



# Advanced Web Programming

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# Lab 2

# Assignment 1. Data Modeling

1. Create a **User** type / interface: id, username, email, role (must be either “admin” or “user”)
2. Create an array of users and a function to log their info.

# Assignment 2. Functional Types & Logic

1. Write a function **calculateTax** that takes **price**: number and an optional **taxRate**: number.
2. Use **Union Types** to create a **Status** type (“loading” / “success” / “error”).
3. Write a function that returns a specific message based on the status.

# Assignment 3. Defining Component Props

1. Reuse the **User** type / interface from Exercise 1.
2. Define a new type / interface named **UserListProps**. This interface must include:
  - title: A string representing the heading of the list.
  - users: An array of User objects (User[]).
3. Create a function (simulating a React Component) named **UserList**. This function should accept one argument of type **UserListProps**.  
Inside the function, loop through the users array using `.forEach()` or `.map()` and `console.log` a string formatted as: “ID: [id] - Username: [username] ([role])”.
4. Create a mock array of users and call the **UserList** function with the correct arguments.

# Assignment 4

- Create a React App with a TypeScript template
- Move the code in Lab 1 from the React JS project to the React TS project
- Define new types (object models)
- Update components using TypeScript
- Pass data to components and update the code to run them.  
Pass a Product list (array) to the Home and Category pages and use the map() function to display the Product items in the list

# Assignment 5

- Write HTML code for the category management (view) and adding a new category pages
- Create components the pages and import them to the project.