computational complexity of this process and the need for computing meaningful results within acceptable time bounds justify the choice for a data-parallel implementation. The open source Hadoop distributed system, based on Google's MapReduce skeleton, was the platform of choice for the implementation because it has been designed and tuned for massive data-parallelism on large distributed clusters. Furthermore, two additional MapReduce medical applications were developed, each one increasingly more complex and compute-intensive than the previous. The first of these two massively data-parallel applications aims to address a current research challenge in medical science, which is the identification of the medical parameters that are related with the functional capacity of young athletes. This is achieved by computing the Pearson's correlation coefficient between pairs of parameters in large-scale datasets. The final application aims to optimise the scoring function in order to raise the diagnostic quality and accuracy. The scoring function is iteratively improved based on dependencies between parameters that are encoded in a ruleset. This approach showcases good performance as the computational workload is balanced between the MapReduce iterations. Finally, the project focuses on evaluating the performance, scalability and ease-of-programming of the MapReduce languages (Java, Pig and Hive) that were used to implement the aforementioned medical applications. The project summarises the effort involved in the design and implementation of the three applications; provides an in-depth evaluation of research findings; and concludes with a discussion about the suitability of the Hadoop high-level data-query languages for developing complex applications in the medical domain.
Nallaswami, Charan (Supervised by Helen Hastie)

SPOKEN DIALOGUE SYSTEM FOR MEDICAL HISTORY

This report describes a spoken dialogue system for obtaining a patient’s past and recent medical history over the phone. The main objective of this project is to create a system that interacts with patients in natural language and adapts to different users with different needs. The hospital management employs staff, spending time and money to call patients or to attend calls from the patient to fix appointments with doctors before a surgery. This time could be saved by using Spoken Dialogue System. Voxeo is the tool used to create this Spoken Dialogue System. The five fundamental components in this dialogue system are Automatic Speech Recognition (ASR), Natural language Understanding (NLU), Dialogue Management (DM), Natural Language Generation (NLG) and Text To Speech (TTS).

The dialogue prompts in the system has been performed by using Text To speech (TTS) capabilities of Voxeo. The collected details will be stored in MySql database. PHP has used to provide HTTP request and response between Voxeo and MySql database. Moreover, this design is based on user satisfaction and at the end of an implementation, all the performance level of the system have been examined and evaluated for future usage.

Key words
Spoken Dialogue System (SDS), Automatic Speech Recognition (ASR) and Dialogue Management, Voice recognition, dialogue prompt,

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Online Real-Time Automobile Auction System

The internet has made the online processing very popular, including auction. Online car auctions are great place to buy car, bikes and trucks and other equipment.

The project describes the complete development life cycle for online auction site. The lifecycle starts with the plan and end with evaluation.

Among the existing E-Commerce applications, online auctions are the most influential ones. Their impact on trading in the B2B (business to business) as well as in the B2C (business to customer and C2C (customer to customer) areras are inevitable. One of the highly compelling and competitive trading forms is based on online auction systems (Chapter 2).

Design is one of the main phases. The database designed with MySql and the user interface kdesigned with JSP,CSS and Java Script (Chapter 4).

The online auction implemented successfully using the technology JSP and MySQL to meet the user required application (chapter 5).

The evaluation is using for improving the performance of system in many ways. The evaluation of online auction site has been done by the participants. The evaluation survey for seven questions about the project.