

CO550
Web Applications
Coursework 1

Design a Simple Web Database Application

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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 closer 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

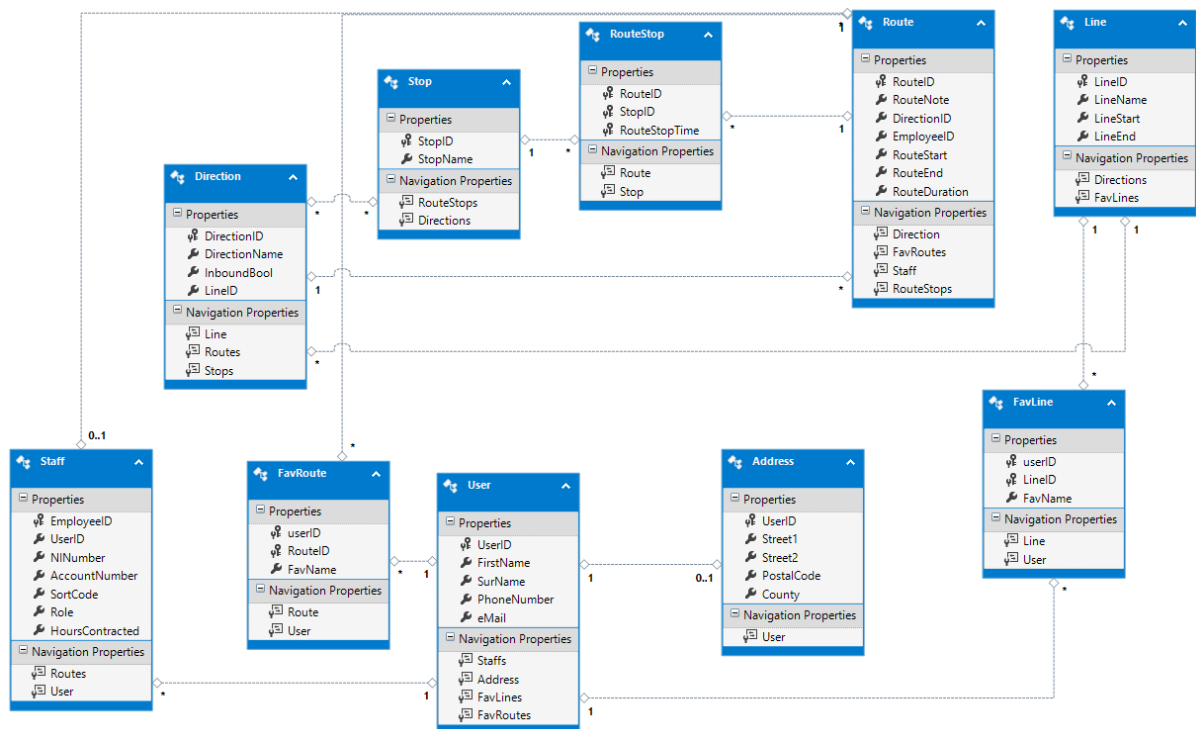
- Enable users to login and register
 - Normal (unprivileged users) can register anytime
 - Privileged users must be added by an admin
- Enable users and visitors to see bus timetables
- Enable registered users to save their favourite routes
 - Requires personal dashboard

- 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

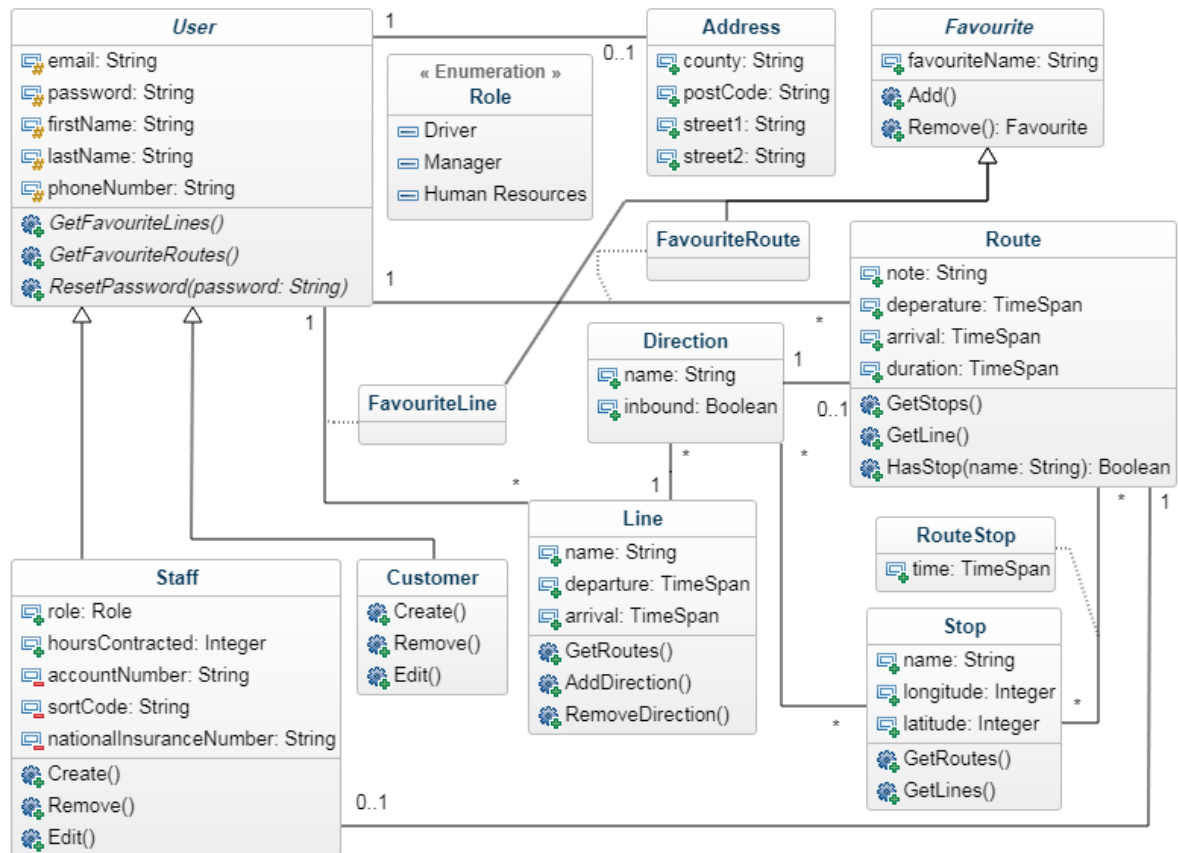
1.4 Outline of the Project

Diagrams & Schematics

2.1 Entity Relationship Diagram



2.2 UML Class Diagrams



2.3 Interface Prototypes

2.3.1 Homepage

The wireframe shows a web browser window titled "Bus Co :: Timetable Service". The address bar contains "https://bus.company". The page header includes the "Bus Co." logo, a search bar, and "Register" and "Login" buttons. The main content area features a search form with "From" and "Destination" dropdowns, a "Find Bus" button, and a large rectangular area labeled "background image". Below this is a "Routes" section with a sidebar containing links for "Buckinghamshire", "Sussex", "Cornwall", and "Other Regions", and a large empty rectangular area for route details.

Bus Co :: Timetable Service

https://bus.company

Bus Co. Search Register Login

From Destination Find Bus

background image

Routes

Buckinghamshire
Sussex
Cornwall
Other Regions

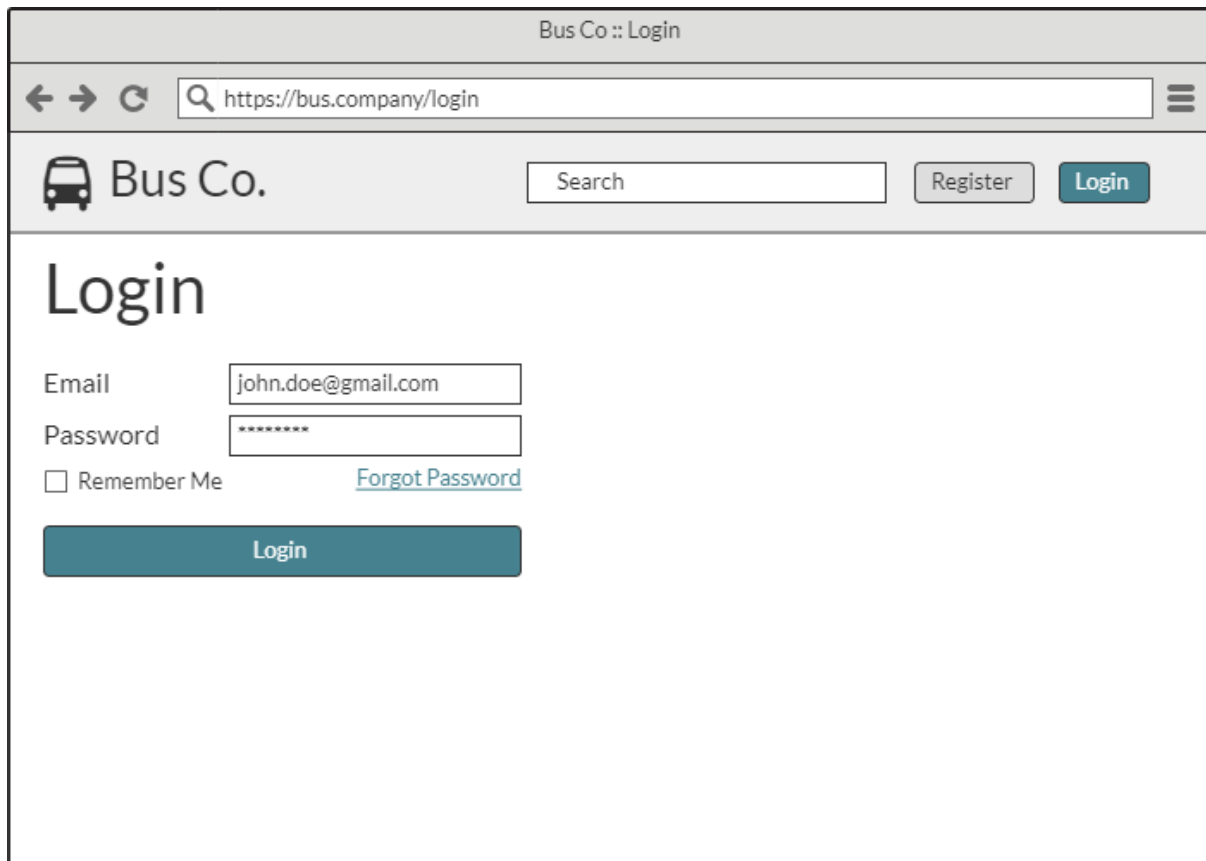
2.3.2 Login

Bus Co :: Login

← → ↺

Q 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

Bus Co :: Register

← → ↺

https://bus.company/register

☰


 Bus Co.

Search

Register

Login


Become a Member

Email	<input type="text" value="john.doe@gmail.com"/>	Street	<input type="text" value="2 Jane Street"/>
First Name	<input type="text" value="John"/>	Town	<input type="text" value="High Wycombe"/>
Last Name	<input type="text" value="Doe"/>	County	<input type="text" value="Buckinghamshire"/>
Date of Birth	<input type="text" value="20 / 5 / 1997"/> 	Post Code	<input type="text" value="HP11 0QS"/>
Password	<input type="password" value="*****"/>		
Confirm	<input type="password" value="*****"/>		
<input checked="" type="checkbox"/> I'm a full time student		<div>Register</div>	

2.3.4 Preferences

Bus Co :: Preferences

[←](#) [→](#) [↻](#)

 Bus Co. John Doe ▼

My Favourites

Preferences

Sign Out

Preferences

Account

Favourites

Email

Street

First Name

Town

Last Name

County

New Password

Post Code


Confirm

Current Password

Save

Bus Co :: Preferences

[←](#) [→](#) [↻](#)

 Bus Co. John Doe ▼

Preferences

Account

Favourites

Route Name	▲ Start	◆ End	◆ Remove
A300	High Wycombe	Aylesbury	yes
A300	Aylesbury	High Wycombe	yes


2.3.5 Route Details

Bus Co. :: Route A300

← → ↺

https://bus.company/route/a300

☰

 Bus Co.

Search

Register

Login

A300

High Wycombe to Aylesbury

★

↺

Today

Tomorrow

Other

Stop 1

1150

1250

1350

1450

1600

1700

1800

1900

2000

2100

2200

2330

Stop 2

1155

1255

1355

1910

Stop 3

1213

1407

1505

Route Map

10

2.3.6 Admin Panel

Bus Co :: Admin

← → ↻

🔍 https://bus.company/admin

☰

 Bus Co.

User ▾

Staff

See Stats, Add Modify

Go

Routes

Add, Delete, Modify, Assign Drivers

Go

Lines

Add, Delete, Modify

Go


2.3.7 Driver Dashboard

Bus Co :: Dashboard

← → ↺

https://bus.company/dashboard

☰

 Bus Co.

User ▾

Hi User,
You're working 30 hours this week
W/C: 30/10/2017

Previous Week

Print Timetable

Next Week

	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
Monday	A300				A300				A300					
Tuesday		A500							A300					
Wednesday	A300				A300				A300					
Thursday	A300				A300				A300					
Friday														
Saturday														
Sunday														

12


2.3.8 Line Management

Bus Co :: Line Management

← → ↺

https://bus.company/admin/lines

⋮

 Bus Co.

User ▾

Lines

[Add](#)

Line	Start	End	Actions
A500	xxxxxxx	xxxxxx	Delete Edit
A550	xxxxxxx	xxxxxx	Delete Edit
A300	xxxxxxx	xxxxxx	Delete Edit


2.3.9 Route Management

Bus Co :: A300 Route Management

← → ↺

https://bus.company/admin/lines/a300

☰

 Bus Co.

User ▾

Routes - Line A300

[Previous](#) W/C: 30/10/2017 [Next](#)

MondayTuesdayWednesdayThursdayFridaySaturdaySunday

Time

Start

End

Stops

Driver

Actions

0600

xxxxxxx

xxxxxx

14

xxxxxx

[Delete](#) [Edit](#)

0620

xxxxxxx

xxxxxx

18

xxxxxx

[Delete](#) [Edit](#)

0640

xxxxxxx

xxxxxx

14

xxxxxx

[Delete](#) [Edit](#)

[Add](#)

14


2.3.10 Route Editing

Bus Co. :: Edit A300 Route

← → ↺

https://bus.company/admin/lines/a300/0600

☰

 Bus Co.

User ▾

0600 Route - A300

[Change](#) 30/10/2017

Driver: Bob Malik [Change](#)

[Add Stop](#)

#	Stop	Actions
1	Bus Stop Number 1	Delete Edit
2	Bus Stop Number 3	Delete Edit
3	Bus Stop Number 4	Delete Edit