Web Tech Report

Group members:
Patrick Liu(sl17143) Frank Chen(sc17141)

Brief introduction:

Our website is a blog site where you can share your blogs and pictures. You can find other users and follow them and access their content. We named our website “BlogLight” because it is simple, light-weight, nothing too fancy but it does what you need a blog site to do.

Functionalities implemented:

1. Register
2. Login system using SSO
3. Write a blog (which includes editing and deleting blogs)
4. View blogs with pagination
5. Upload images to the gallery (which includes editing and deleting images)
6. Drawing pictures with canvas
7. View gallery with pagination
8. Search for other users.
9. Follow and unfollow users.
10. Display followers and followings with pagination
11. View other users’ contents (blogs and gallery)
12. Shop system allowing users to top-up credits and use credits to buy products
13. Upload/change profile picture
14. Update account information (username and password)
15. Logout
16. Redirect users to login when session expires

Technical details:

HTML[Estimation: A]

- Various tags (links, forms, buttons, canvas, inputs, labels etc.)
- Webpages are divided into different sections with tags to allow more straightforward and simpler styling.
- Webpages are designed to be fluid, thus allowing screens of different sizes (PC screens).
- Used JQuery and Vue.js to dynamically generate HTML sections based on the information need to be displayed. (blogs and gallery etc.)

CSS[Estimation: A]

- Utilised Bootstrap framework for simplistic styling, which conforms to our aims, making the blog site simple and easy to use.
- Consistent styling across website with stylesheet.
- hover effects
- Different colouring of buttons based on importance (red colour for delete buttons etc.)

JavaScript[Estimation: A]

- Interaction with buttons.

- Handle http requests.
- User input checking (detecting illigel characters by regular expressions)
- Using callbacks, anonymous functions to loop through requests to display the images on gallery page
- Uploading images with different formats (PNG, JPG and GIF).
- Decoding images from server (Blob to base 64)
- Implemented canvas drawing, changing pen colour, undo and clear canvas by ourselves.
- Pagination in displaying items

PNG[Estimation: A]
- Image upload support PNG images.
- User-drawn images are saved as PNG images.
- All icons used in the website are PNG images drawn with Gimp. The tools used include the path tool, paintbrush and pencil tools etc. The background of icons are all set to transparent.

SVG[Estimation: A]
- Implemented canvas with drawing function and changing pen colour.
- Logo ‘BlogLight’ is drawn with Inkscape. We first drew the shape with pen and pencil and then scanned it as an image and imported it into Inkscape. Then we drew bezier curves to fit the shape of the logo, and added colour to it. It was then saved and included in the website as an SVG image.

Server[Estimation: A]
- Three server controllers: user_controller for SSO, blog_controller for ‘BlogLight’ and shop_controller for online-shop and transactions.
- MVC design pattern applied.
- Three servers process CORS.
- SSO gives and verify tokens(tickets) for blog server and shop server. Three servers also use caches and cookies storing sessionId(sid) for auto-login.
- Interceptor implemented for permission control with Aspect-Oriented-Programming.
- File upload using ‘multer’ and ‘fs’ module.
- Mutex locks are used for avoiding concurrency in shop service, using 'async-lock' module.
- Auto-test module implemented: ‘test.js’.
- Password is encrypted by md5

Database[Estimation: A]
- Separate storing and searching in sqlite3 using concept of foreign keys.
- CRUD, auto-increment indices, divided by pages and sorting.
- Key-value pair based cache storing using Redis.
- Transaction, commit and rollback used in shop service, especially for purchasing items.

Dynamic pages[Estimation: A]
- Render pages based on the information need to be displayed with Vue.js. (Different user would have different blog pages displaying their own content)
- Smooth and clear navigation.