React.js Exam – Train System

Use the web server from the resources, install all its dependencies and run it via node. It will respond on port 5000.

Problem 1. Create a React application

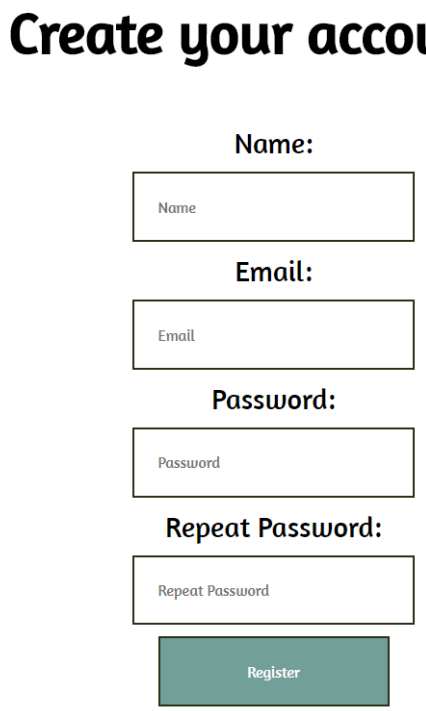
Create a React application and prepare the initial project structure. You will be creating a **system for booking train tickets**. **Anonymous** users can view the **catalog** (all trains) and their **details**, but in order to **add** tickets to the **cart**, **checkout** and view their **profile** (owned tickets) they have to **login/register** into the system. You may use and extend the provided **HTML mock**, or write your own HTML, if you think it will save time – application appearance will **not** be evaluated.

Problem 2. Add Authentication

Make sure to **validate** all form values on the front-end and provide appropriate **error messages** to the user. The **name** and **e-mail** fields must not be empty and the **password** must be at least 4 characters long.

User Registration (Sign Up)

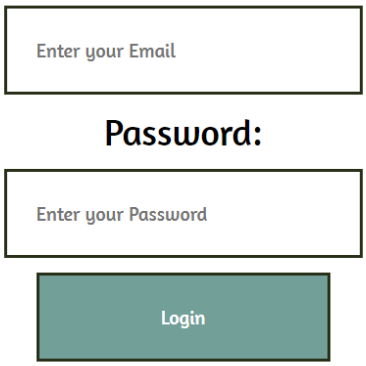
To register a user, you need to send a **POST** request to the server on "**/auth/signup**" with "**name**", "**email**" and "**password**" data (sent as JSON):



`POST http://localhost:5000/auth/signup`	
Headers	`Content-Type: application/json`
Request body	`{ "name": "new_userd", "email": "pass1d23@abv.bg", "password": "New User" }`
Success	`{ "success": true, "message": "You have successfully signed up! Now you should be able to log in." }`
Error response	`{ "success": false, "message": "E-mail already exists!" }`

User Login

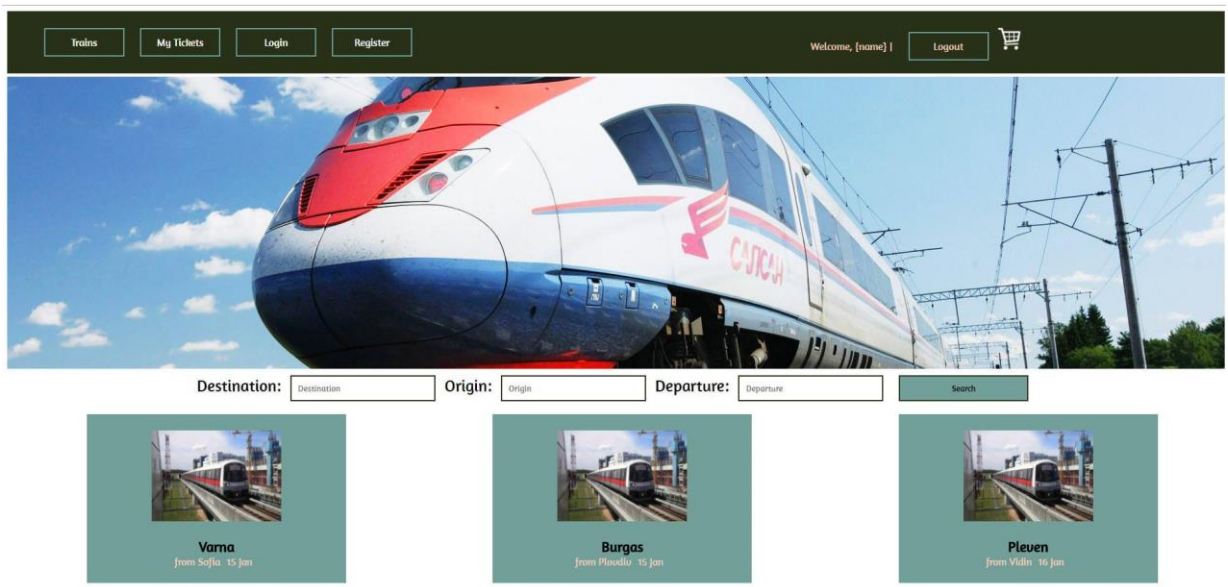
To login a user, you need to send a **POST** request to the server on "/**auth/login**" with "**email**" and "**password**" data (sent as JSON). You need to **save the user token** in your application state. Make sure you validate everything on the client application.

<table>
<tr><td rowspan="5"> 
</td><td colspan="2">POST http://localhost:5000/auth/login</td></tr>
<tr><td>Headers</td><td>Content-Type: application/json</td></tr>
<tr><td>Request body</td><td><pre>{
  "email": "pass1d23@abv.bg",
  "password": "New User"
}</pre></td></tr>
<tr><td>Success</td><td><pre>{
  "success": true,
  "message": "You have successfully logged in!",
  "token": "eyJhbGciOiJ9...",
  "user": {
    "name": "new_userd"
  }
}</pre></td></tr>
<tr><td>Error response</td><td><pre>{
    "success": false,
    "message": "Incorrect email or password"
}</pre></td></tr>
</table>

Successful login returns a "**token**" which is later used to authenticate the CRUD operations.

Problem 3. Catalog View (25 pts)

Add a view where all available **train trips** for today are listed. Each train has **origin** station, **destination** station, departure **time,** trip duration and **tickets**. Most trips have both first and second class seats, but some **only** have second class! You may use the same placeholder image for all thumbnails (as provided in the resources) or don't show any thumbnail.



GET http://localhost:5000/trips	

Success	[
	  {
	  "origin": "Sofia",
	  "destination": "Plovdiv",
	  "time": "14:30",
	  "arrives": "17:00",
	  "duration": "2:30",
	  "tickets": {
	  "firstClass": 11.3,
	  "secondClass": 9
	  },
	  "_id": "9fa23c73-ba0e-d271-f30e-44d66aa54016"
	  },
	  {
	  "origin": "Sofia",
	  "destination": "Plovdiv",
	  "time": "21:00",
	  "arrives": "23:15",
	  "duration": "2:15",
	  "tickets": {
	  "secondClass": 9
	  },
	  "_id": "ba955f48-fa36-16e3-c818-c0192b72e540"
	  },
	  // The rest of the trips
	]

Problem 4. Search Results (15 pts)

When the user uses the search option, display the results in a view, identical to the catalog. Send a **GET** request with query parameters **origin**, **destination** and **date** with format **dd-mm-yy**.

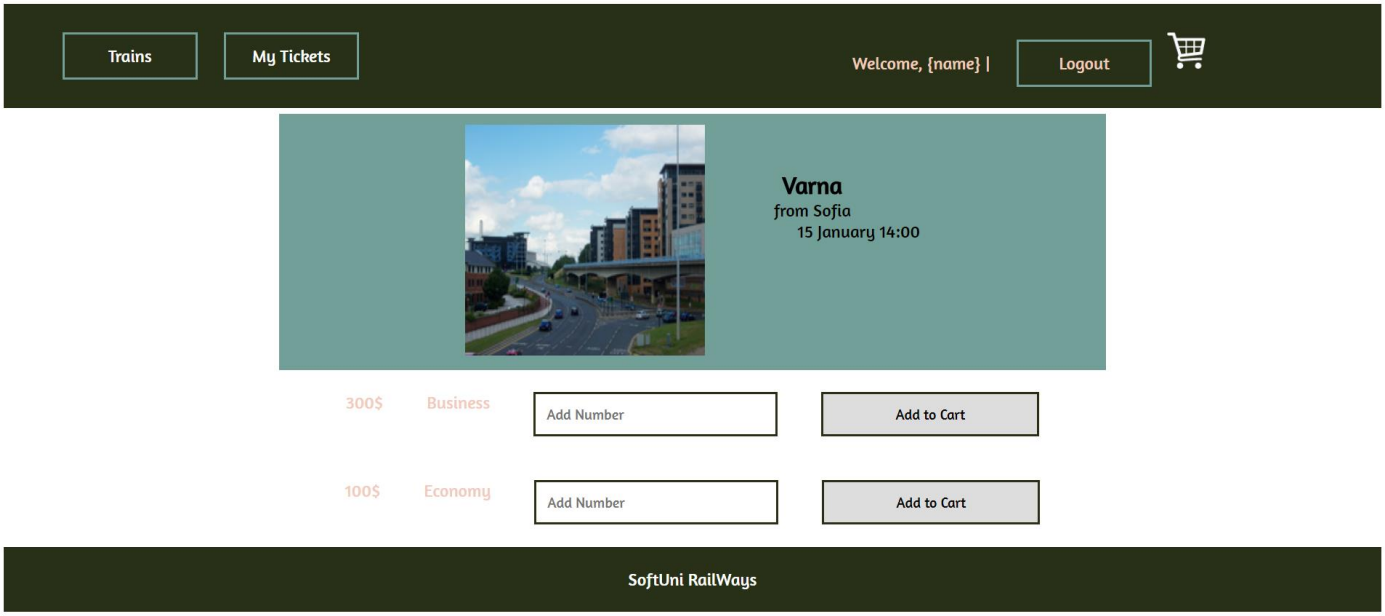
GET http://localhost:5000/search?origin=Sofia&destination=Plovdiv&date=07-01-18	

Success	[
	  {
	  "origin": "Sofia",
	  "destination": "Plovdiv",
	  "time": "14:30",
	  "arrives": "17:00",
	  "duration": "2:30",
	  "tickets": {
	  "firstClass": 11.3,
	  "secondClass": 9
	  },
	  "_id": "9fa23c73-ba0e-d271-f30e-44d66aa54016"
	  },
	  // The rest of the trips
	]

Error 401	{
	  "error": "Missing query parameter: destination"
	}

Problem 5. Trip Details View (20 pts)

Clicking on each **individual** train trip leads to a **details** page where **information** about the **trip** is shown (destination, origin, date, time, image), a list of **seats** for the train (each seat has **price** and **type**) and also a **form** for adding tickets (each ticket has a **number** of **seats** for the given train). This route is only for authenticated users so you need to send a header with "**Authorization**" name and value "**bearer {token}**" in order to pass the authentication checks. Make sure your React application **redirects to the login page**, if the user tries to open the trip details page and they're not logged in.

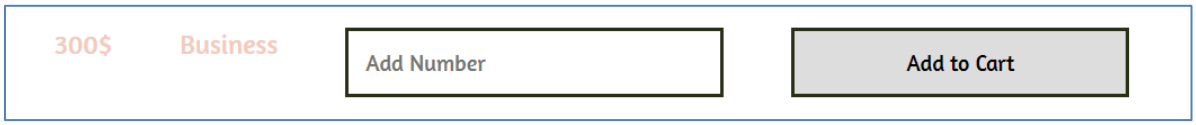


GET http://localhost:5000/trips/1424c9fa-e759-cbcf-bca8-4edb8b0f9366	
Request headers	Authorization: bearer <authToken>

Success	{
	"origin": "Sofia",
	"destination": "Burgas",
	"time": "06:40",
	"arrives": "13:05",
	"duration": "6:25",
	"tickets": {
	"firstClass": 26,
	"secondClass": 20.9
	},
	"_id": "1424c9fa-e759-cbcf-bca8-4edb8b0f9366"
	}

Problem 6. Add Ticket to Cart (15 pts)

Clicking **[Add to Cart]** sends a **POST** request with the **id** of the **train trip**, the **number** of tickets that the user has **typed,** and the selected **class**. This route is only for authenticated users so you need to send a header with "**Authorization**" name and value "**bearer {token}**" in order to pass the authentication checks. Make sure your React application **redirects to the login page**, if the user tries to open the hotel details page and he's not logged in.



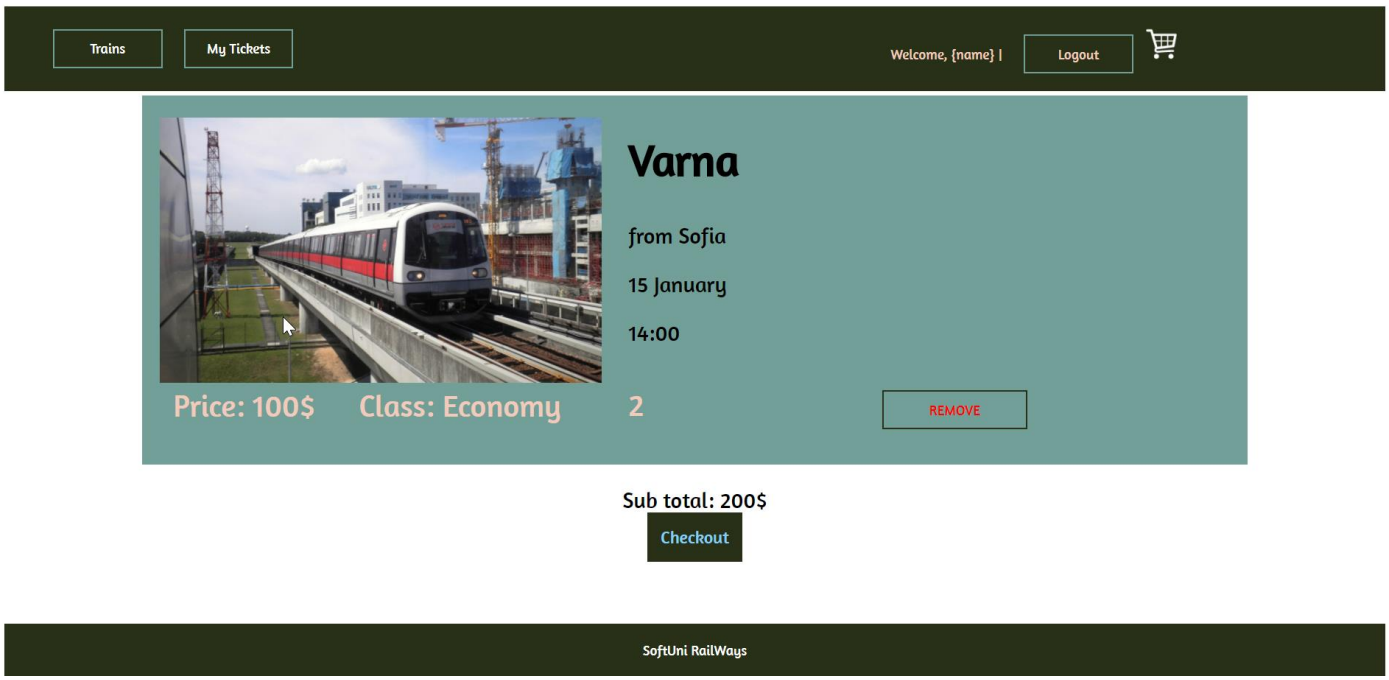
POST http://localhost:5000/cart	
Headers	Content-Type: application/json Authorization: bearer <authToken>
Request body	{ "tripId": 1424c9fa-e759-cbcf-bca8-4edb8b0f9366, "date": "07-01-18", "class": "secondClass", "count": 2 }
Success	{ "success": true, "message": "Tickets added to cart", "ticket": { "tripId": "1424c9fa-e759-cbcf-bca8-4edb8b0f9366", "date": "07-01-18", "class": "secondClass", "count": 2, "_id": "889664b5-2319-cb9a-9f79-db2fcf2720da" } }

Problem 7. Manage Ticket Cart (15 pts)

This route is only for authenticated users so you need to send a header with "**Authorization**" name and value "**bearer {token}**" in order to pass the authentication checks. Make sure your React application **redirects to the login page**, if the user tries to open the cart details page and they're not logged in.

List all Tickets added to Cart (5 pts)

Create a **Cart** view where all information about each **train trip** is listed (destination, origin, date, time, seat price, seat type and number of tickets) and also a **subtotal** of the **purchase** (sum of number of **tickets * price** for all tickets in the cart).



GET http://localhost:5000/cart	
Request headers	Authorization: bearer <authToken>

Success	[
	  {
	  "tripId": "1424c9fa-e759-cbcf-bca8-4edb8b0f9366",
	  "origin": "Sofia",
	  "destination": "Burgas",
	  "date": "07-01-18",
	  "time": "06:40",
	  "arrives": "13:05",
	  "duration": "6:25",
	  "class": "secondClass",
	  "price": 20.9,
	  "count": 2,
	  "_id": "03ed8bc0-898c-539f-a9aa-33ff8f2bfaf3"
	  },
	  // The rest of the tickets
	}

Remove Tickets from the Cart (10 pts)

Clicking **[Remove]** should delete the train trip from the Cart.

DELETE http://localhost:5000/cart/03ed8bc0-898c-539f-a9aa-33ff8f2bfaf3	
Headers	Authorization: bearer <authToken>

Success	{
	  "success": true,
	  "message": "Tickets removed from cart"
	}

Checkout

Clicking **[Checkout]** sends **POST** request with no body and the server will take care of all **tickets** as bought.

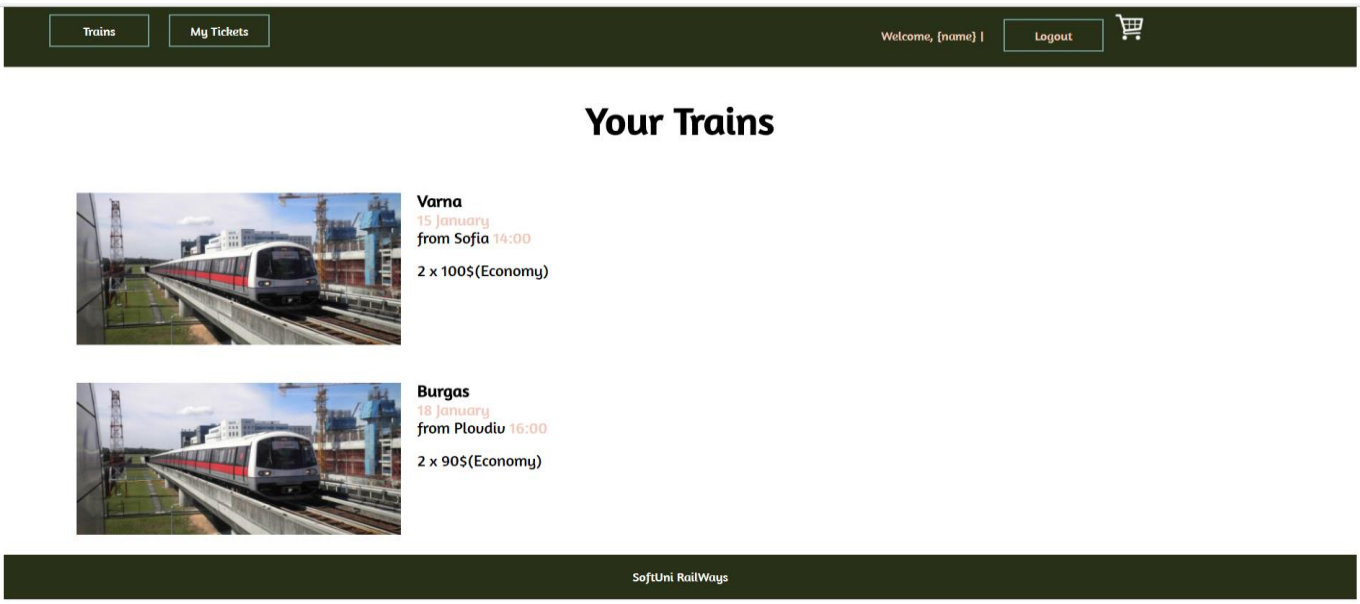
POST http://localhost:5000/cart/checkout	
Headers	Authorization: bearer <authToken>

Success	{
	  "success": true,
	  "message": "Ticket purchase confirmed"
	}

Error response	{
	  "success": false,
	  "message": "No tickets in cart."
	}

Problem 8. Profile View (My Tickets) (10 pts)

Clicking **[My Tickets]** in the **navigation** should render a view where all **user bought tickets** are displayed (destination, origin, date, time, duration, number of tickets, price and seat class for each ticket). This route is only for authenticated users so you need to send a header with "**Authorization**" name and value "**bearer {token}**" in order to pass the authentication checks. Make sure your React application **redirects to the login page**, if the user tries to open the profile page and they're not logged in.



GET http://localhost:5000/cart/history	
Request headers	`Authorization: bearer <authToken>`
Success	`[{ "user": "pesho@abv.bg", "tripId": "1424c9fa-e759-cbcf-bca8-4edb8b0f9366", "origin": "Sofia", "destination": "Burgas", "date": "07-01-18", "time": "06:40", "arrives": "13:05", "duration": "6:25", "class": "firstClass", "price": 26, "count": 3, "_id": "57031467-8958-4bfe-13c2-03a49deb05cd" } // The rest of the tickets]`

Problem 9. (Bonus) Use a State Management Library (10 points)

You may optionally store your data and state, using a state management library, such as Flux, Redux, MobX or similar. For this task to count as completed, you must store and retrieve the **balance** and **expense** information through the library. Partial points will be awarded, but chose wisely.