

COMSM0104 — Web Technologies Report

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1 Introduction

Case Closed, also known as Detective Conan, which is a Japanese detective manga series written and illustrated by Gosho Aoyama. We have developed a two-page website for briefly introducing this popular story. All source codes have been updated and pushed to <https://github.com/yxqiu1997/Web-Technologies>. Unzip the submitted zip file from Blackboard or download codes from GitHub and run *npm install* and *npm start* will get the server running at <http://localhost:3000>.

2 Technique Estimation

2.1 HTML - A

Two HTML files have been written for the home section (`views/index.html`) and the gallery section (`public/pages/gallery.html`) respectively. Both of them are responsive and we have practised a variety of HTML techniques, including:

1. Linking hand-writing styles and scripts files, and open-source font and scroll CDN files.
2. Flexible uses of common HTML elements and practices of HTML page structuring.
3. Uses of HTML attributes like `href`, `src`, `height` and `width`.
4. Proper use of comments to improve the readability of codes.

We have investigated a variety of different issues and got a general high level of confidence with the structure of HTML pages.

2.2 CSS - A

Both HTML files have a corresponding style file, which lies in `public/stylesheets`. No framework is used in this section and a variety of original CSS techniques are used, including:

1. Proper uses of element selectors.
2. Flexible uses of a variety of CSS properties.
3. Combined uses of different layout tricks (`float` and `flexbox`).
4. Content negotiation for browsers with different cores by adding prefixes.
5. Animation for taking place of part of JavaScript work.
6. Proper use of comments to improve the readability of codes.

We have faced a variety of challenges when using original CSS and addressed all encountered problems. We are now confident of our CSS skills.

2.3 JavaScript - B

We have written a number of scripts with different issues involved, including:

1. Global path definition of using sqlite3 in Express and setup for the back-end database.
2. Creating category a filter for the implementation of dynamic pages.
3. Sending typed email address to the database.
4. Disappearance and appearance of navigation list when changing the browser size.
5. Creating triggers for CSS animations.

As the assignment brief saying, we have realised some CSS animations to improve the score under JS heading.

2.4 PNG - A

All images in index.html and the first three rows images in gallery.html are downloaded from Google Image with the keyword "Detective Conan" and processed by GIMP.

1. Techniques such as coloring in, fuzzy select tool, and bucket fill tool are used to draw svg files to a complete image and export as png file.
2. Normal features such as brush, color, pattern, fill, smudge, crop, cut, rotate, reflect, and scale are learned to process the images.
3. Hard-edge selection features are applied to mitigate the anti-aliasing problem and make the professional look of images; layers method is applied to keep different elements separate which is suitable for amendment; opacity feature to control the transparency of each pixel; filter feature to change a whole image with underlying functions to alter each pixel in specific ways.

The images are exported as png files when the processing is done.

2.5 SVG - A

Images in the forth row in gallery.html are drawn by Inkscape, processed and exported by GIMP. All original svg files can be found at [public/images/svg](#).

Inkscape is used to build svg files. Some files are drawn with built-in tools like rectangles, circles and straight lines, and some are drawn with free hand. Different techniques are acknowledged in the practicing process. For example, path editing tool is applied to fix the join up problem or modify the display of the lines or figures which are drawn by free hand; simplicity tool is applied to smooth the irregular lines or figures drawn by free hand. The drawings are exported from Inkscape as svg files and then being further processed by GIMP.

2.6 Server - B

Express is used as the server framework. We have dealt with issues including:

1. Setup for port number, which is 3000.
2. URL validation is realised by the regular expression. Since the collected email addresses will be sent to the database by following the added string "?email=" in URL, the regular expression will be used to check the validity of the generated URL.
3. Connection between the front-end and the back-end and processing asynchronous requests sent from the website.
4. Jump between two pages.

2.7 Database - B

There are two tables involved in the project, one is for collecting email addresses and another is for sending information of images under the category which is chosen by the user. The database has implemented:

1. Data insertion. Valid email addresses will be sent to the back end and inserted to the database.
2. Data extraction and the callback ensuring things to happen in the right order. When the user chooses one of the categories, the request will be sent and the database will return the message to display relevant images. The callback function ensures the images will appear in the right order.

2.8 Dynamic Pages - B

The dynamic page (gallery.html) is delivered by requesting data from the server and inserting into existing pages on the client side. For example, when the user clicks the "TV Series" label, the page will request the database to return the information of all images with the field "tv" in the right order and display the relevant images based on the returning data.

JavaScript is also used to realise dynamic pages. By clicking the label "Comics", the page will firstly hide all images and then display the images of the comic class.

2.9 Depth - 13

Most of our work is covered in the sections above. The most time-consuming part is the style part and we have implemented some good CSS animations which can truly improve the user experience. Also, our work of building svg files about cameras is nice.