Random Test Paper Generator

Distributed Application

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OVERVIEW

Distributed Application for distributed online quiz. Question Paper is generated randomly from the question bank at the server. The project also includes organization of question bank, and making system highly available. High Availability is provided using replicated servers and load balancing technique.

GOALS

1. The questions can be keyed in to the question bank from clients and organized according to topics and difficulty level. You can assume that the topic and difficulty level are gathered from the users via a properly designed form.
2. The questions can be multiple choice, essay type, drop down list, numerical, etc.
3. The user (instructor/TA) is presented with a form for question paper generation seeking details such as question types, weights of questions, total marks, time duration, etc.
4. The question paper is generated corresponding to each student randomly on the fly when he/she keys in the ID.
5. A central server is present as coordinator that connects a quiz generator server to client and also balances the load among them.

SPECIFICATIONS

- Interface using Web Browser
- Database using MySQL
- Backend connection PHP

MODULES

Questions Feeding Portal

It will include a form through which one can feed questions in the question bank and also specify its difficulty for categorization.

Instructor Portal

It will be an admin portal where an Instructor or TAs can specify some aspects of the question paper such as question types, weights of questions, total marks, time duration, etc.

Student Portal

Student Portal will contain login system and will display an interactive question paper.

Connection of Server with Client Application

Different Replicated Server contains the database of questions and it will randomly generate the question paper. Multiple clients must be connected to same server program.

Load Balancing and Fault Tolerance via Replicated Servers

Central Main Server coordinates the communication among servers and clients.It balances the loads among servers , maintains a mapping of connected server and clients and regularly checks the status of the servers. If a servers fails , then its connections are transferred to another servers thus the system becomes fault tolerant.

Technique :

- Replicated server are connected to central server.
- Load balancing is implemented using Least connections algorithm , where clients are connected to a least loaded server . Central server polls the replicated server for their load and then applies algorithm on it.