**Implementation of Web Caching Proxy Server for improved speed and security of the Internet**

There are certain websites which are accessed by people frequently compared to other websites. Such websites usually experience greater loads and thus maintain multiple servers for load sharing. However, due to the simple server client approach used in most networks, the servers transmit large amount of redundant data (i.e, the same data is transmitted to many users). Again, on the client point of view, a lot of bandwidth is wasted in downloading redundant data from servers. Modern browsers usually maintain offline cache of webpages on hard disk, thus reducing bandwidth usage on commonly accessed pages. This helps solve the problem to some extent. However, this ability is totally dependent on the browser settings and the amount of hard disk space reserved for caching. Websites also provide “live” data, which is same for all users, changes with time. This type of redundancy on the network cannot be removed by browser caches, but only by a Web Caching Proxy Server. Many websites utilize forms to obtain user information. However, many websites simply use HTTP protocol, which means that the user information is transmitted unencrypted across the network and such data can be easily read and altered without any knowledge of the user or the server. This could lead to great security problems in the future. A Web proxy server installed at both ends can be used to transmit encrypted data (using public-key cryptography) across the network. Improvement of security of the internet could thus improve its reliability.

The aim of this project is to develop an algorithm for efficient management of Web Cache for both static and live data (extracted from parts of webpages as well). Then the algorithm would be implemented as a Web Caching Proxy Server Application which would then be tested and implemented on a server. Encryption features would also be added to the application to support HTTP encryption for improved security. The server could then be used as a proxy server by computers on the intranet to access internet websites. This application could be implemented using one of the popular frameworks (Ruby on Rails, Node.js, ASP.NET).

Finally, a research paper could be written from all the research activities conducted during the process, and the application source code could be posted on GitHub / SourceForge with GNU General Public License v3, as an open source software. A project report would be written as the third year internship project, and certificate is required to be provided on successful completion of the project as it is a requirement at our institute.