CSC301 System Design Document

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PREPARED FOR

TimeShare

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System Architecture

At a high level, we propose the three-tiered architecture to best develop TimeShare. There is the model, or the database, which interacts with the controller, or the backend which in our case is express. The controller also interacts with the view which in our case is React. This separation allows us to systematically design interfaces which the user can interact with and allows us to quickly manufacture bug fixes or changes as everything is layered.
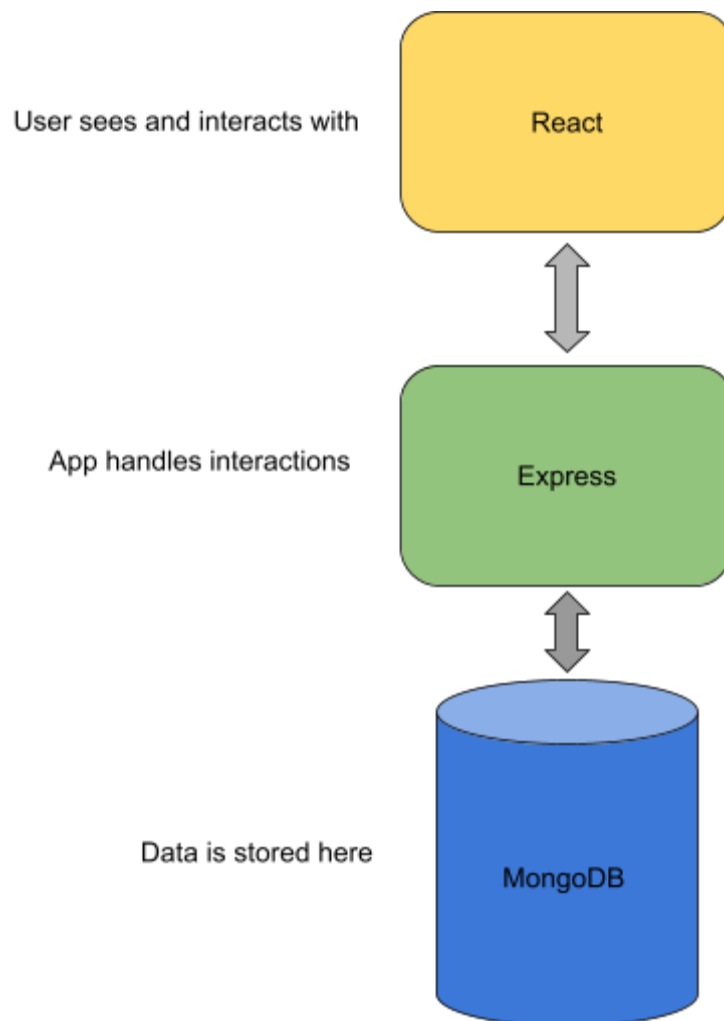

Figure 1. A diagram which details our three-tiered system

CRC Cards

The following cards are derived via the three tiered architecture. We've further split the middle into two parts, a controller and a handler, to more explicitly separate the model and view

DB Client	
Receives database query and returns response	All Handlers

User Login Form	
Knows username input Knows password input On submit button, send data to Auth Controller. If successful, redirect to Profile Page else display Login Notifications	Auth Controller

Auth Controller	
Receives username and password and passes it onto Auth Handler. If succeed, send ok to user login form, otherwise send errors to Login Notifications	Auth Handler Login Notifications

Auth Handler	
Knows user credentials Knows if credentials are validated Send response to the Auth Controller after validation attempt	Auth Controller DB Client

Login Notifications	
Displays Login Error to Login Form	User Login Form

Registration Form	
Knows username input Knows password input sends username and password into create user controller	Create user controller

Create User Controller	
Receives POST request and then passes relevant data into Create User Handler If successful, sends user to feed list page On failure sends error to register notification	Create User Handler Registration Notifications Feed List

Registration Notifications	
Displays Registration Error to Registration Form	Registration Form

Create User Handler	
Knows user credentials Knows if credentials are validated Attempts to send query to insert new user if possible Returns outcome to Create User Controller	Create User Controller DB Client

Feed List	
Displays posted timetables along with the title, description, thumbnail, and rating of the timetable On compare button, allows timetable comparisons	Search Post Controller Comparison Controller

Comparison Controller	
Fetches timetables information from the database and passes it to Comparison Organizer	DB Client Comparison Organizer

View Feed	
Displays timetables of selected post Displays comments with the title, description, thumbnail, and rating of the timetable Compare button	Feed list Comparison Controller

Comparison Organizer	
Constructs a single schedule that includes information about selected timetables Passes results to Comparison Tool	Comparison Tool

Comparison Tool	
Shows conflicts, shared courses and differences On edit schedule button, allows to edit user's schedule On compare with other button, allows to compare user's timetable with others	Timetable Constructor Comparison Controller

Timetable Constructor	
Displays current state of the user's timetable On import button, allows to import the schedule from .ics	Search Courses Form Import File Controller

Import File Controller	
Allows user to browse .ics files in order to import their pre-generated timetable Once file is selected, passes it to Import File Handler	Import File Handler

Import File Handler	
Parses the .ics file content to fit the TimeShare schedule format After parsing, adds schedule to the timetable	Timetable Constructor

Search Courses Form	
Knows user input for course search Sends GET request to Search Courses Controller Once received results from Search Courses Controller allows user to select the courses and pass them to Timetable Constructor	Search Courses Controller Timetable Constructor

Search Courses Controller	
Receives GET request and passes it into Search Courses Handler Receives response from Search Courses Handler and sends to Search Courses Form with results	Search Courses Form Search Courses Handler

Search Courses Handler	
Receives user search and creates a query that is passed to the DB Client Receives response from DB Client and returns to Search Courses Controller	Search Courses Controller DB Client

Create Comment Controller	
Receives Comment as input Passes comment to handler and waits for result	View Feed Create Comment Handler

Create Comment Handler	
Packages comment and sends to DB client for insert	Create Comment Controller DB Client

Profile Form	
Knows Name input Knows Phone input Knows Email input Knows Information input Knows username Sends UPDATE request to Profile Controller on submit	Profile Controller

Profile Controller	
Receives GET / UPDATE request and retrieves Profile or changes Profile in database Sends back status on UPDATE, profile information on GET.	Profile Handler Profile Form Profile Public View

Profile Handler	
Querie's DB Client and return to Profile Controller	Profile Controller DB Client

Profile Public View	
Sends GET request to Profile Controller and displays profile data	Profile Controller

Search Posts Form	
Knows user input for search Sends GET request to Search Posts Controller	Search Posts Controller

Search Posts Controller	
Receives GET request and passes it into Search Posts Handler Receives response from Search Schedule Handler and sends to Feed List with results	Search Posts Form Search Posts Handler Feed List

Search Posts Handler	
Receives user search and creates a query that is passed to the DB Client Receives response from DB Client and returns to Search Posts Controller	Search Posts Controller DB Client

Rate Post	
Displays rating of post Receives rating of post from controller Receives user's input rating on the post and sends to controller to update	View Feed Rate Post Controller

Rate Post Controller	
Receives input from Rate Post to update rating Recoves current rating from DB Client Sends to Rate Post view	DB Client Rate Post

Group Create Form	
Knows Group Name Input Knows Group consent value Knows Group picture input Knows Group description input Sends POST request to group controller	Group Controller

Group Edit Form	
Knows Group Name Input Knows Group consent value Knows Group picture input Knows Group description input Sends UPDATE request to group controller	Group Controller

Group Controller	
Sends user info to group feed handler and afterwards receives and sends displays result to Group Feed. Sends user and group number to Group Handler	Group Feed Handler Group Handler

Group Handler	
Sends query to DB Client for single-group targeted requests such as create group, update group details. Returns info back to group controller	DB Client Group Controller

Group Button	
Changes page to the Group Feed view	Group Feed View

Single Group View	
Sends GET request to Group Controller and displays Group Data	Group Controller

Group Feed	
Displays Groups Including users joined groups as well as public groups	Group Controller

Group Feed Handler	
Sends query to DB which looks for user groups and all other groups. Returns response to Group Feed Controller	Group Feed Controller DB Client