

CSaP - Project AA 2020-2021

- Goal: “Voicemail” system
- The “server side” will hold data (voice messages) for a number of registered users.
- The environment will consist of:
 - A main “Metadata Server” (MDS)
 - One, or more, “Voice Data Repositories” (VDR)

MDS Server

- Handles initial connections with clients, maintains a “database” (even implemented as a file) containing information regarding users, messages, mailbox status, free space, etc.
- Upon startup, or after a crash, the MDS contacts all known VDR processes, which could be running on the same or on another server, to get/check information about the status.

Both the MDS and VDR should keep copy of their own metadata.

- The information wrt IP addresses and port# of the various components is contained in a configuration file, read upon startup by all processes
- After initialization, the MDS waits for requests from clients which, upon authentication (using name/password), could:

Check for new messages.

Add/delete users in their personal address book.

Send (record) a voice message to another user (search from all users or pick up from address book).

Search for messages from a specific user (selected as above) or within a certain date range.

Listen, delete or forward a voicemail.

Data Repositories

- Store audio files, keeping a copy of metadata (username, timestamp, ..) plus an hash for security.
 - When starting, they check local files for corruption, rebuild their metadata and “check-in” with MDS
 - Send/Receive/Delete audio files upon request from MDS (checking hashes before returning them to server)
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Clients

- Connect to MDS to authenticate
- Check for new messages
- Search for messages:

From specific users, selecting them from the entire list of from a personal address book

Within a specific data range

- Retrieve and play messages on the local audio system
- Delete messages
- Record a voice message and send it to a user (selected as indicated in the above bullet)

Evaluation Scorecard

- The code works (.. reliably)
- Robustness under unexpected situations

Misbehaved clients

Communication errors

Reboots/crashes of MDS and VDR

Disk errors

Project Collaterals

- Source code with comments, for each function/global variable/data structure, describing:
 - Its purpose
 - The parameters, side effects and return value (for functions)
- **DOCUMENTATION** about:
 - Design Choices (and the reasoning behind them)
 - Macro modules and their interaction
 - Test cases
 - Release notes, including limitations, known errors, etc

Suggestions

- **Be creative:** evaluate possible alternatives, don't just open the editor ...
 - Use system facilities for playing and recording audio files (e.g. **play, rec**)
 - Start prototyping early, use scaffoldings and **contact me in case of doubts**
 - Few days before deadline, send me the code and documentation for review.
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