Character Builder

Introduction

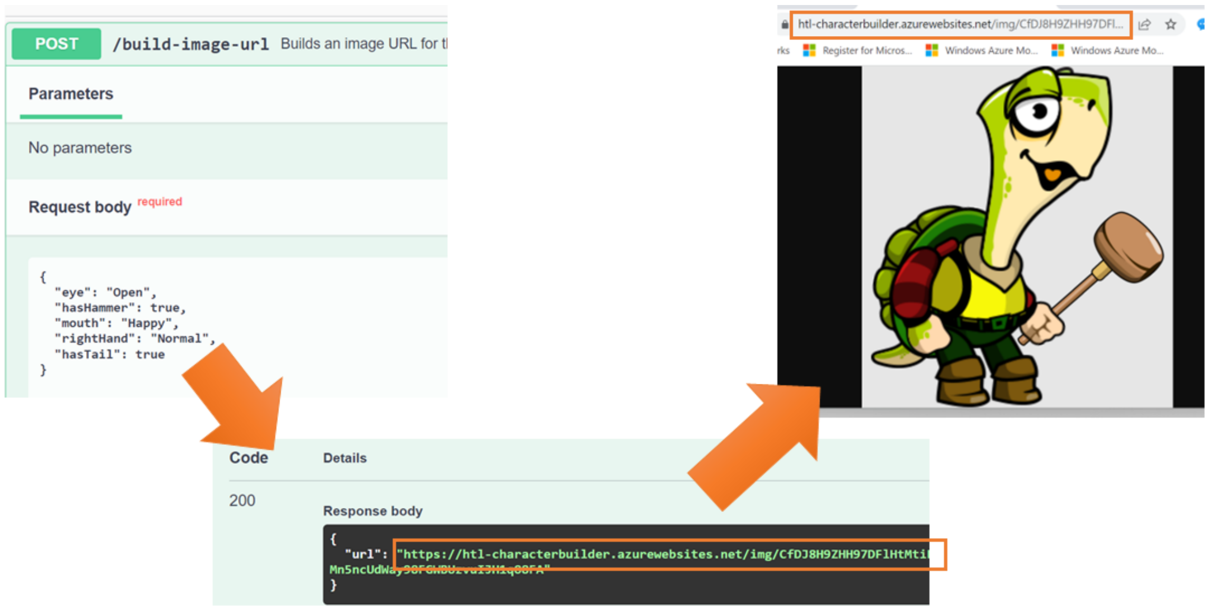
Many companies offer configuration web apps for their products (e.g. configure a car online, configure your kitchen online). In this exam, you create a simplified configuration app. Instead of cars or kitchens, we configure a comic character.

Web API

The Web API for configuring our character is available at *https://htl-characterbuilder.azurewebsites.net*. The Swagger API documentation can be found at https://htl-characterbuilder.azurewebsites.net/swagger/index.html. The Swagger UI allows you to test the API. The API's C# source code is also included in the folder api. If you prefer to run the API locally, you can do that with that source code.

> Start the exercise by making yourself familiar with the API. Read the included documentation carefully. Try it using Swagger.

The following image illustrates the relation between the API endpoints:



```
{
  "eye": "Open",
  "hasHammer": true,
  "mouth": "Happy",
  "rightHand": "Normal",
  "hasTail": true
}
```

```
{
  "url": "https://htl-characterbuilder.azurewebsites.net/img/CfDJ8H9ZHH97DFlHtMti
Mn5ncUdWay98FGWBUzvuI3H1q08FA"
}
```

Figure 1: API Endpoints

Minimum Requirements

To get a positive grade, you must implement the following minimum requirements:

- Create an Angular 15 web app.
- Accessing the web API must be encapsulated in an Angular service.
- The web app must contain a route */build* that leads to the *character builder*.
- The character builder consists of a form in which the user can enter the image options (see Swagger documentation of Web API for details). Use proper input controls and Angular two-way data binding to implement the form. Offer a button that triggers the displaying of the generated image based on the image options that the user entered. Here is a screenshot of how the UI could look like:

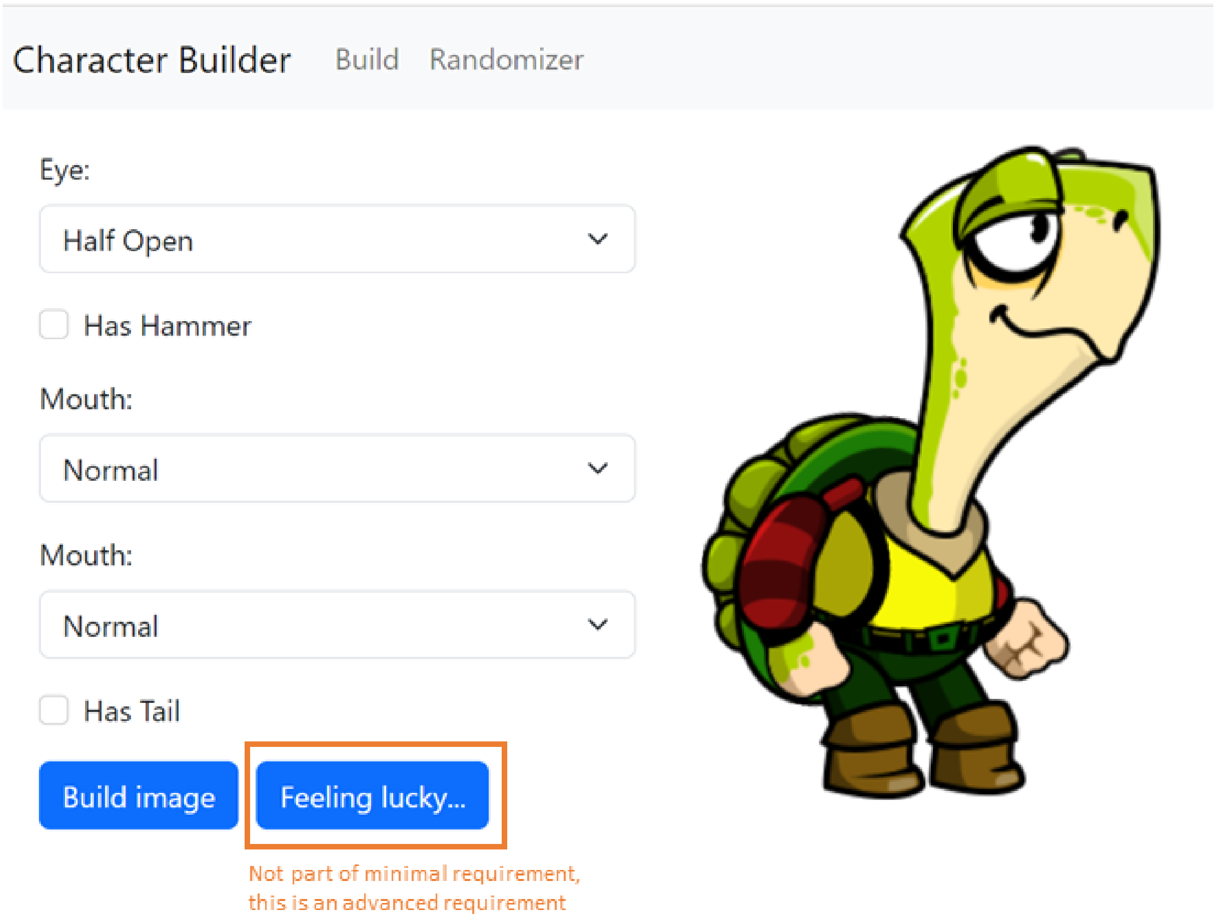


Figure 2: Builder UI

- Focus on the functionality of the app, UI design is less important for minimum requirements.

Advanced Requirements

Implement the following requirements to get more than just a positive grade. The grade is determined by the completeness and quality of your implementation.

- The design of your UI must be clean and tidy. You can use a CSS framework like e.g. Bootstrap or Angular Material, but you are not required to.
- Add a button *Feeling lucky…* to the character builder form. If the user clicks it, you have to call the */get-random-image-options* API to generate random image options. Update the form's content based on the result of the web API.
- Refresh the displayed character image automatically after the user clicked *Feeling lucky…* and you have updated the form's content.
- Add a second route *randomizer*.
  - Generate a random character image and display it.
  - Offer a + button to zoom in (i.e. make the image larger) and a - button to zoom out (i.e. make the image smaller). Use the *scale* parameter of the */img* Web API for that. Do *not* generate a new, random image when zooming.
  - Offer a *Next* button to randomly generate another character image.
  - Here is a screenshot of how the randomizer could look like:

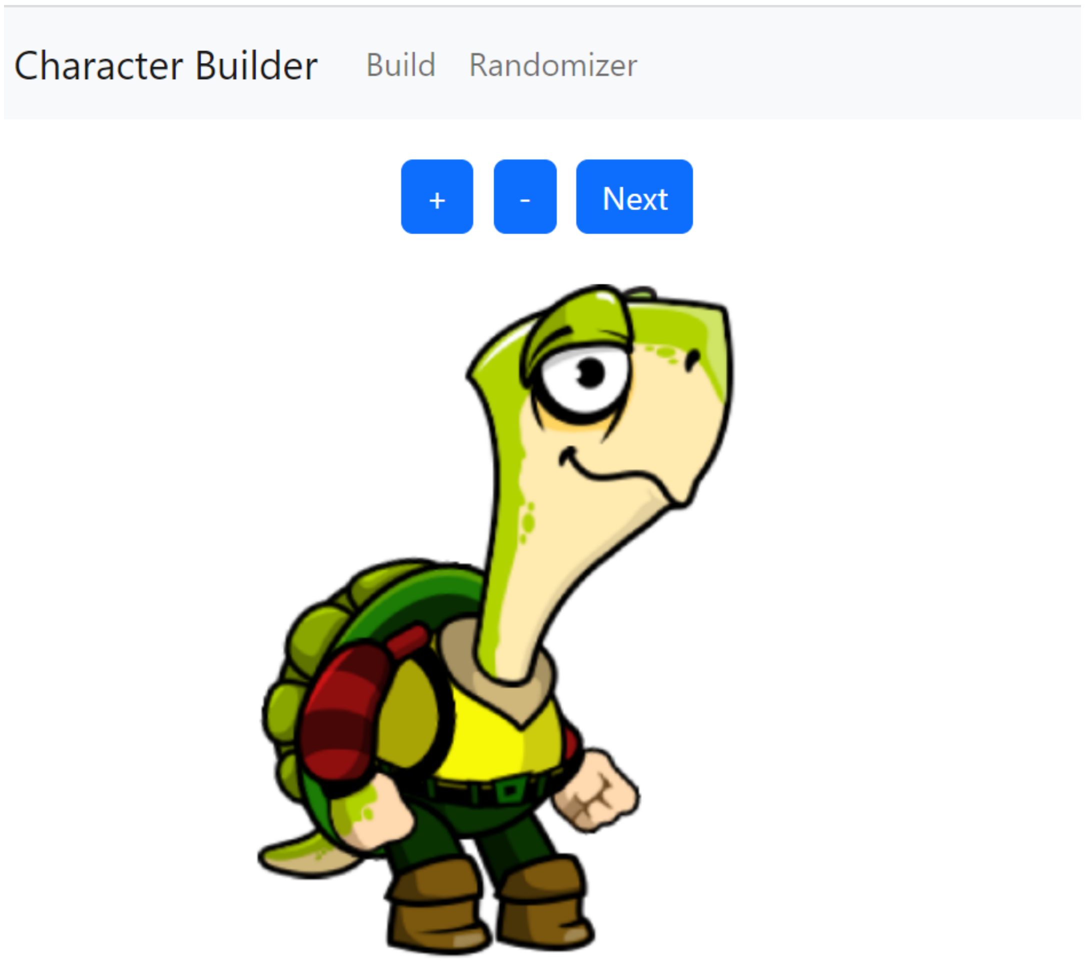


Figure 3: Randomizer

Working UI

You can try a working implementation of the UI at https://htl-characterbuilder-ui.azurewebsites.net. The code has been compiled in production mode and is therefore minified. That means that you cannot copy code from this sample solution.