CO550
Web Applications
Coursework 1

Design a Simple Web Database Application

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1st November 2017

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Contents

1 Project Outlines **2**
- 1.1 Enterprise Model . . . 2
- 1.2 Business Goals . . . 2
- 1.3 Functional Requirements . . . 2
- 1.4 Outline of the Project . . . 3

2 Diagrams & Schematics **4**
- 2.1 Entity Relationship Diagram . . . 4
- 2.2 UML Class Diagrams . . . 5
- 2.3 Interface Prototypes . . . 6
  - 2.3.1 Homepage . . . 6
  - 2.3.2 Login . . . 7
  - 2.3.3 Register . . . 8
  - 2.3.4 Preferences . . . 9
  - 2.3.5 Route Details . . . 10
  - 2.3.6 Admin Panel . . . 11
  - 2.3.7 Driver Dashboard . . . 12
  - 2.3.8 Line Management . . . 13
  - 2.3.9 Route Management . . . 14
  - 2.3.10 Route Editing . . . 15

Project Outlines

1.1 Enterprise Model

A clerk in head office (or operational manager) sets the routes and times they want for the bus lines.

Drivers are assigned to the routes, reducing the total time of the route to their contracted hours: the closest it gets to 0 the better(hours left to allocate).

Customers look at the timetable for the line, without knowing who the driver is, and choose the bus they want to take,

They board the bus, pay the driver, or show them a previously bought and still valid ticket, and take a seat.

1.2 Business Goals

The goal of the business is to provide customers with reliable, fast and relevant public transportation services, all whilst making the running costs (infrastructures, staff, etc.) as low as possible to make as much profit as possible.

In order to make the service fast and relevant, the company tracks what stops seem to be the most used by customers, either through driver feedback or through the use of the website, and sees what sections and portions of the main lines are used the most at certain times of the day, adapting the routes and services available at certain times of the day according to the user needs (examples of adaptation would be school holiday timetables and term timetables, as well as not running the whole line at certain times of the day).

To make sure that the service is reliable, it constantly verifies if the rotas are properly allocated (no drivers assigned to two different routes at the same time) and checks against traffic patterns and provisions the time that it takes to go between two stops, reflecting that difference in the timetable.

To avoid costs, the company makes sure that all the drivers have their hours allocated properly (not making less or more hours than what they are contracted for), as well as some other systems that are used to make the service fast and reliable (an example would be the adaptation of the lines and routes to the time of the day, by not having too many buses running at a time where they aren't needed).

To provide a better service to their customers, the company now wants to provide the customers with an online service where they can see the updated timetables for their favourite services at all times, provide staff with a service that makes it easier for them to update the timetables and make rotas, where all the information is centralized and where the computer systems eliminate the tedious work of consistency check.

1.3 Functional Requirements

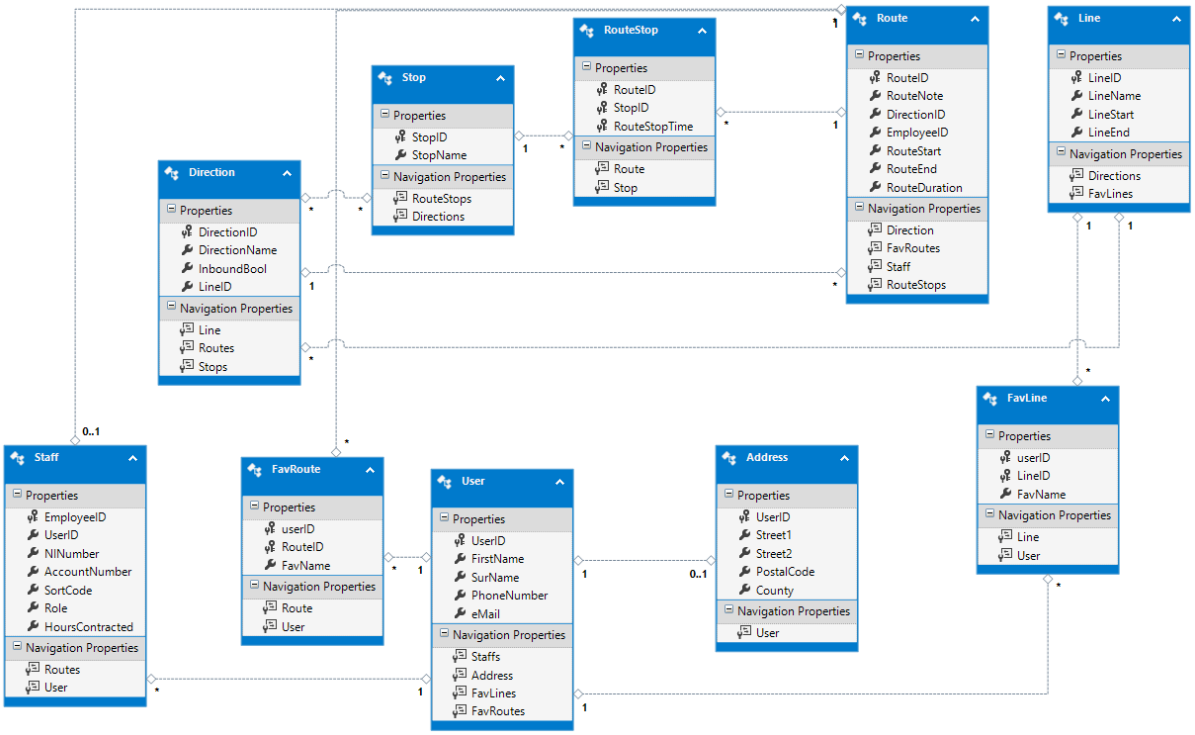
- Enable users to login and register
  - Normal (unprivileged users) can register anytime
  - Privileged users must be added by an admin
- Enable users and visitors to see bus timetables
- Enable registered users to save their favourite routes
  - Requires personal dashboard

- Allow admins and authorised staff to change timetables and rotas
  - Create bus lines and routes
  - Allocate staff to lines
  - Make sure the staff are working the hours they were contracted for
  - Make sure no driver is assigned to multiple routes at the same time
- Allow staff to see their rota
  - Staff assigned to particular routes
  - Staff dashboard allows to print weekly rota as a pdf
- The users should be able to search routes by terms, e.g route code, town names or bus stop names

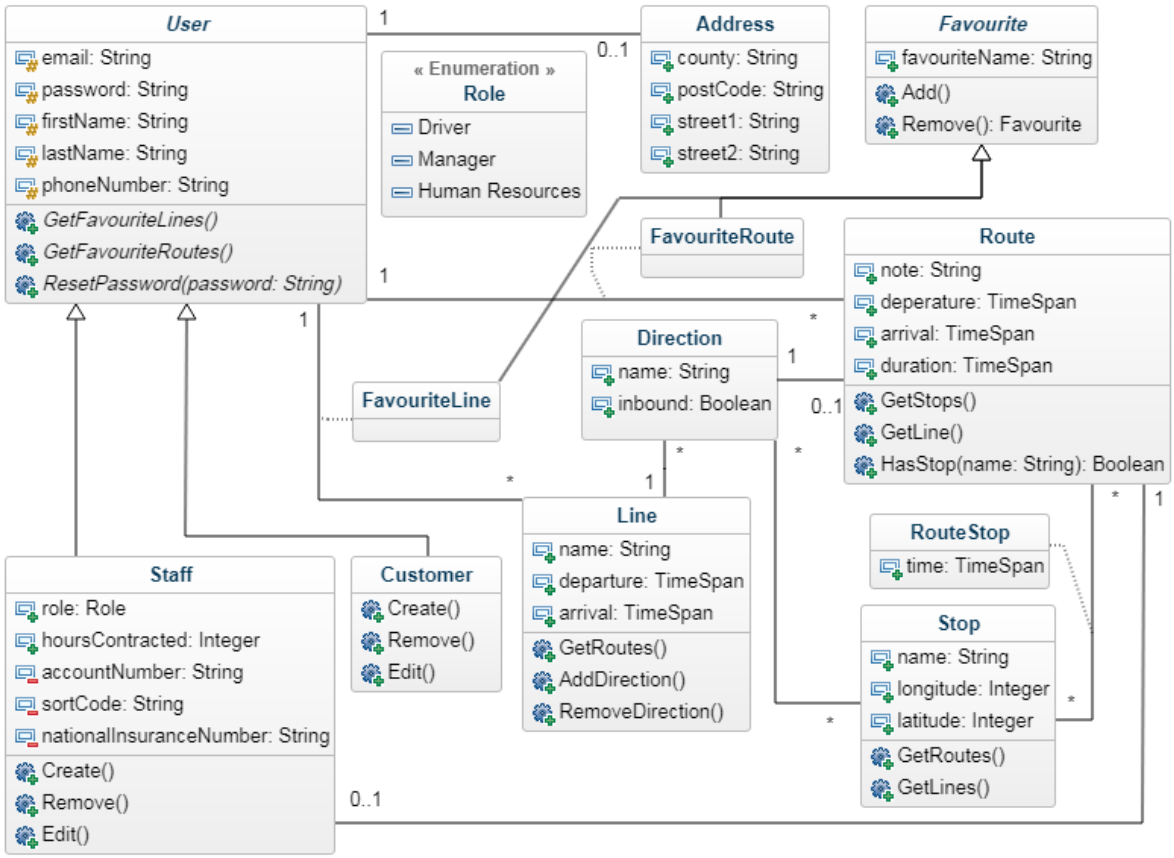
1.4 Outline of the Project

Diagrams & Schematics

2.1 Entity Relationship Diagram

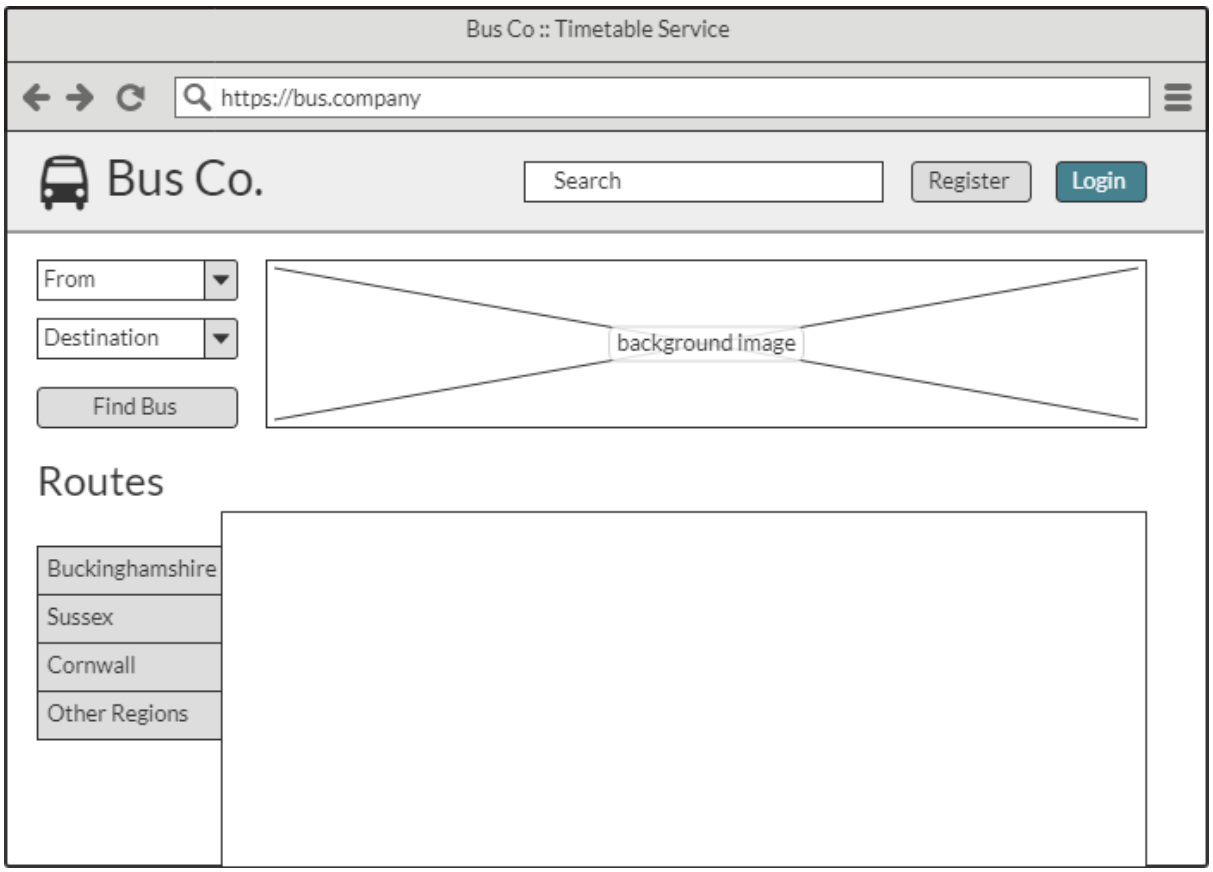


2.2 UML Class Diagrams

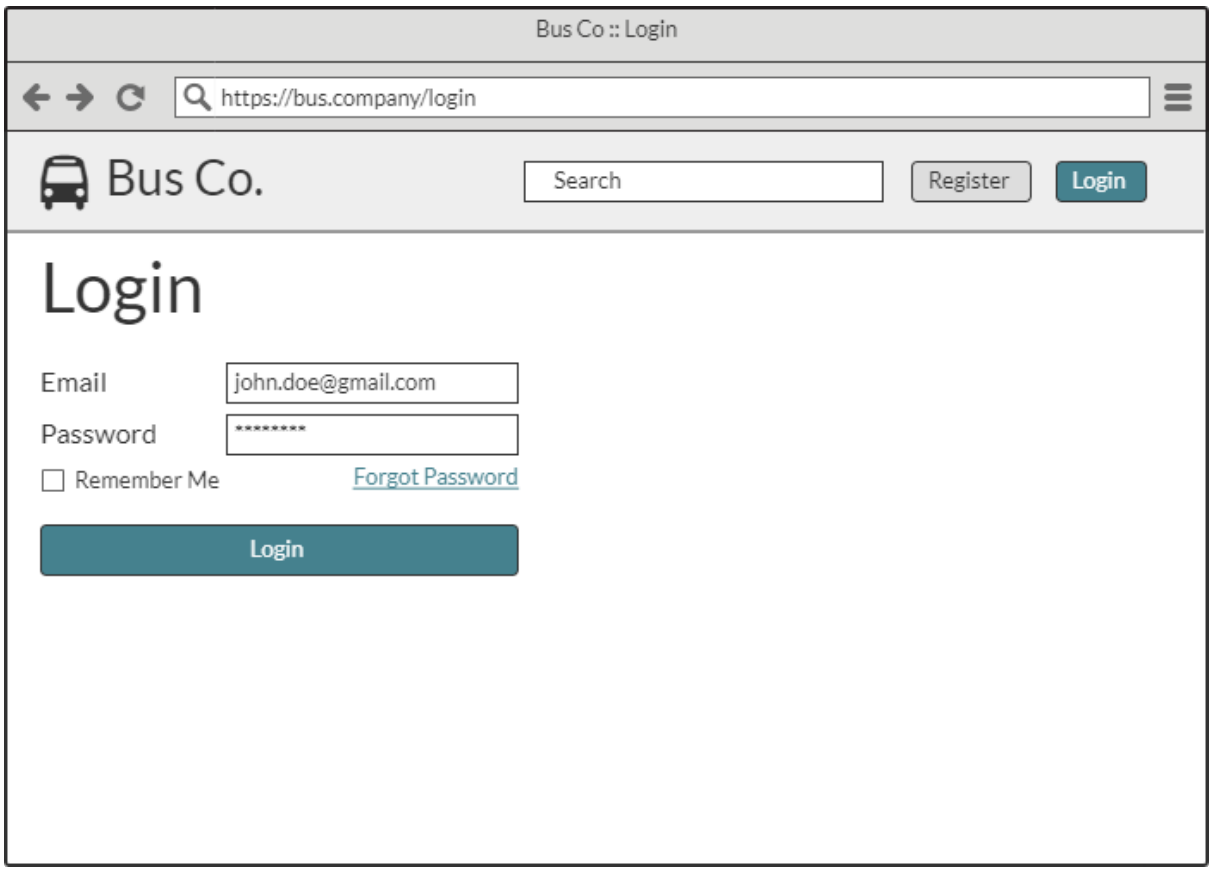


2.3 Interface Prototypes

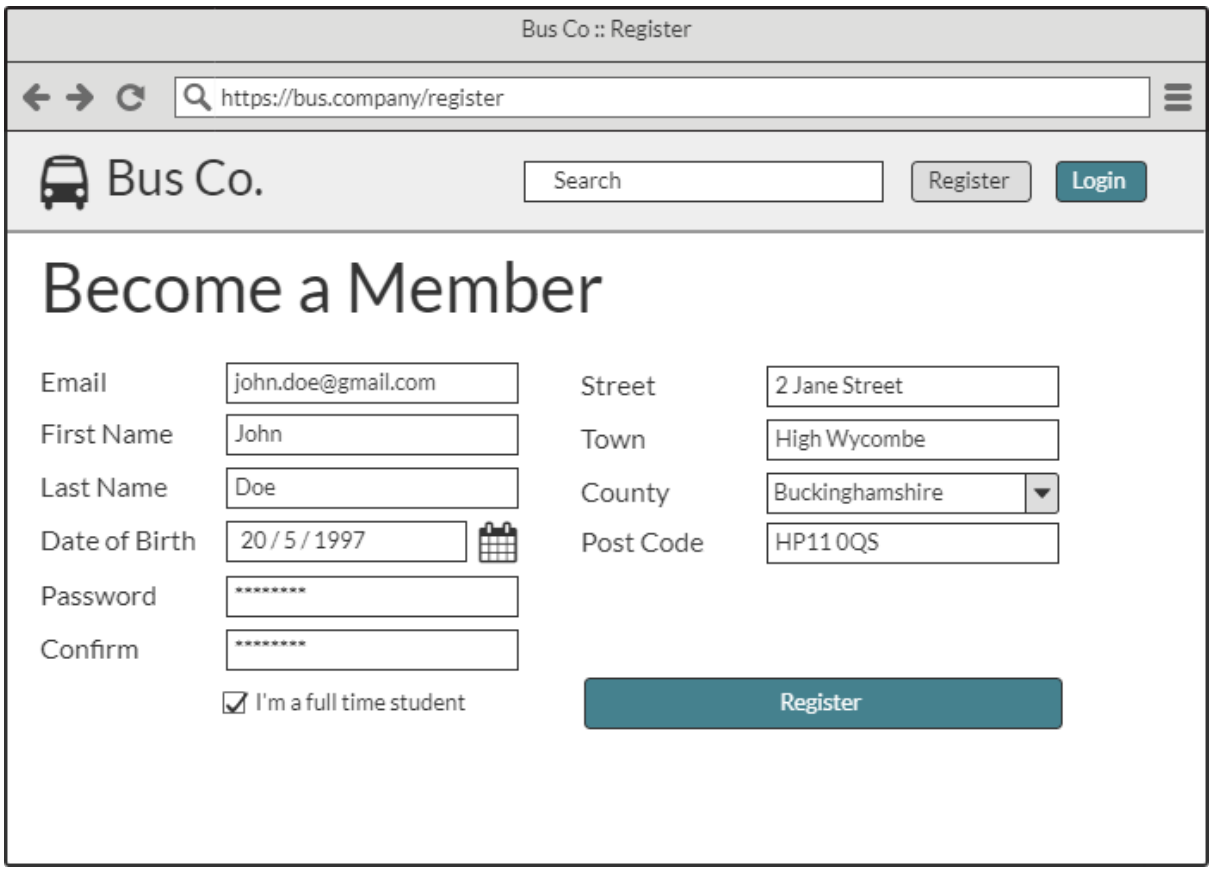
2.3.1 Homepage



2.3.2 Login


Bus Co :: Login
https://bus.company/login
Bus Co.
Search
Register
Login
Login
Email
john.doe@gmail.com
Password
****
Remember Me
Forgot Password
Login

2.3.3 Register



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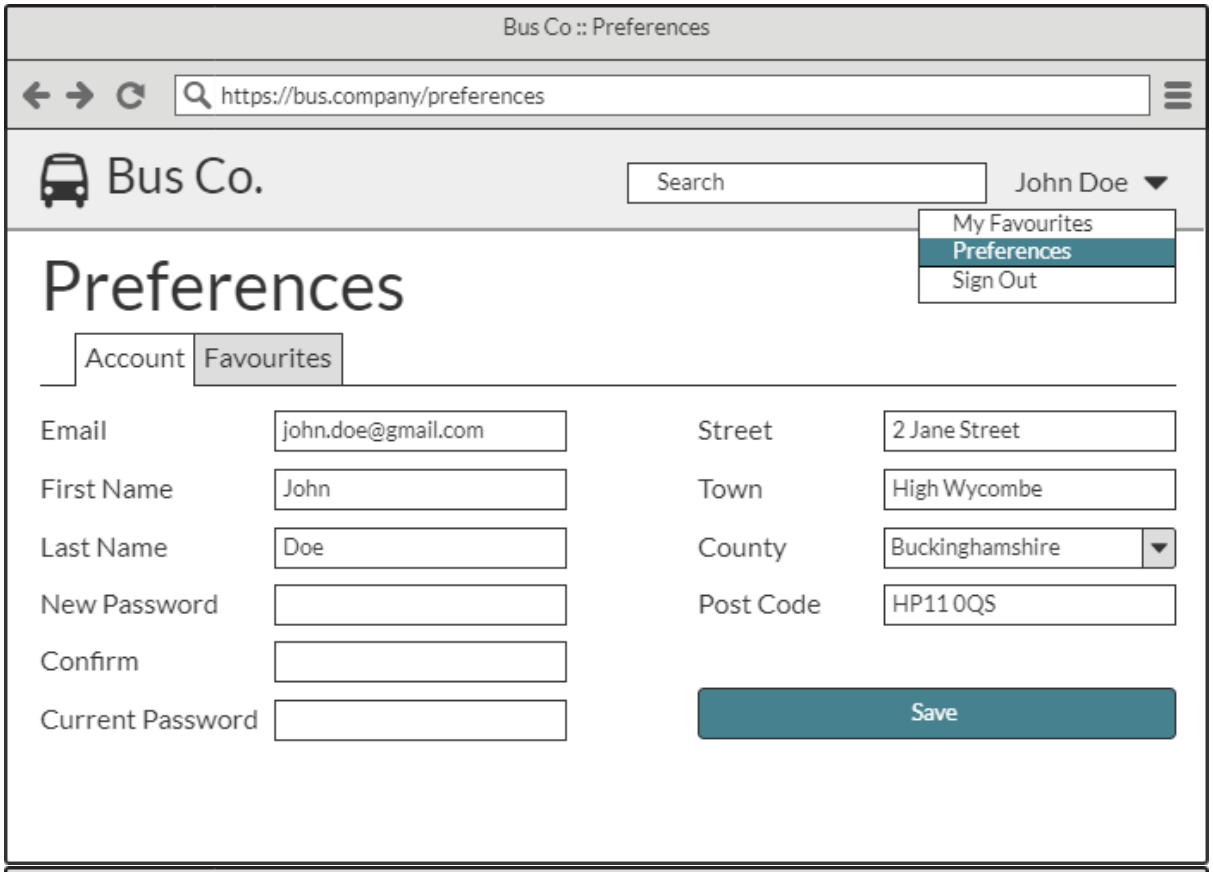
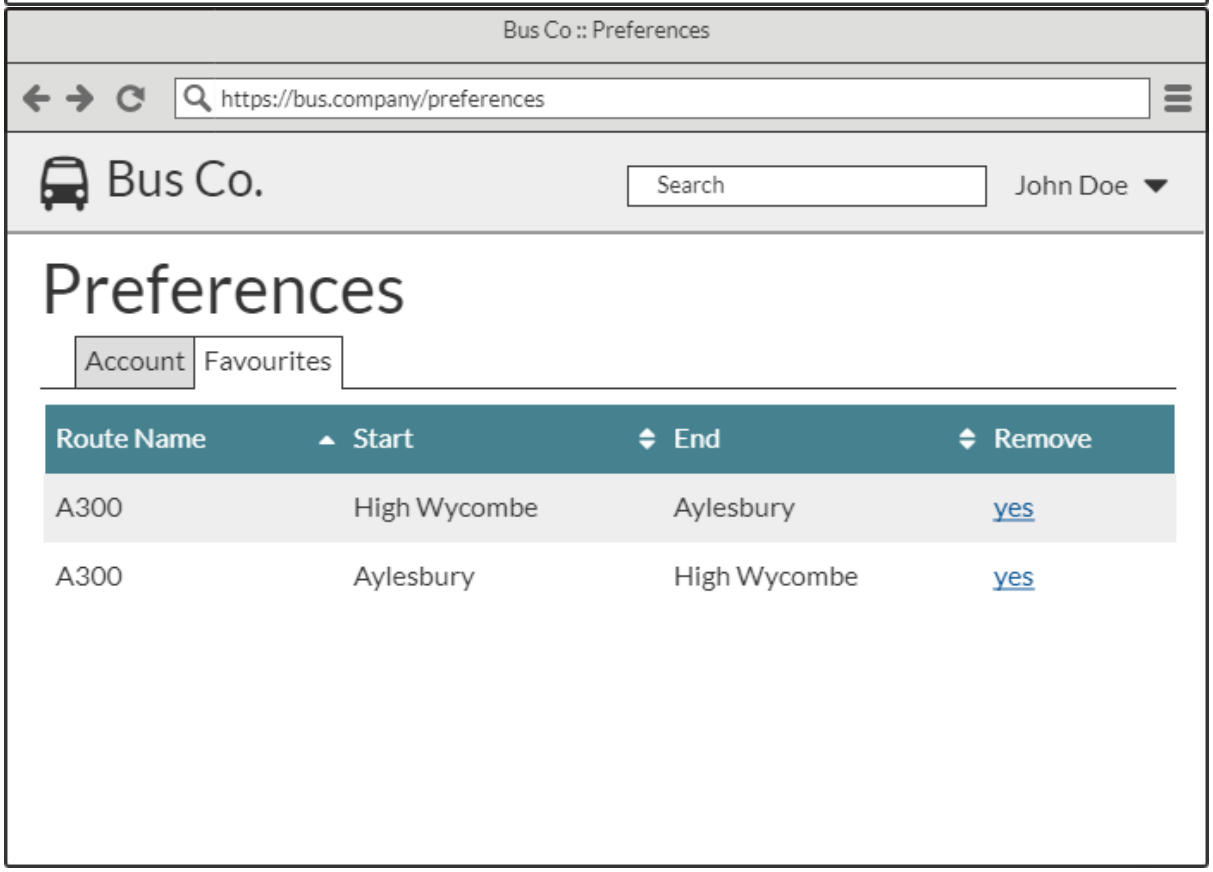
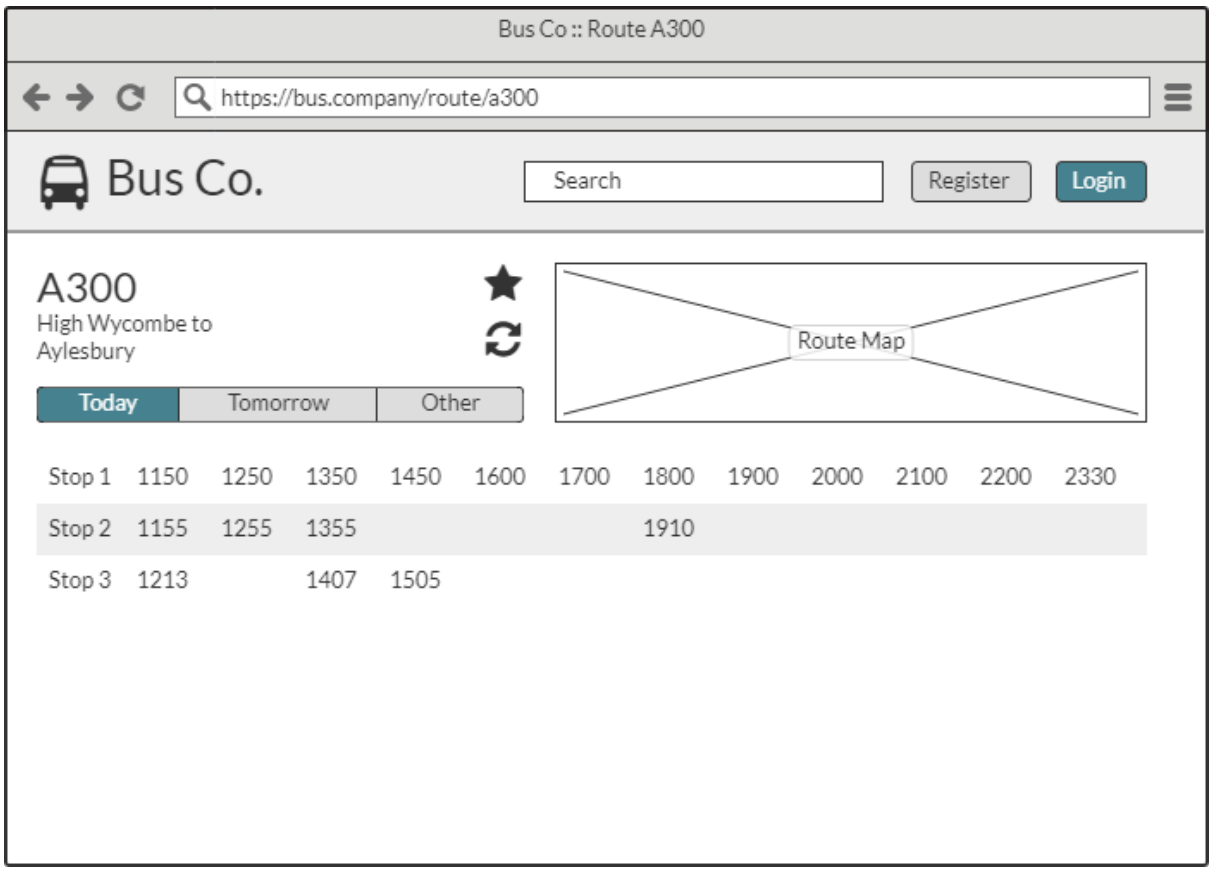
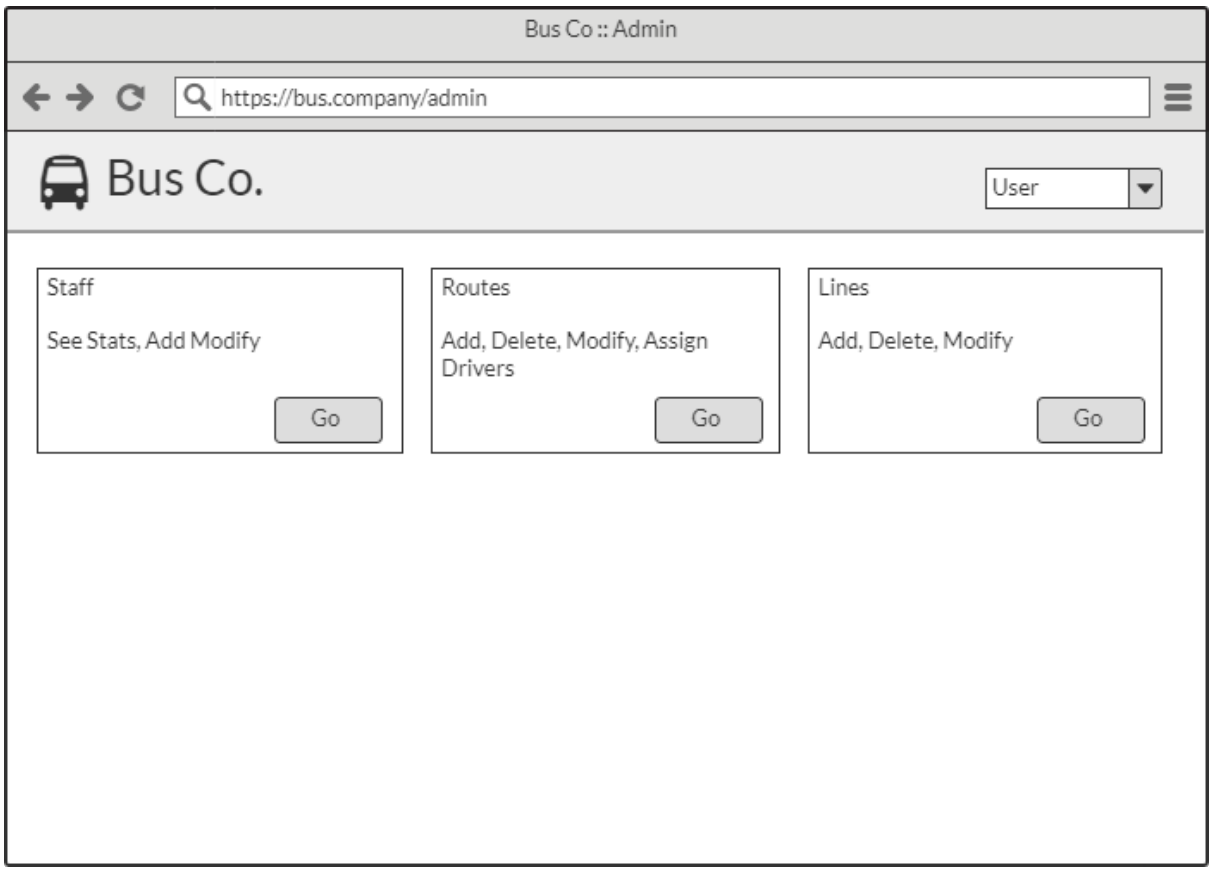




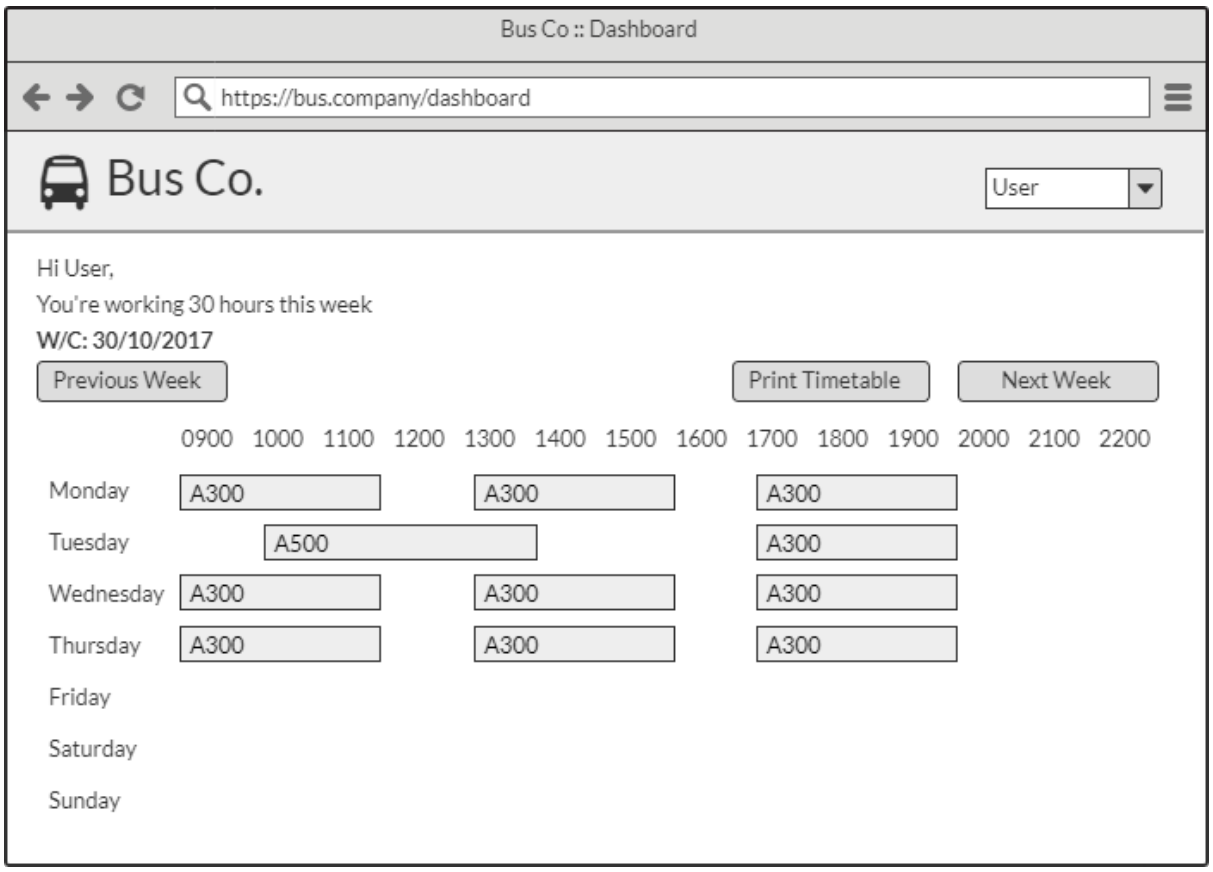
2.3.5 Route Details



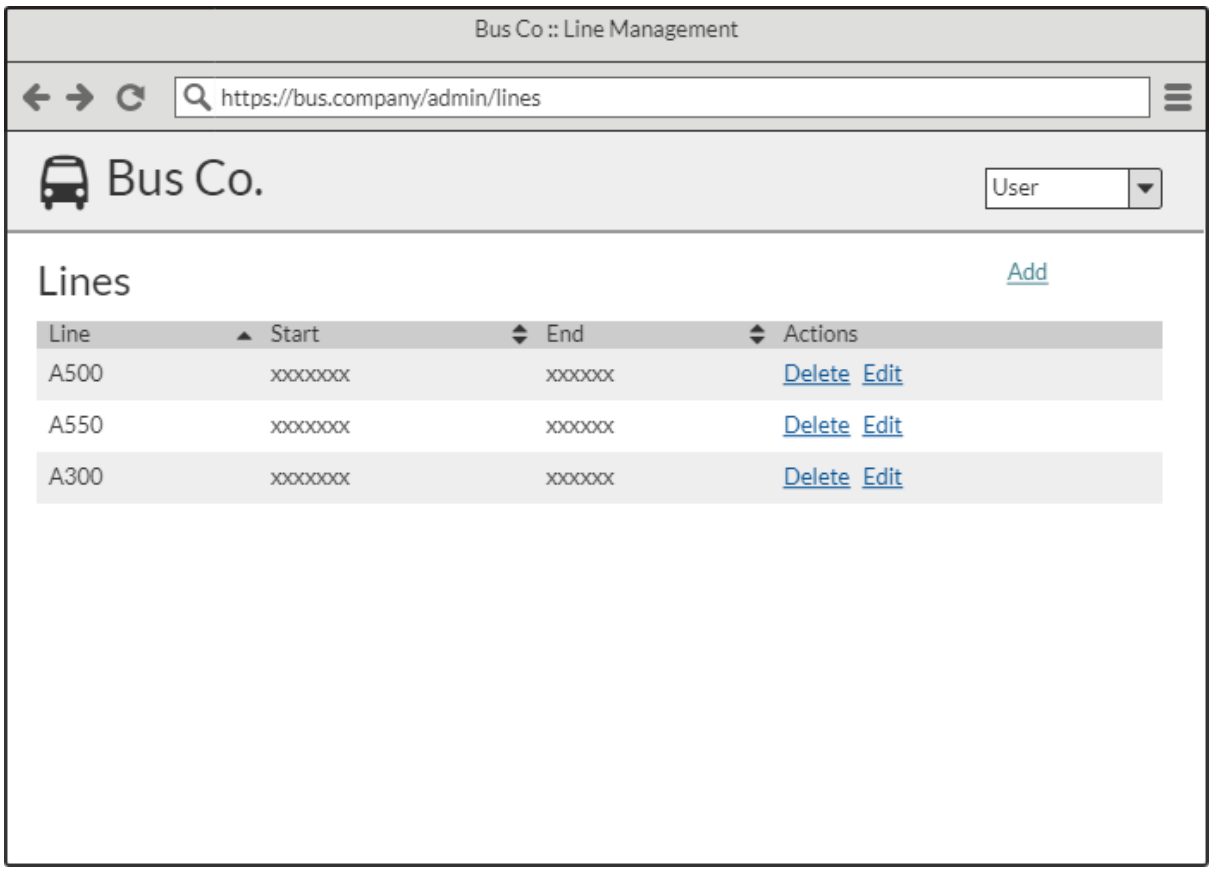
2.3.6 Admin Panel



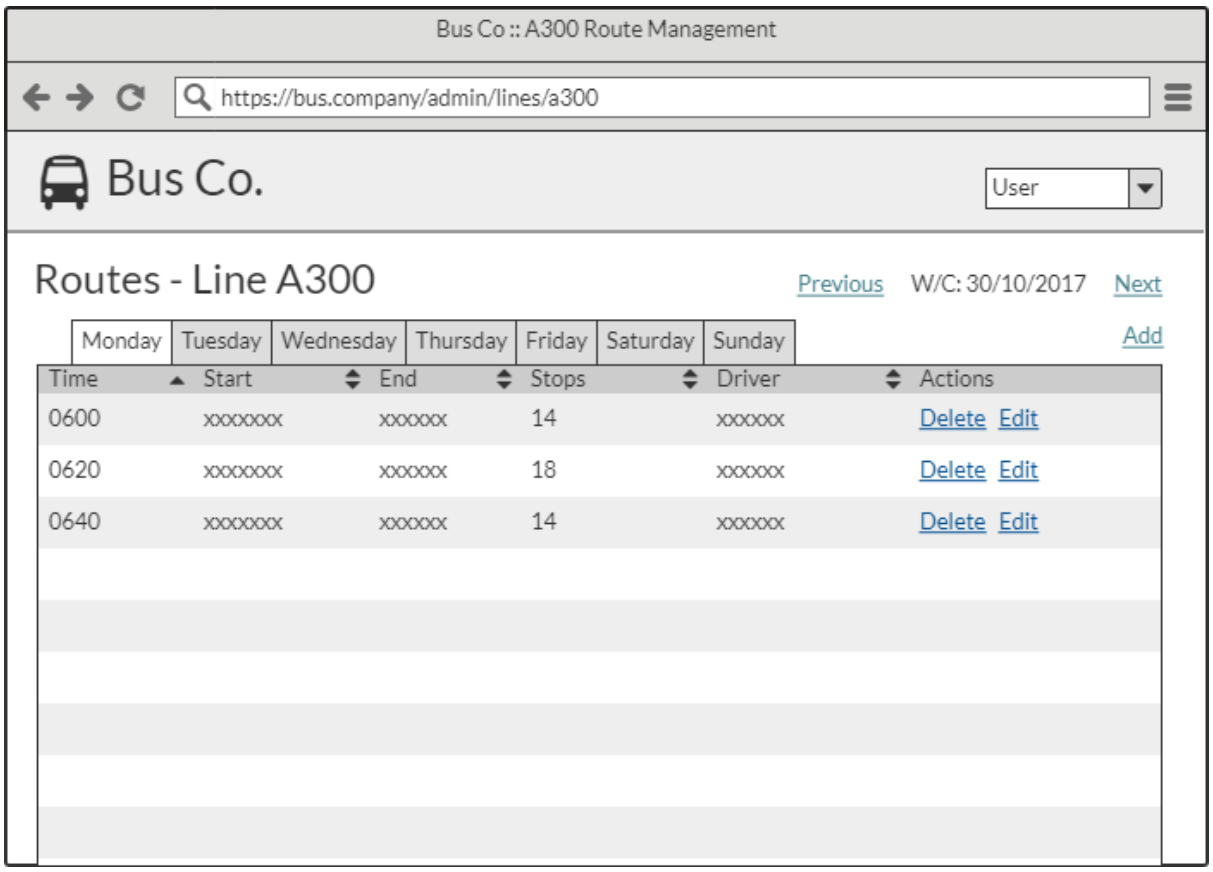
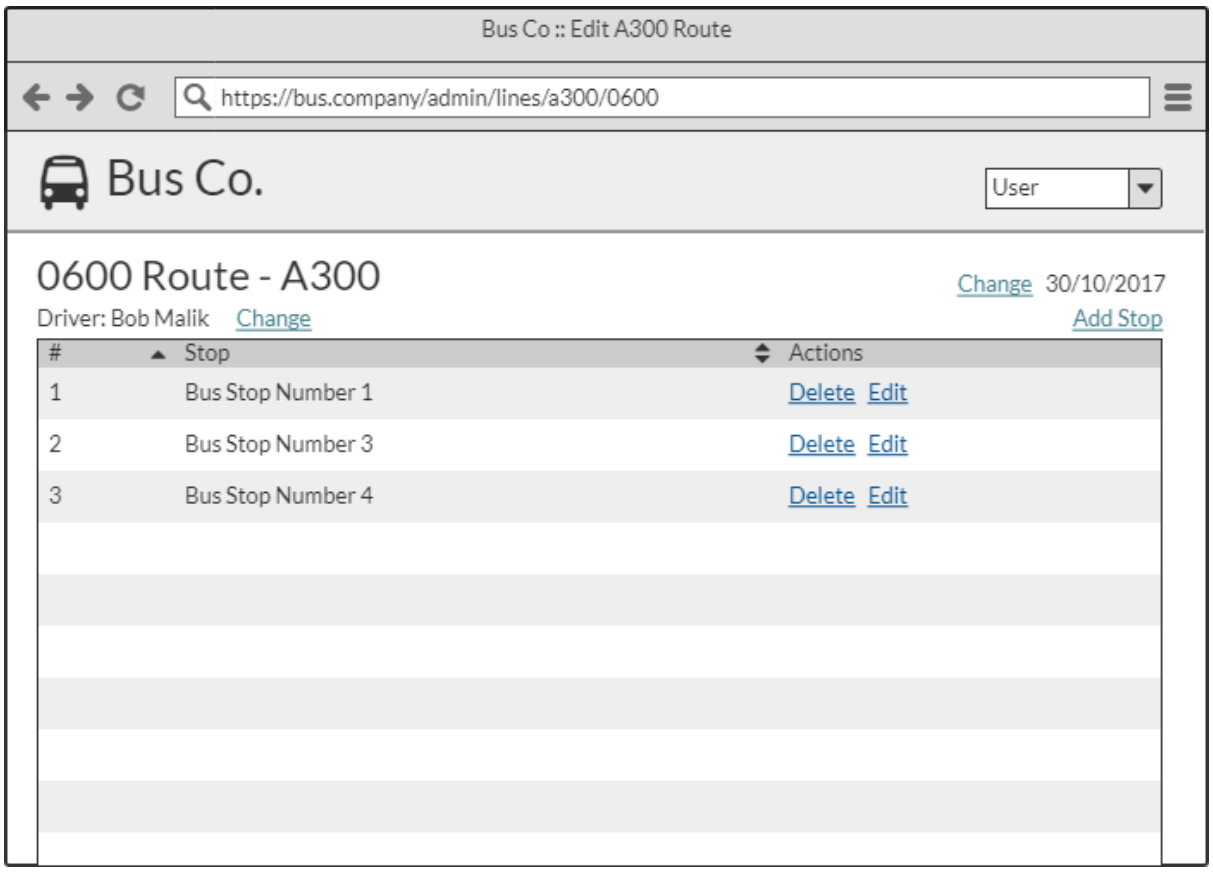
2.3.7 Driver Dashboard



2.3.8 Line Management



2.3.9 Route Management



2.3.10 Route Editing