

Project Documentation (Atomic eCover)

1. Introduction

This document 's purpose:

provide a detailed overview of the design and architecture of the Atomic eCover (MERN + Python) project.

The project aims to create a web application for users himself to create eBook covers and other photos from pre-designed mockups(psd files), without any other photo editing tools.

2. System Overview

The Atomic eCover project was developed by using the following technologies:

Front-end: React.js

Back-end: Node.js, Express.js, Python

Database: MongoDB

3. System Architecture

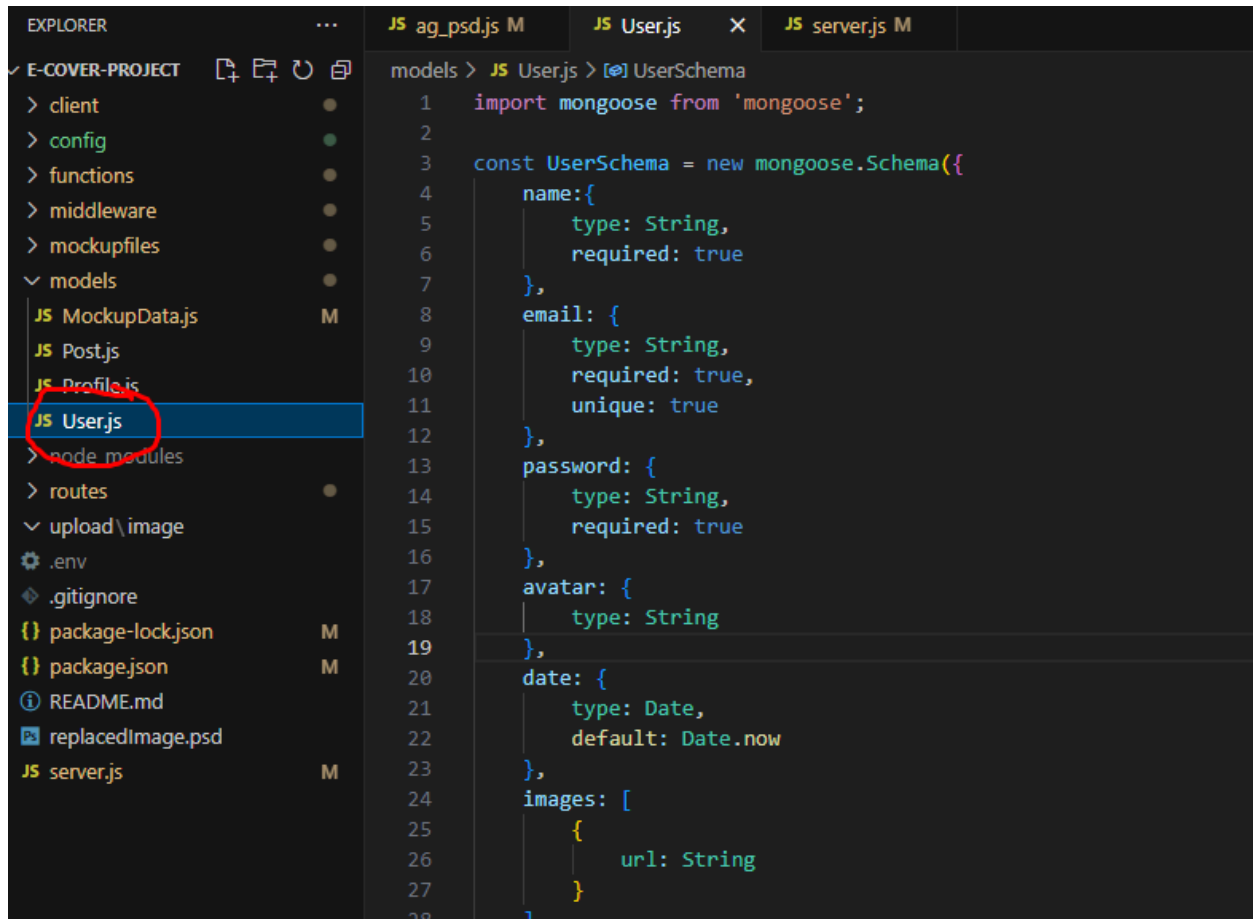
The system architecture will follow the MERN (MongoDB, Express.js, React.js, Node.js) stack. The front-end will be developed using React.js, which will communicate with the back-end API built using Node.js and Express.js. The data will be stored in a MongoDB database. Also psd-tools, python package, will be used for rendering changed psd files.

*** E-Cover design mockups comes from psd template files. But unfortunately, there is no npm or python package for controlling psd files, only exists static packages. And I couldn't find how to change and re-render psd files. So atomic ecover project will sort out this problem by combining ag-psd npm package and psd-tools python package. ***

4. Database Design

The MongoDB database will consist of the following collections:

4.1. Users Collection



```
1 import mongoose from 'mongoose';
2
3 const UserSchema = new mongoose.Schema({
4   name: {
5     type: String,
6     required: true
7   },
8   email: {
9     type: String,
10    required: true,
11    unique: true
12  },
13  password: {
14    type: String,
15    required: true
16  },
17  avatar: {
18    type: String
19  },
20  date: {
21    type: Date,
22    default: Date.now
23  },
24  images: [
25    {
26      url: String
27    }
28  ]
29 })
```

Fields:

id: Unique identifier for the user.

name(String): Name of the user.

email(String): Email address of the user.

password(String): Encrypted password of the user.

images(Array): image urls uploaded by user.

covers(Array): array of saved covers infor.

4.2. MockupData Collection

```
EXPLORER
E-COVER-PROJECT
  > client
  > config
  > functions
  > middleware
  > mockupfiles
  > models
    JS MockupData.js M
    JS Post.js
    JS Profile.js
    JS User.js
  > node_modules
  > routes
  > upload\image
  .env
  .gitignore
  {} package-lock.json M
  {} package.json M
  README.md
  Ps replacedImage.psd
  JS server.js M

JS ag_psd.js M
JS User.js
JS MockupData.js M X
JS se

models > JS MockupData.js > dataSchema > mugTransform
1  import mongoose from 'mongoose';
2
3  const rectTransformSchema = new mongoose.Schema({
4    transform: [Number],
5    perTransform: [Number],
6    layerWidth: Number,
7    layerHeight: Number,
8  });
9
10
11  const dataSchema = new mongoose.Schema({
12    success: Boolean,
13    width: Number,
14    height: Number,
15    psdWidth: Number,
16    psdHeight: Number,
17    ifMug: Boolean,
18    ifSpin: Boolean,
19    mugTransform: {
20      width: Number,
21      height: Number,
22      xOffset: Number,
23      yOffset: Number,
24      aRadius: Number,
25      bRadius: Number,
26      scaleFactor: Number,
27      parameterY: Number
```

*** This collection will be initialized when database is connected to express server.

Fields:

id: Unique identifier for the MockupData.

group(String): mockup group name.

mockups(Array): array of mockup names included to this group.

data(Array): array of mockup infors

success: Boolean,

width: Number,

height: Number,

```
psdWidth: Number,
psdHeight: Number,
ifMug: Boolean,
ifSpin: Boolean,
mugTransform: {
  width: Number,
  height: Number,
  xOffset: Number,
  yOffset: Number,
  aRadius: Number,
  bRadius: Number,
  scaleFactor: Number,
  parameterY: Number
},
spinWidth: Number,
ifSpinSplite: Boolean,
ifRectSplite: Boolean,
spinSpliteWidth: Number,
spinSpliteHeight: Number,
rectSpliteWidth: Number,
rectSpliteHeight: Number,
rectTransform: [rectTransformSchema],
spineTransform: rectTransformSchema,
spinSpliteTransform: rectTransformSchema,
rectSpliteTransform: rectTransformSchema
  rectTransformSchema
    transform: [Number],
    perTransform: [Number],
```

layerWidth: Number,

layerHeight: Number,

*** There are also Post and Profile schema, but those are for the future.

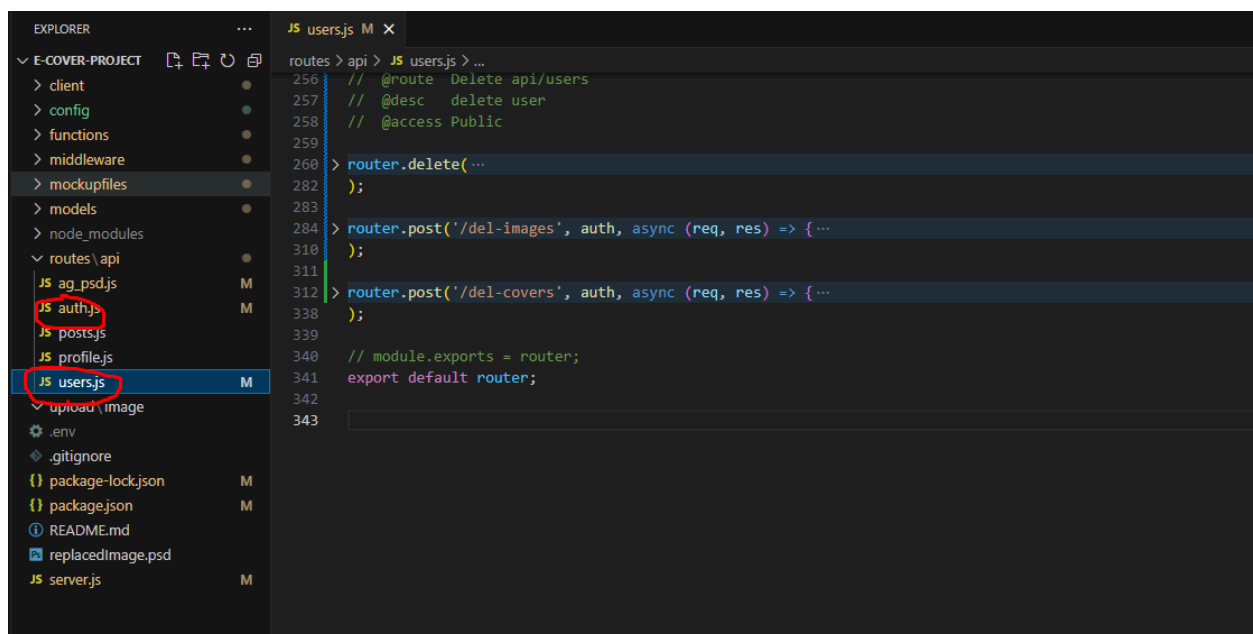
5. API Endpoints

This is an atomic eCover project 's API Document that describing api 's http method, path, request and response.

Base URL of APIs in case of dev version: <http://localhost:5000/>

In case of build version: domain address, ex: <https://atomiccovers.com/>

5.1. User Endpoints



/ Get all users

- Method: GET

- URL: `/api/users/all-users`

- Description: Retrieve a list of all users.

- Response:

- Content-Type: application/json
- Body:
 - List of users (array)

/ Get user

- Method: GET
- URL: `/api/auth`
- Description: Retrieve a user.
- Response:
 - Content-Type: application/json
 - Body:
 - user

/ Register a new user

- Method: POST
- URL: `/api/users`
- Description: Create a new user.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - username (string): The username of the user.
 - email (string): The email of the user.
 - password (string): The password of the user.
- Request Body:
 - Content-Type: application/json
 - Parameters:

- success (string): success to register.

/ Login

- Method: POST
- URL: `/api/auth`
- Description: Authenticate user and get token.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - email (string): The email of the user.
 - password (string): The password of the user.
- Response:
 - Content-Type: application/json
 - Body:
 - access_token (string): The access token for authentication.

/ Update user password

- Method: POST
- URL: `/api/users/change-pass`
- Description: Update user password.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - email (String): User email.
 - password (String): The password have to be changed.
- Response:

- Content-Type: application/json
- Body:
 - success (string): success to update.

/ Update user name

- Method: POST
- URL: `/api/users/change-name`
- Description: Update a user name.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - email (String): User email.
 - name (String): The name have to be changed.
- Response:
 - Content-Type: application/json
 - Body:
 - success (string): success to update.

/ Update user name and password

- Method: POST
- URL: `/api/users/change-name-pass`
- Description: Update a user name and password.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - email (String): User email.

- name (String): The name have to be changed.
- password (String): The password have to be changed.
- Response:
 - Content-Type: application/json
 - Body:
 - success (string): success to update.

/ Delete user

- Method: DELETE
- URL: `/api/users/:email`
- Description: Delete a user by their ID.

/ Delete user

- Method: DELETE
- URL: `/api/users/:email`
- Description: Delete a user by their ID.

/ Delete uploaded images

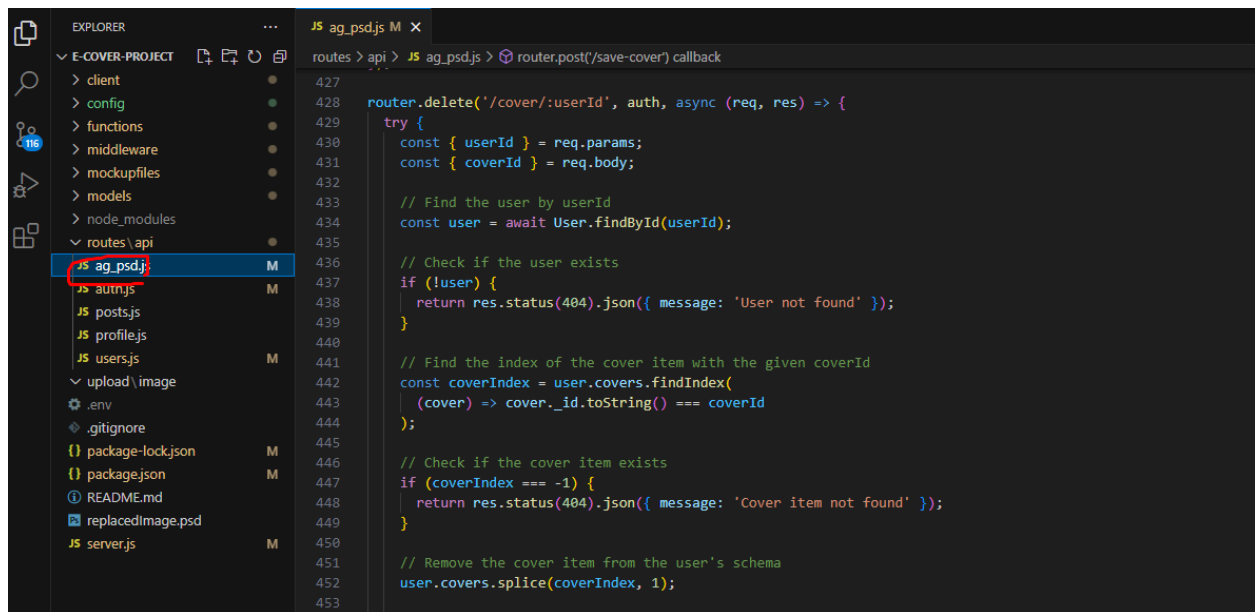
- Method: POST
- URL: `/api/users/del-images`
- Description: Delete all uploaded images.

/ Delete saved covers

- Method: POST
- URL: `/api/users/del-covers`

- Description: Delete all saved covers.

5.2. PSD and Image Feature Endpoints



/ Get all Mockup datas

- Method: POST
- URL: `/api/ag-psd/all-mockup`
- Description: Retrieve a all mockup datas.
- Response:
 - Content-Type: application/json
 - Body:
 - all mockup datas

/ Get Mockup data by mockup name

- Method: GET
- URL: `/api/ag-psd/mockup/:mockup`

- Description: Retrieve a mockup data by it's name.
- Response:
 - Content-Type: application/json
 - Body:
 - Mockup data

/ Upload Image

- Method: POST
- URL: `/api/ag-psd/upload-image`
- Description: Upload image to aws s3 bucket.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - file(FormData): image file
- Response:
 - Content-Type: application/json
 - Parameters:
 - success (string): success to register.

/ Get all uploaded images

- Method: GET
- URL: `/api/ag-psd/all-upload-image`
- Description: get all images uploaded by user.
- Response:
 - Content-Type: application/json
 - Parameters:
 - List of image urls.

/ Change and re-render Mockup

- Method: POST
- URL: `/api/ag-psd/render-image`
- Description: Replace layer images and re-render psd file.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - rectImage(Image Data): Image Data have to be changed with mm_image:YourImage layer.
 - spineImage(Image Data): Image Data have to be changed with mm_image:Spine layer.
 - rectSplitImage(Image Data): Image Data have to be changed with mm_image:RectSplite layer.
 - spineSplitImage(Image Data): Image Data have to be changed with mm_image:SpineSplite layer.
 - name(String): mockup name
 - ifSpine(Boolean)
- Response
 - Content-Type: application/json
 - Parameters:
 - renderedImage(ImageData): final image data.

/ Save Cover

- Method: POST

- URL: `/api/ag-psd/save-cover`
- Description: Save current mockup design state.
- Request Body:
 - Content-Type: application/json
 - Parameters:
 - userId(ObjectId): user id
 - renderedImage(Image Data): rendered image data
 - designState(JSON data): image editor's current design state
 - mockup(JSON data): Mockup data
- Response:
 - Content-Type: application/json
 - Parameters:
 - success (string): success to save.

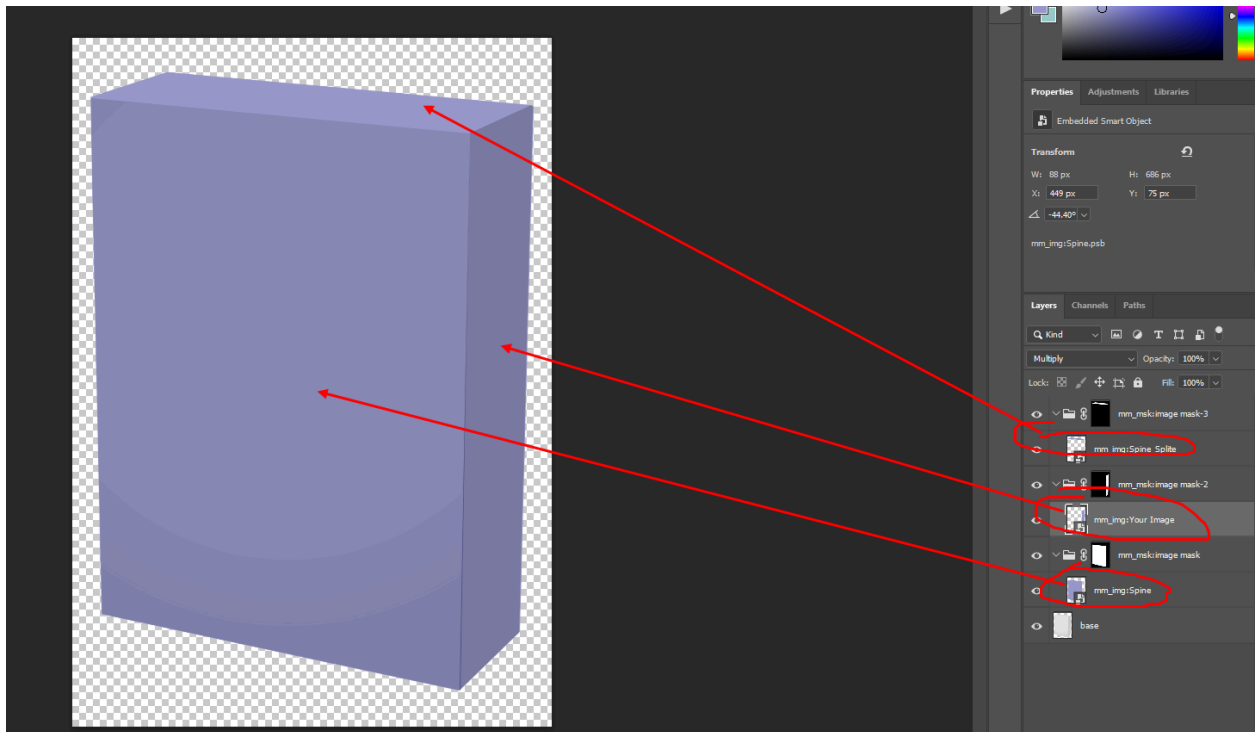
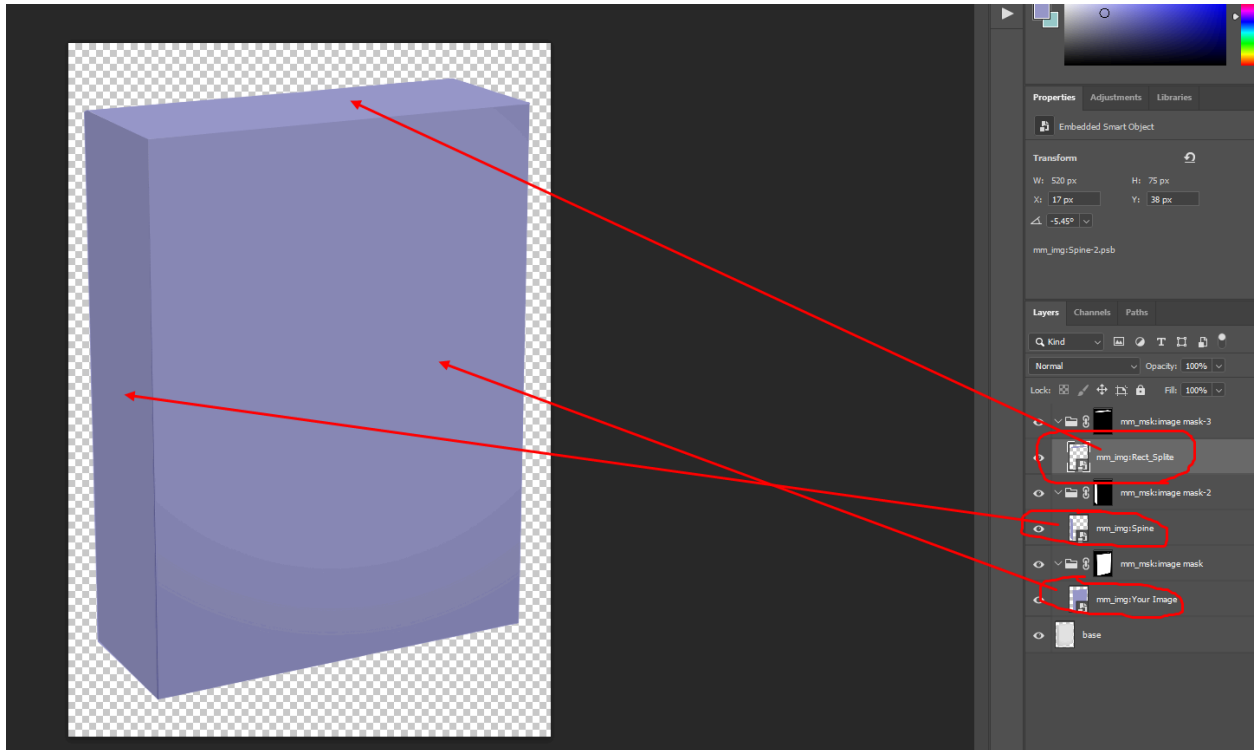
/ Get Covers

- Method: GET
- URL: `/api/ag-psd/get-covers/:userid`
- Description: Get all covers of user.
- Response:
 - Content-Type: application/json
 - Parameters:
 - List of covers data.

6. Getting Mockup Data

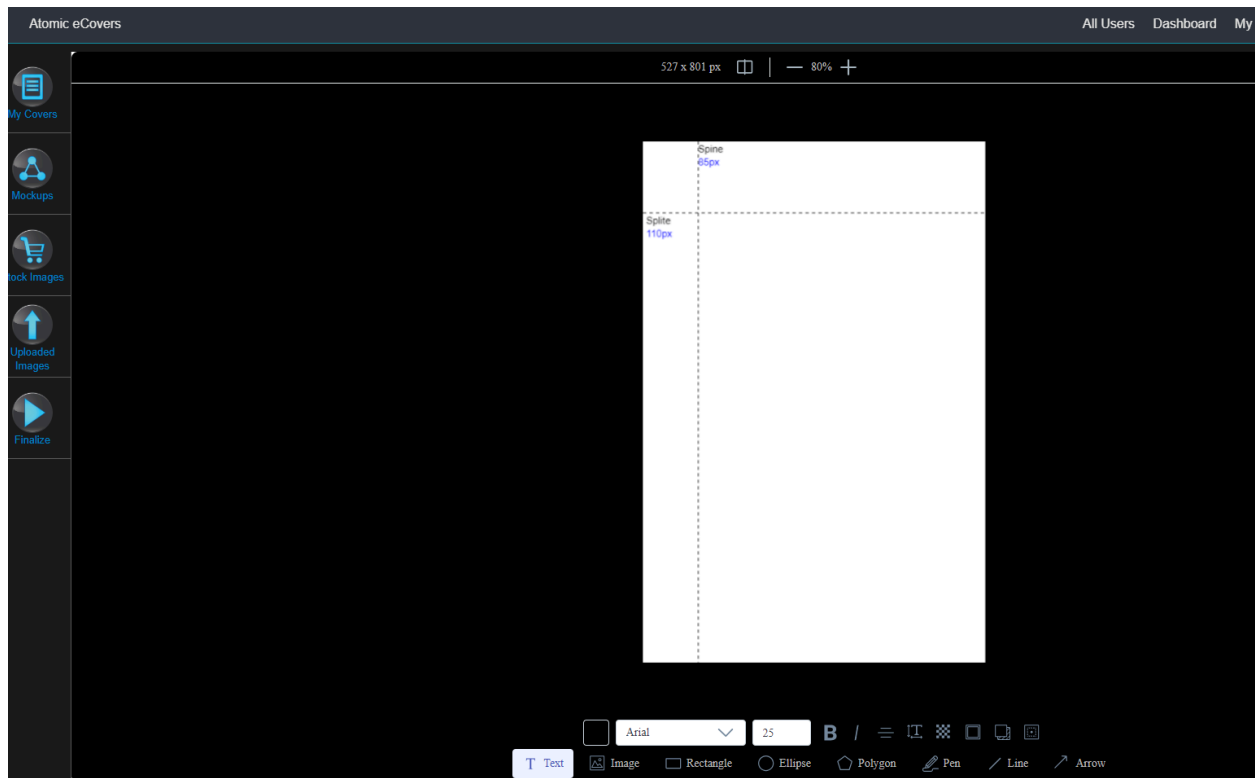
6.1. PSD file structure

- Layers



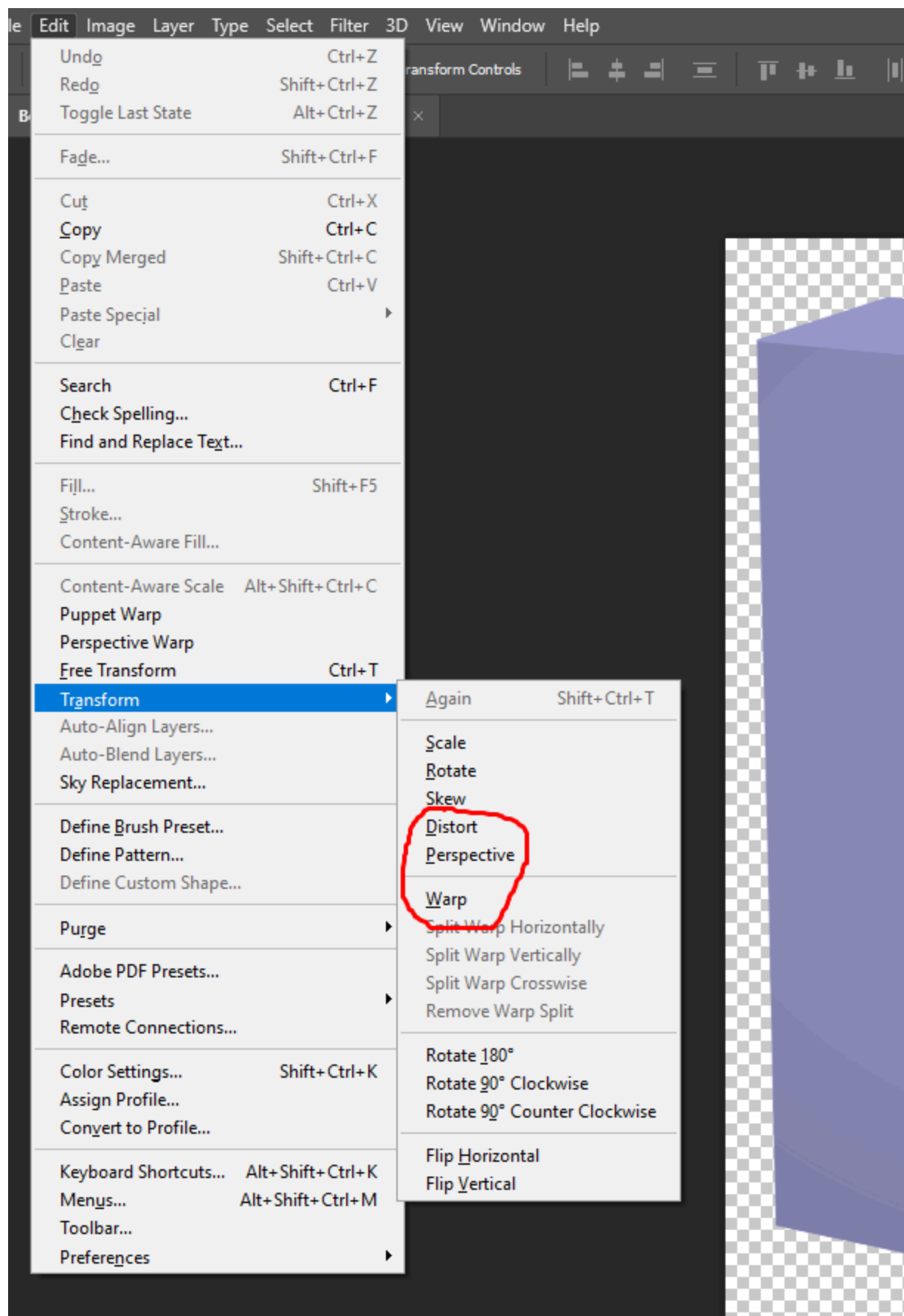
Edited Image

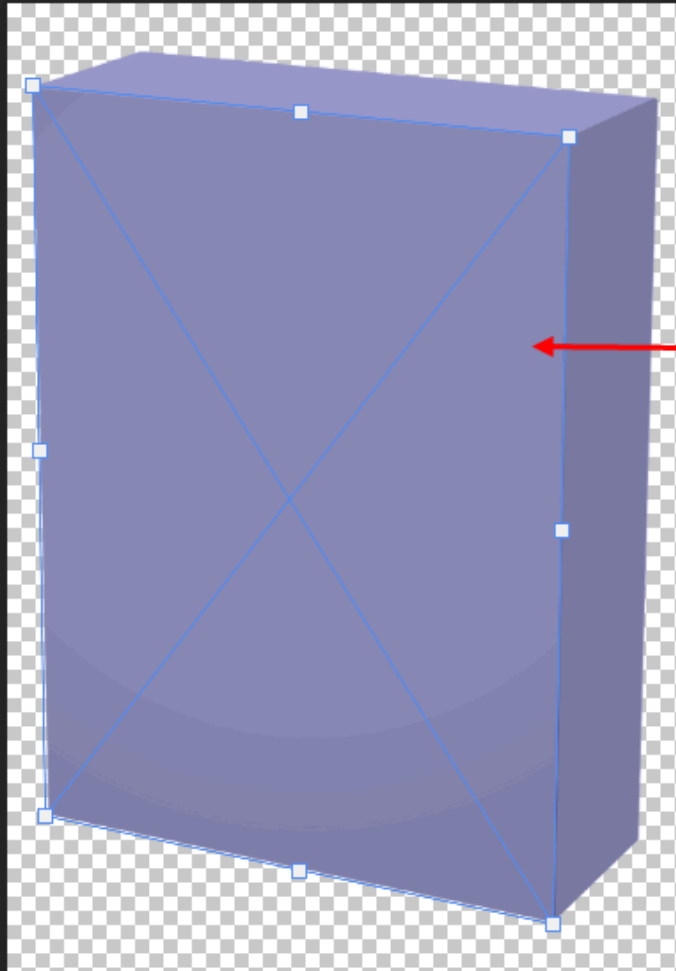
Have to be changed with mm_img:Spine_Splite layer's one	Have to be changed with mm_img:Rect_Splite layer's one
Have to be changed with mm_img:Spine layer's one	Have to be changed with mm_img:Your Image layer's one



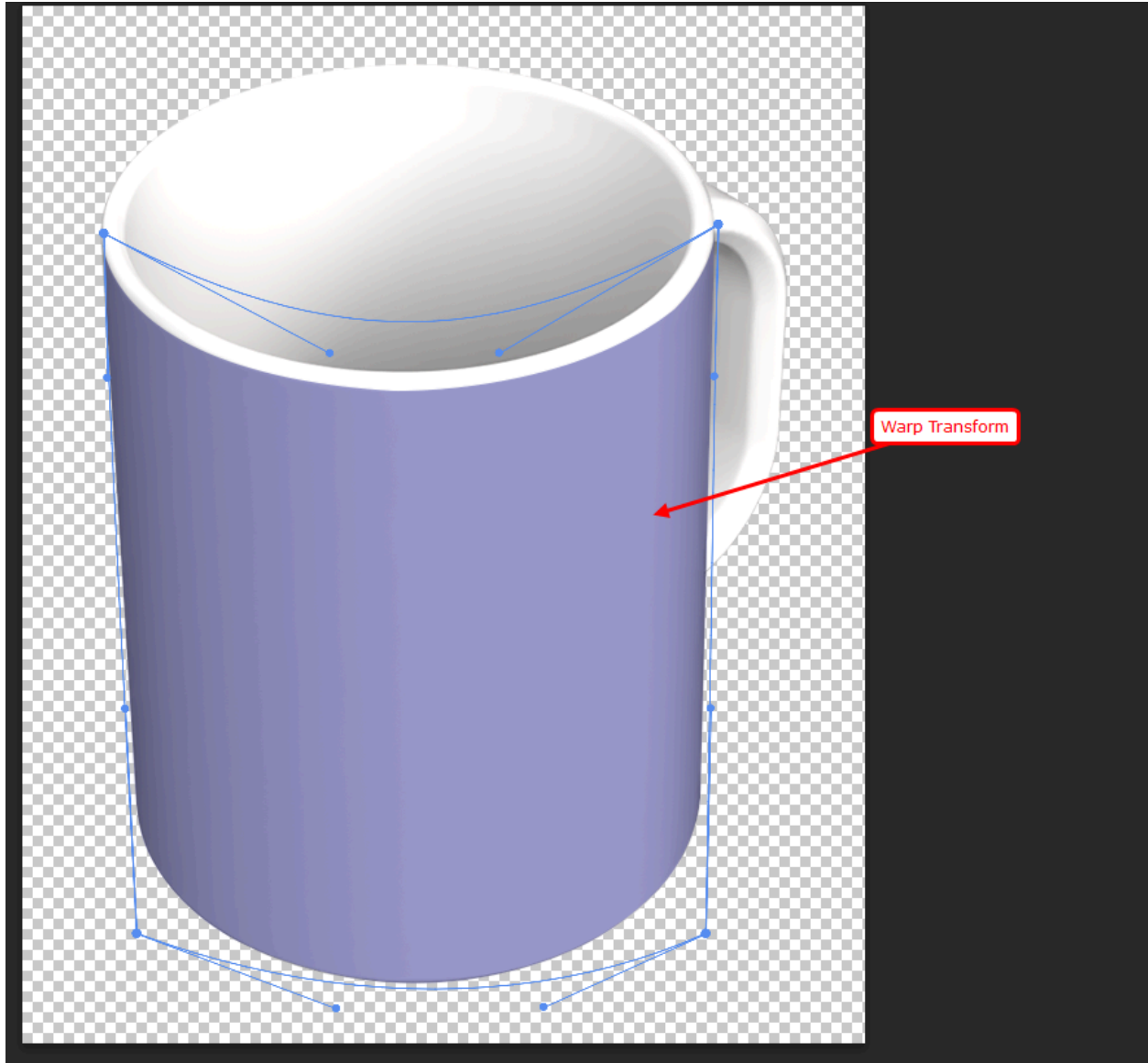
- Transform

There are several transforms in layers, including perspective, distort and warp.

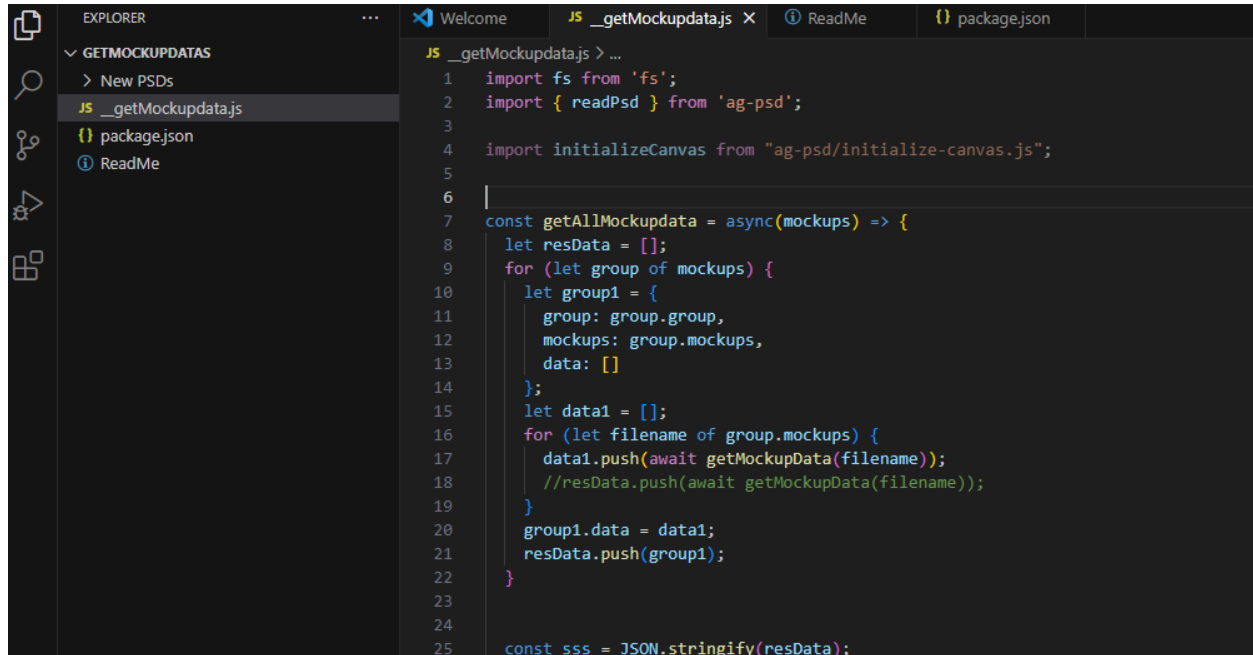




Distort Transform



6.2. Getting mockup data from psd files



```
JS __getMockupdata.js > ...
1  import fs from 'fs';
2  import { readPsd } from 'ag-psd';
3
4  import initializeCanvas from "ag-psd/initialize-canvas.js";
5
6
7  const getAllMockupdata = async(mockups) => {
8    let resData = [];
9    for (let group of mockups) {
10      let group1 = {
11        group: group.group,
12        mockups: group.mockups,
13        data: []
14      };
15      let data1 = [];
16      for (let filename of group.mockups) {
17        data1.push(await getMockupData(filename));
18        //resData.push(await getMockupData(filename));
19      }
20      group1.data = data1;
21      resData.push(group1);
22    }
23
24
25    const sss = JSON.stringify(resData);
```

For parsing psd mockup files and getting layers and transform data, __getMockupdata.js file was created.

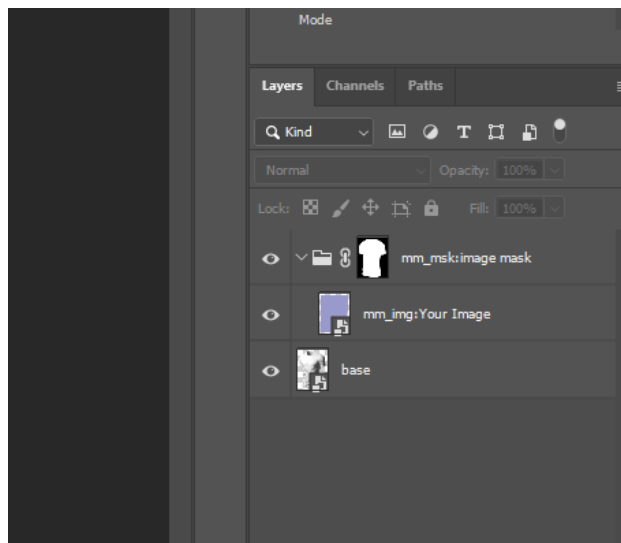
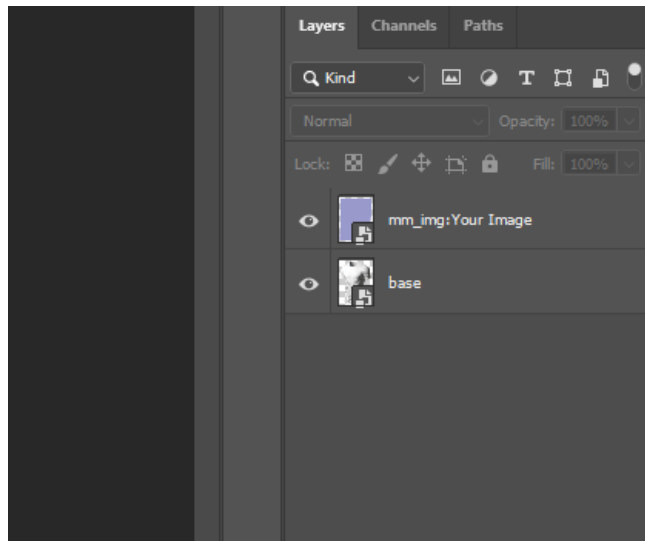
7. Adding mockups and Stock Images

7.1. Adding Mockup Templates

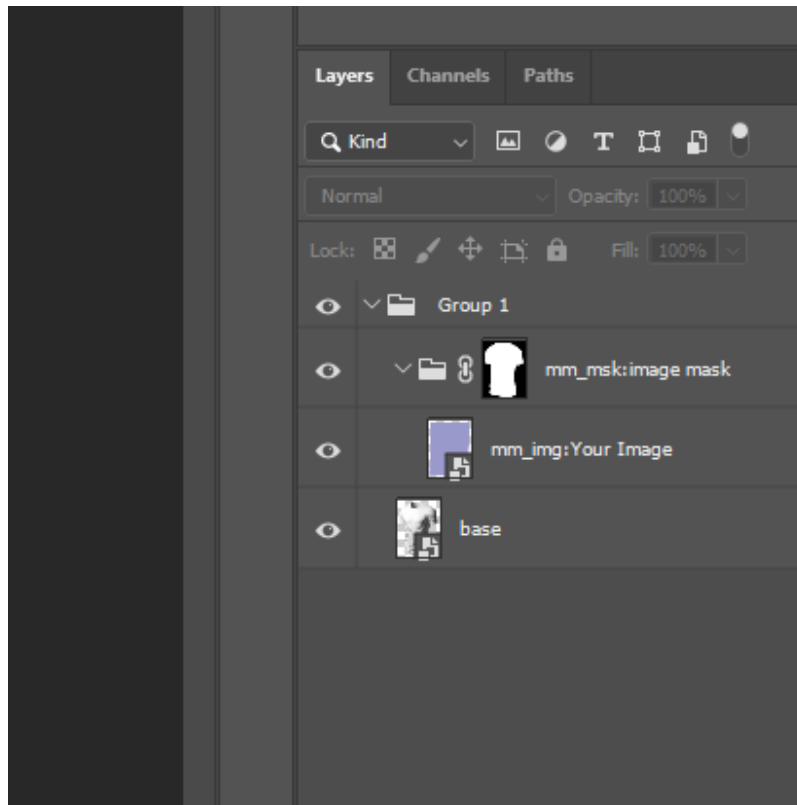
7.1.1 Preparing mockup psd file

Psd file should have structure described in 6.1. Also changing layers(mm_img:Your Image, mm_img:Spine, mm_img:Spine_Splite, mm_img:Rect_Splite) should be placed at first or second level in hierarchy.

- Correct Structure



- Incorrect Structure



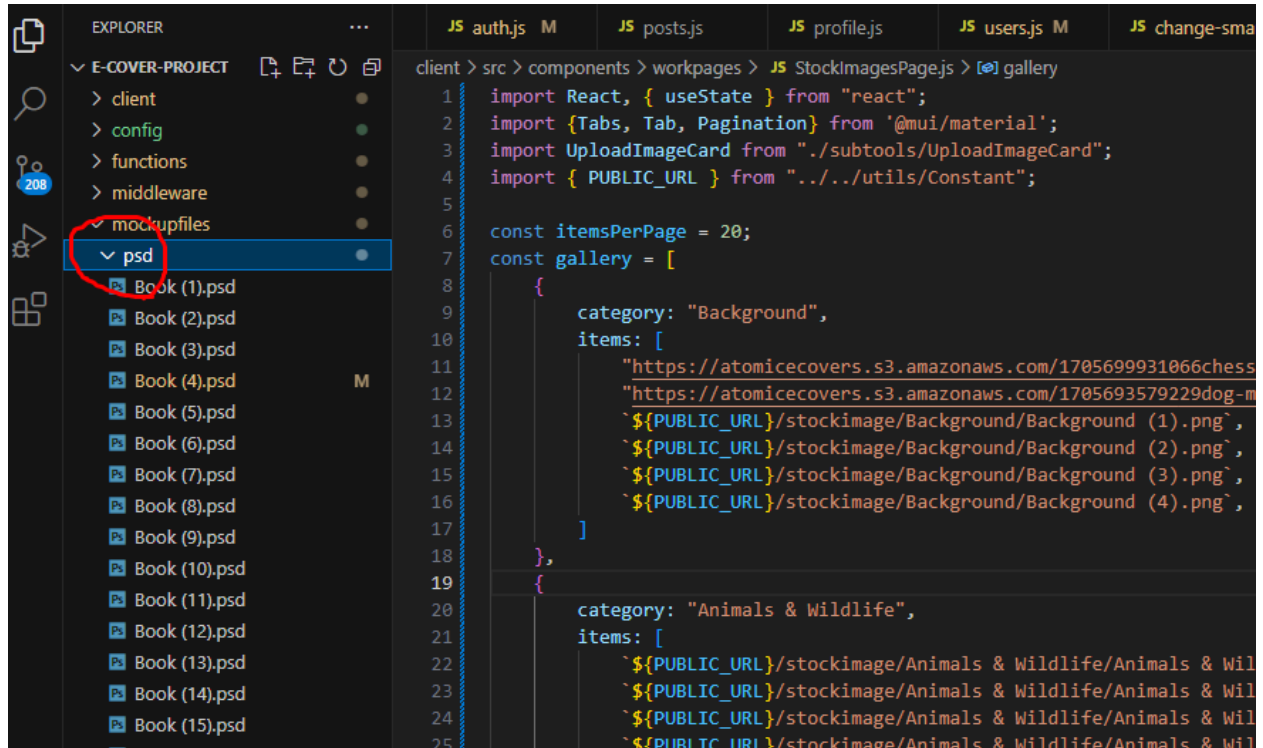
7.1.2 Adding psd and png file

- Adding psd file

Path: mockupfiles/psd/

Name: [Mockup category name] [number].psd

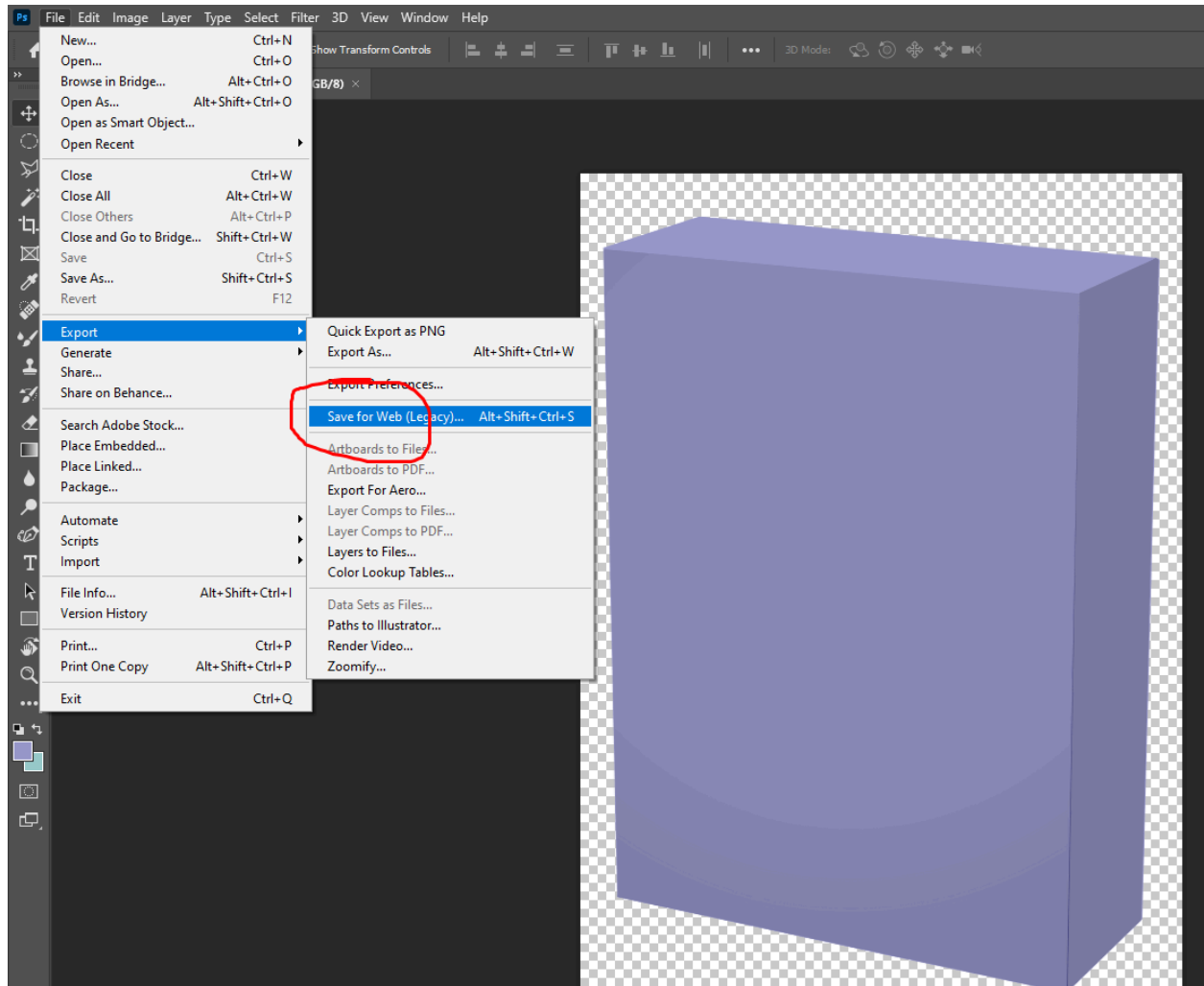
ex: Book (1).psd



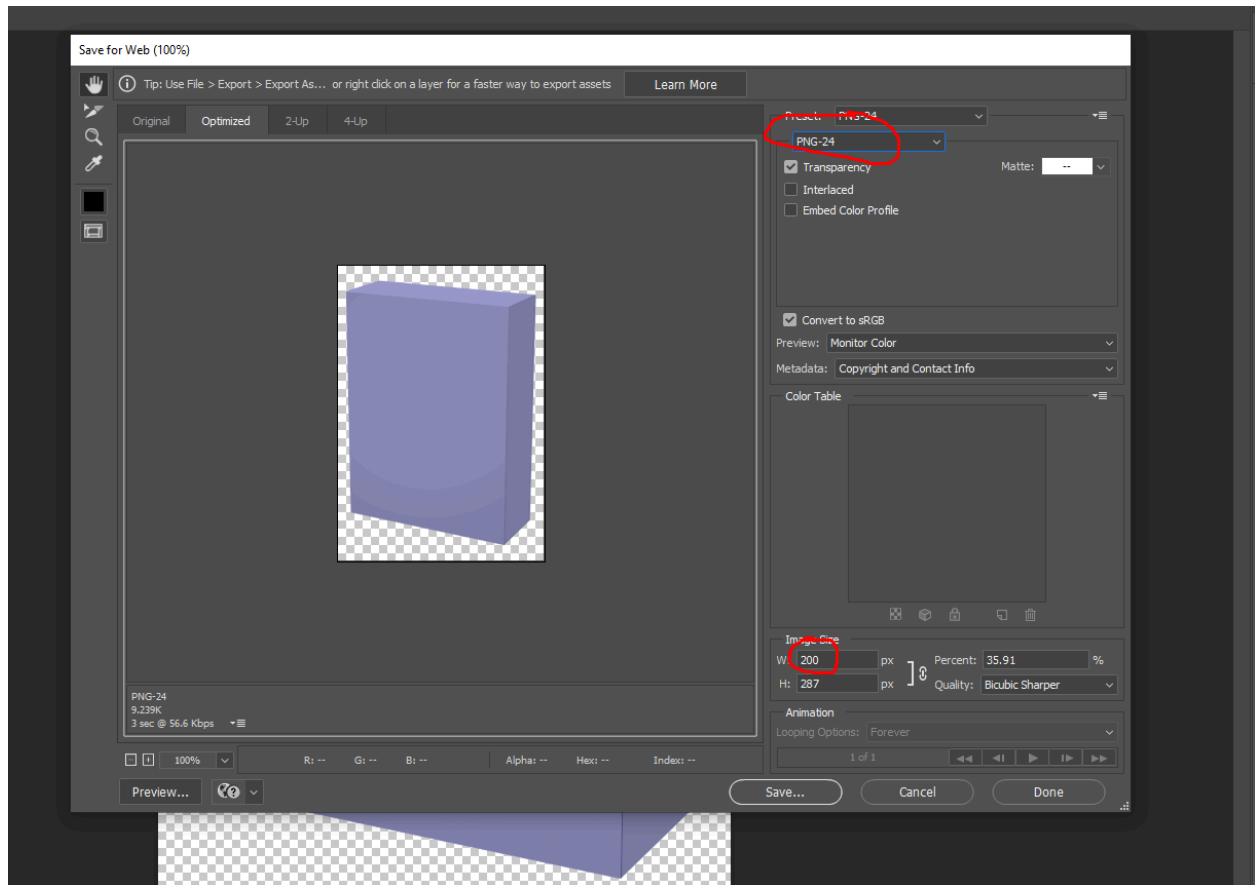
*** mockupfiles/psd folder and New PSDs folder should be same. ***

- Adding png file

Getting png file from psd file



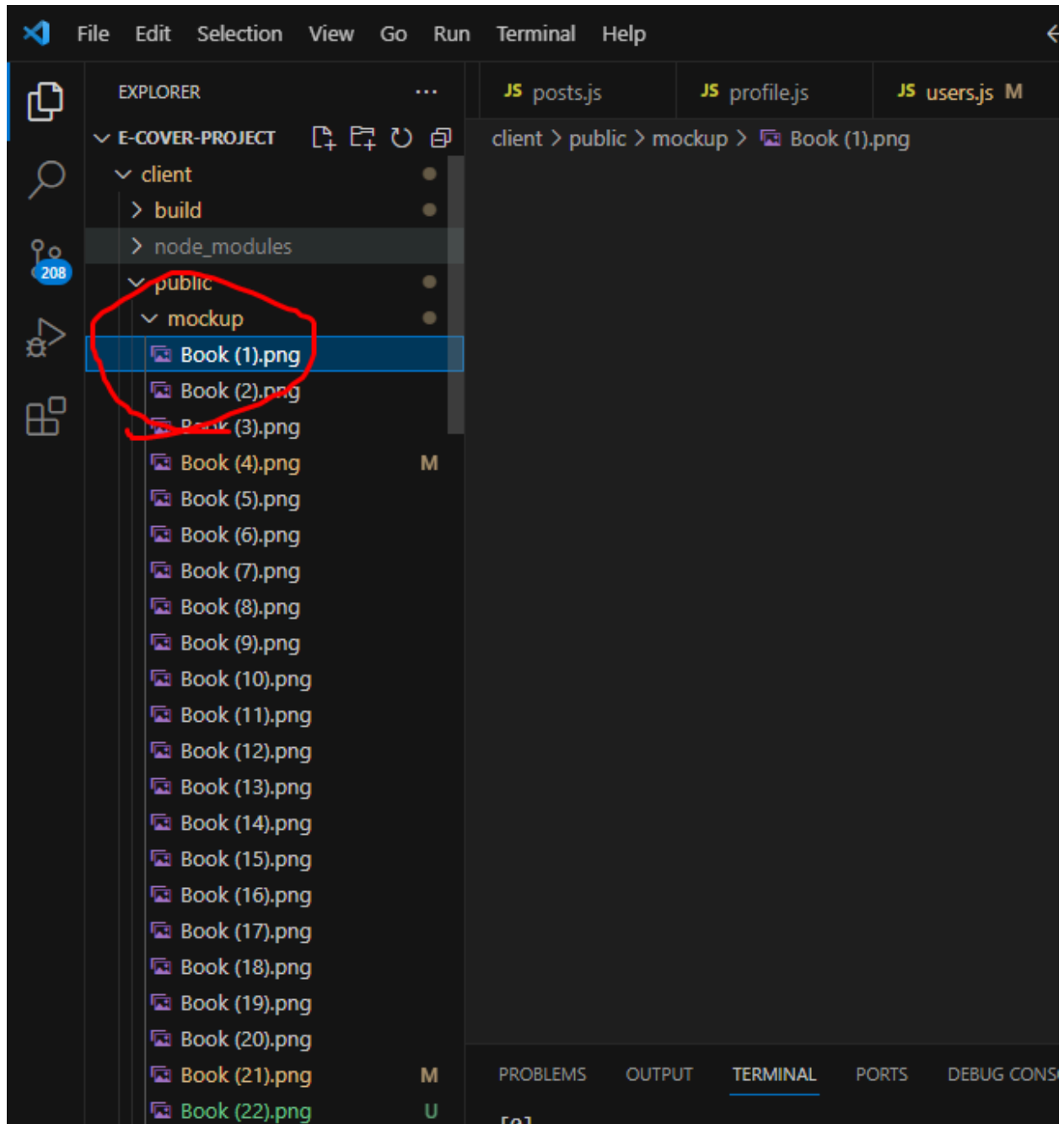
Width: 200px



Path: client\public\mockup\

Name: [Mockup category name] [number].png

ex: Book (1).png



7.1.3 Adding mockup data

The screenshot shows the Visual Studio Code interface. On the left, the Explorer sidebar shows a project named 'GETMOCKUPDATAS' with files: 'New PSDs', 'node_modules', 'JS __getMockupdata.js', 'MockupData.txt', 'package-lock.json', 'package.json', and 'ReadMe'. The main editor displays the content of 'JS __getMockupdata.js'. The code is a JavaScript module that imports 'fs' and 'readPsd' from 'ag-psd', and 'initializeCanvas' from 'ag-psd/initialize-canvas.js'. It defines an asynchronous function 'getAllMockupdata' that iterates through mockup groups, reads each group's data, and pushes it into a result array. The result is then stringified and logged to the console. The terminal at the bottom shows the command 'node __getMockupdata.js' being executed in the directory 'PS D:\Development\2023_8_08_PMG\GetMockupDats'.

```
JS __getMockupdata.js > [0] getAllMockupdata > [0] group1
1 import fs from 'fs';
2 import { readPsd } from 'ag-psd';
3
4 import initializeCanvas from "ag-psd/initialize-canvas.js";
5
6
7 const getAllMockupdata = async(mockups) => {
8   let resData = [];
9   for (let group of mockups) {
10     let group1 = {
11       group: group.group,
12       mockups: group.mockups,
13       data: []
14     };
15     let data1 = [];
16     for (let filename of group.mockups) {
17       data1.push(await getMockupData(filename));
18       //resData.push(await getMockupData(filename));
19     }
20     group1.data = data1;
21     resData.push(group1);
22   }
23
24
25   const sss = JSON.stringify(resData);
26
27   // console.log(sss)
28
29   fs.writeFile('MockupData.txt', sss, (err) => {
```

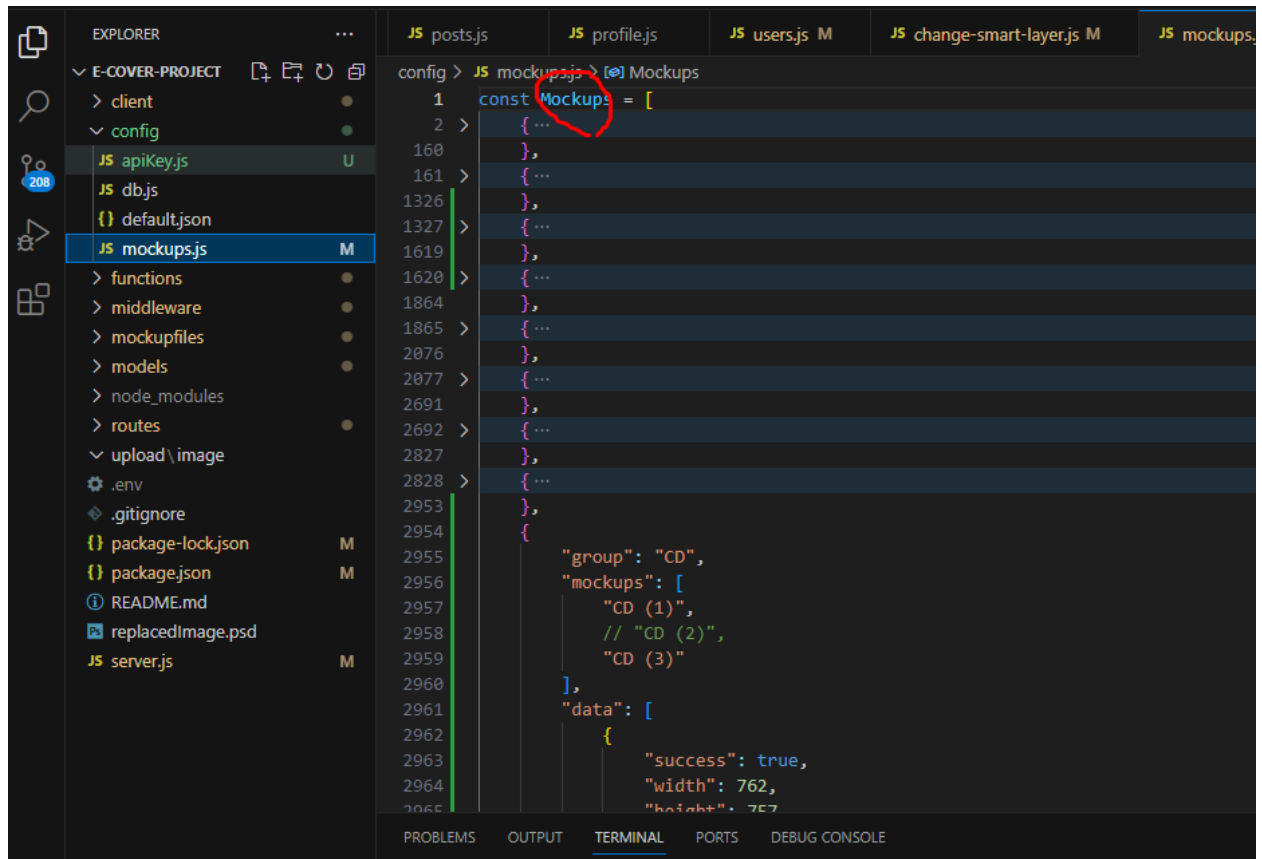
PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE

PS D:\Development\2023_8_08_PMG\GetMockupDats> node __getMockupdata.js

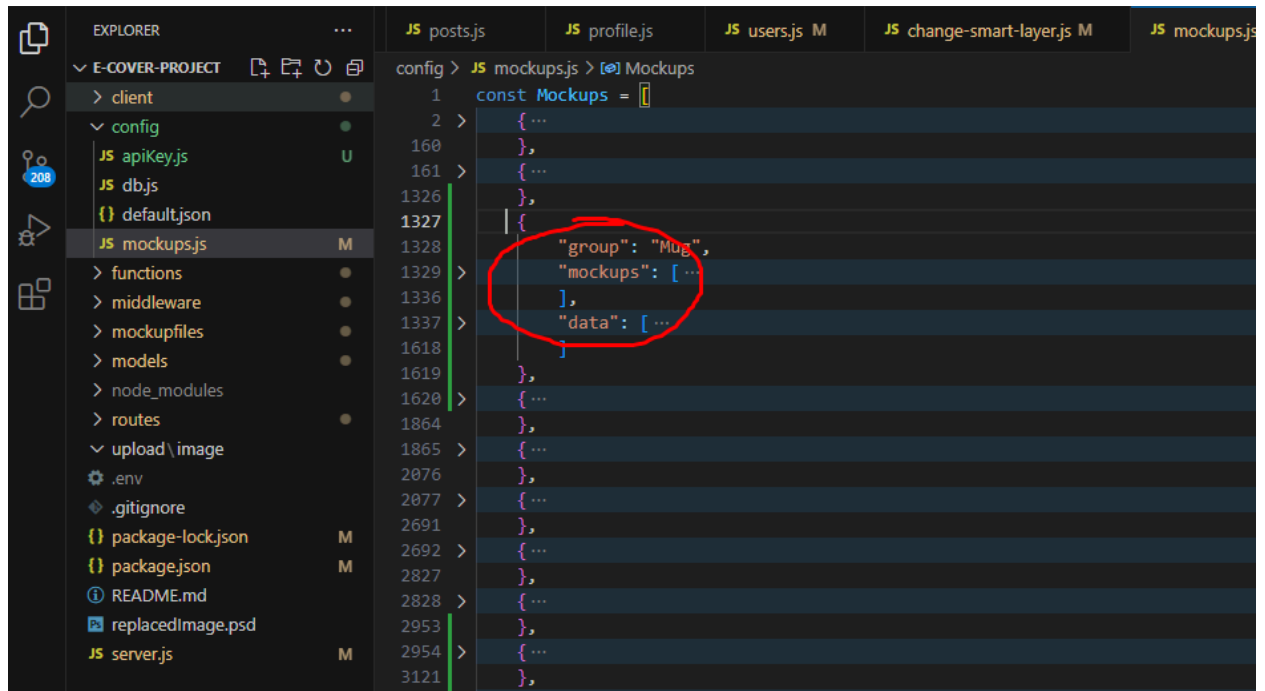
Then,

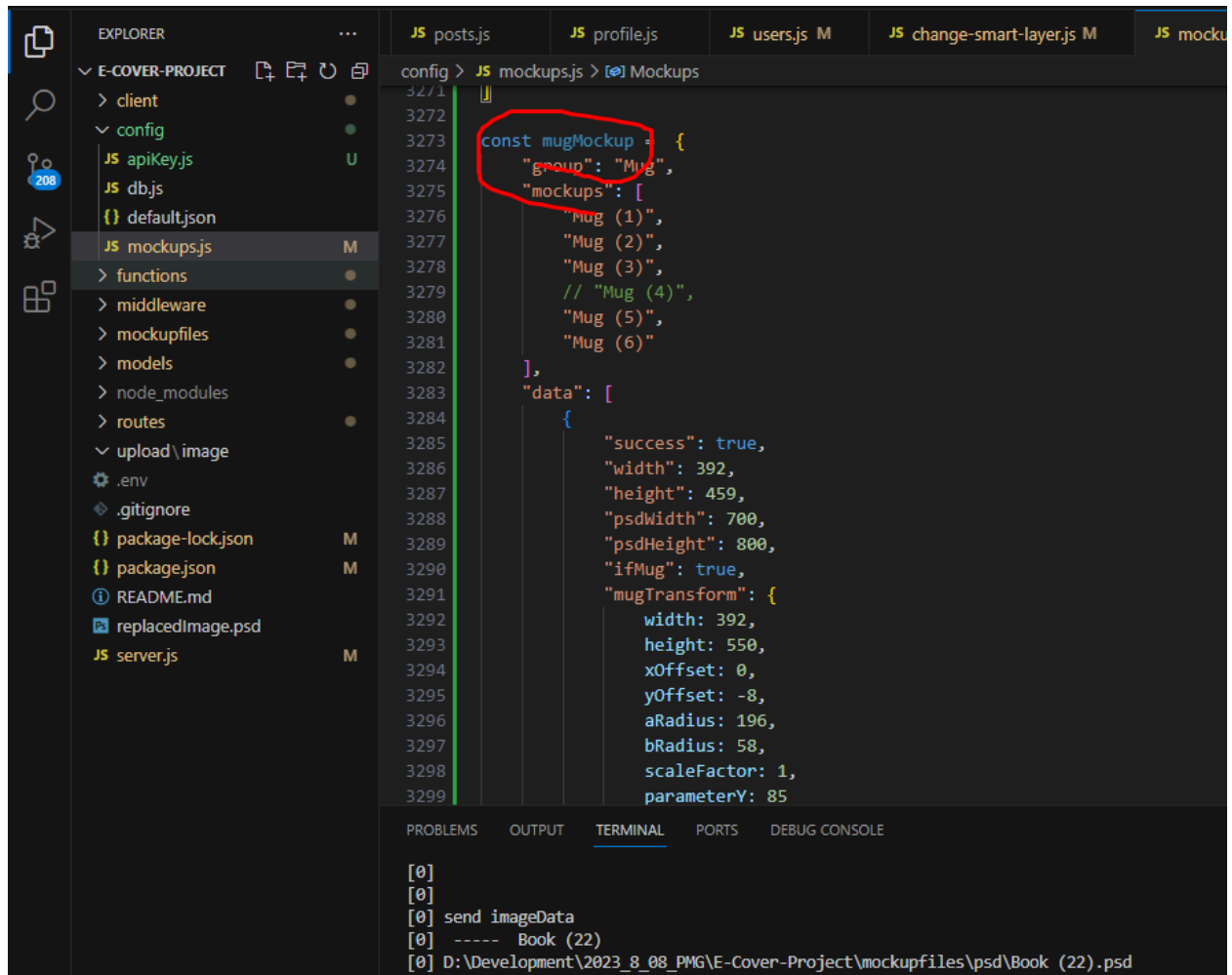
Mockup datas will be stored in MockupData.txt.

Just copy this json data and paste as const variable Mockups in config/mockup.js file.

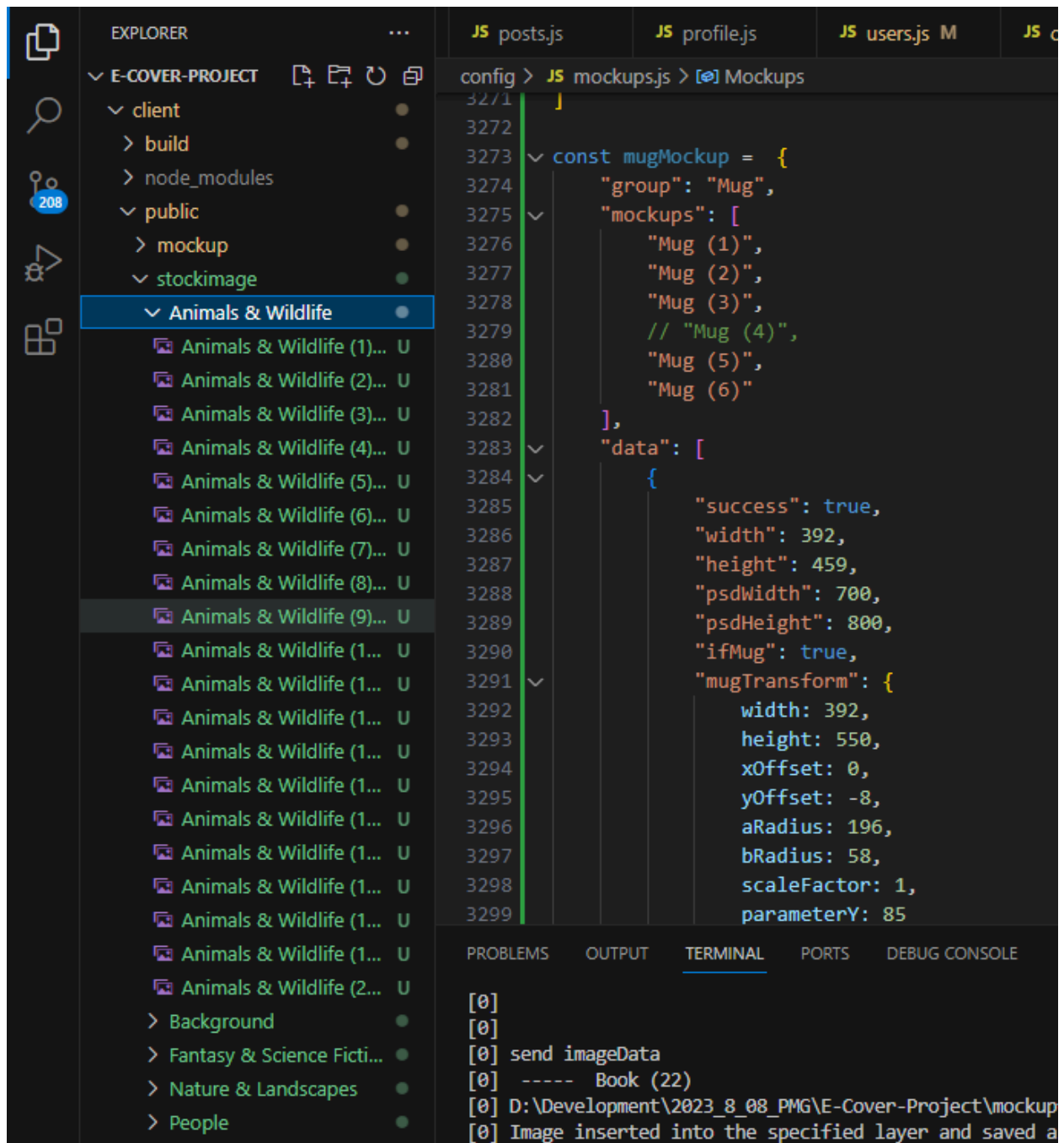


Then replace Group Mug datas with mugMockup.





7.2. Adding Stock Images



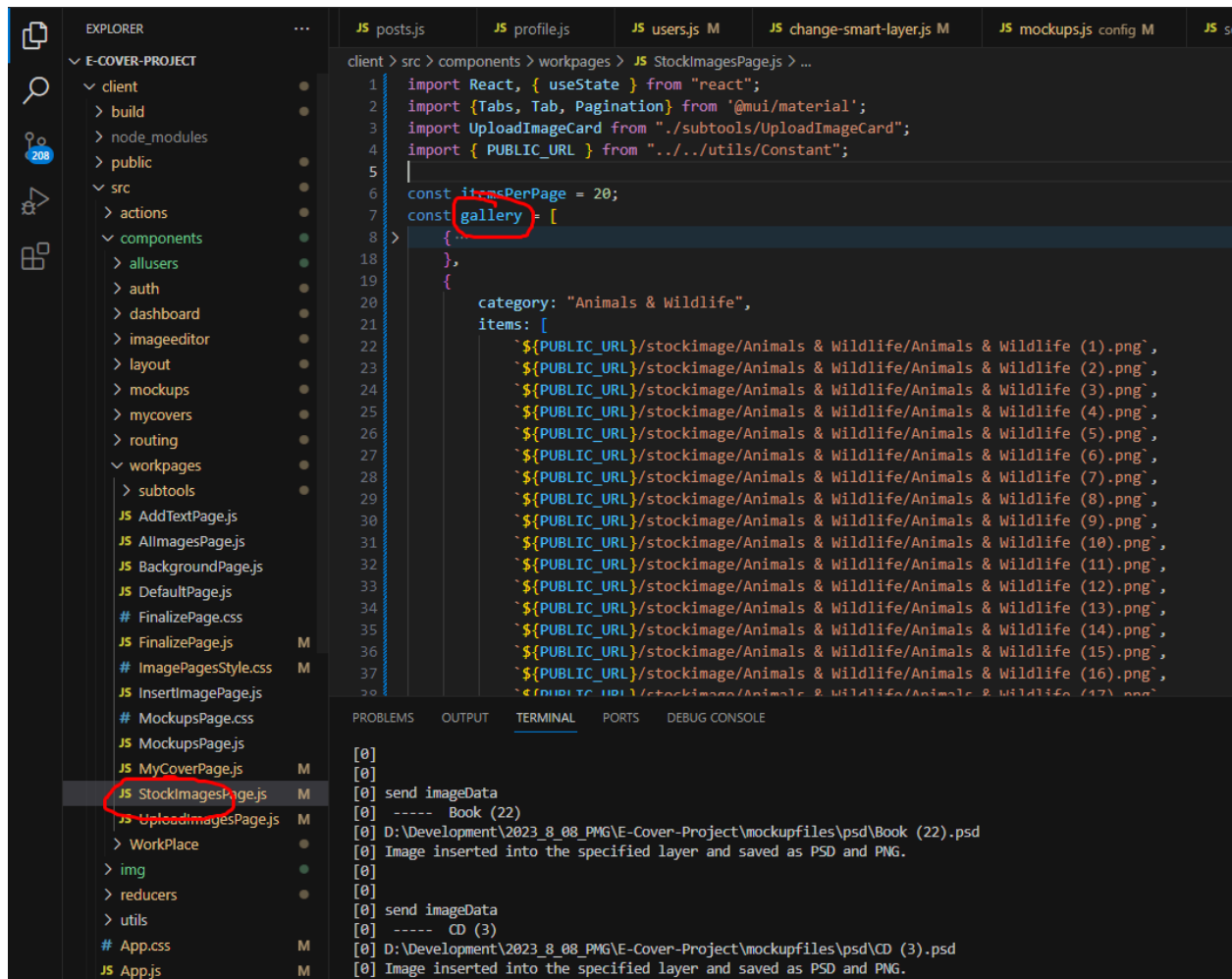
Saving PNG file

Path: client\public\stockimage\[Category name]\[file name]

ex: client\public\stockimage\Animals & Wildlife\Animals & Wildlife
(1).png

Adding item to Stock Image page

Path: client\src\components\workpages\StockImagesPage.js

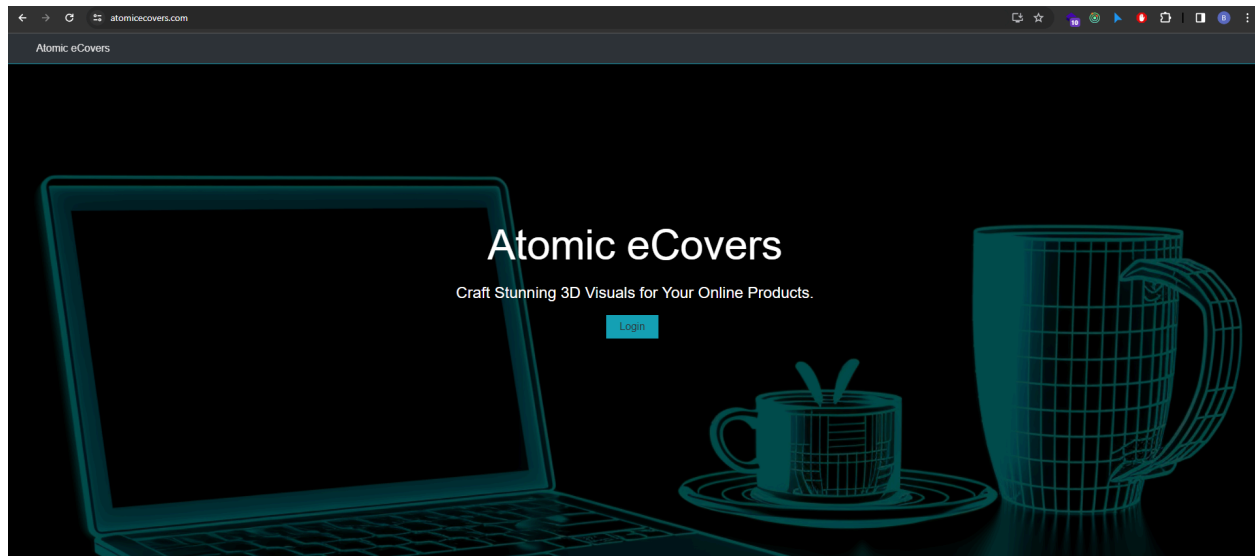


8. Front-end Design

6.1. Home page

url: /

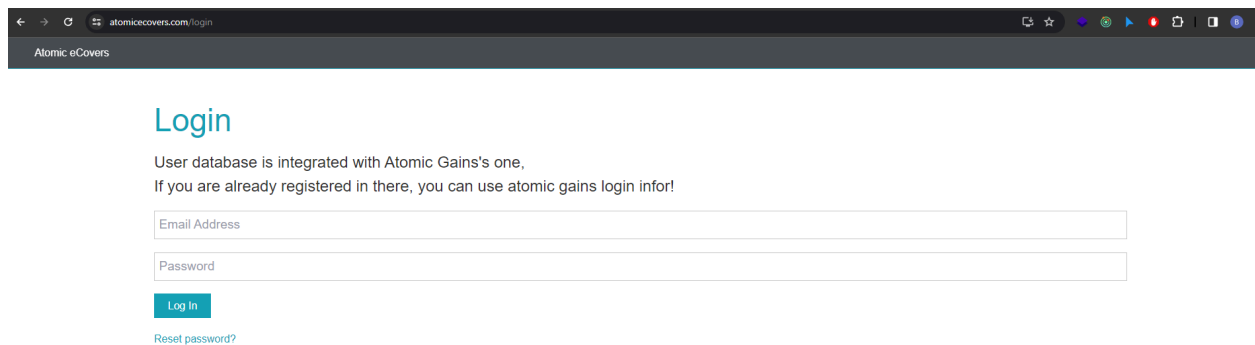
Component file: client\src\components\layout\Landing.js



6.2. Login page

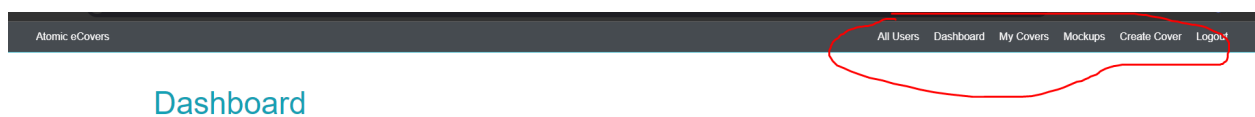
url: /login

Component file: client\src\components\auth\Login.js



6.3. Site Header

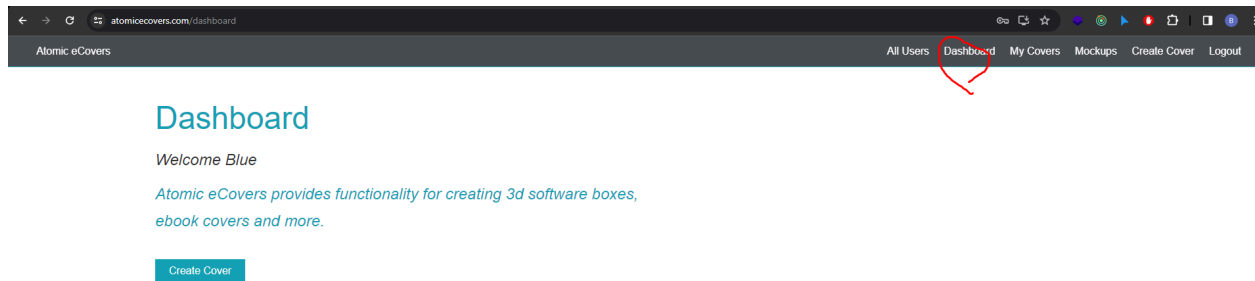
Component file: client\src\components\layout\Navbar.js



6.4. Dashboard Page

url: /dashboard

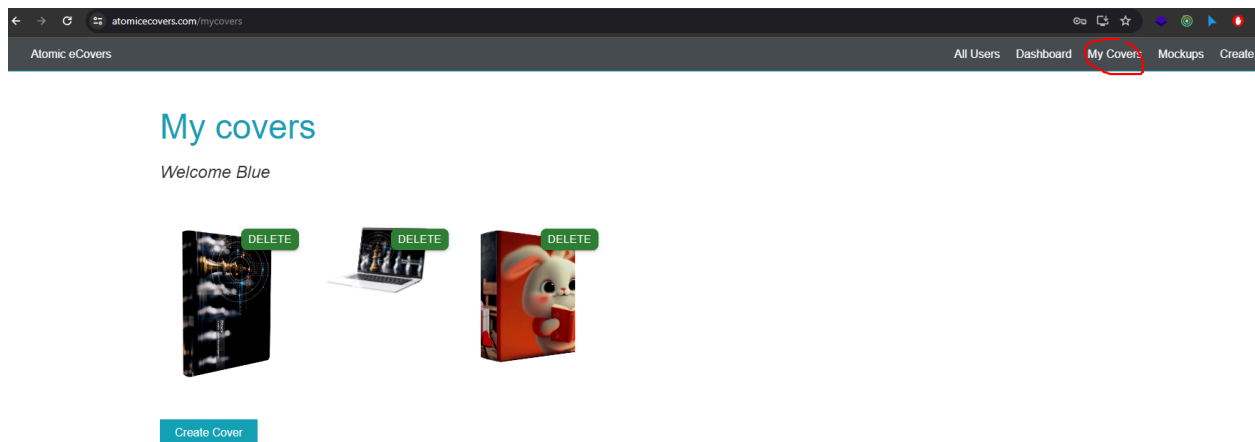
Component file: client\src\components\dashboard\Dashboard.js



6.5. My Covers Page

url: /mycovers

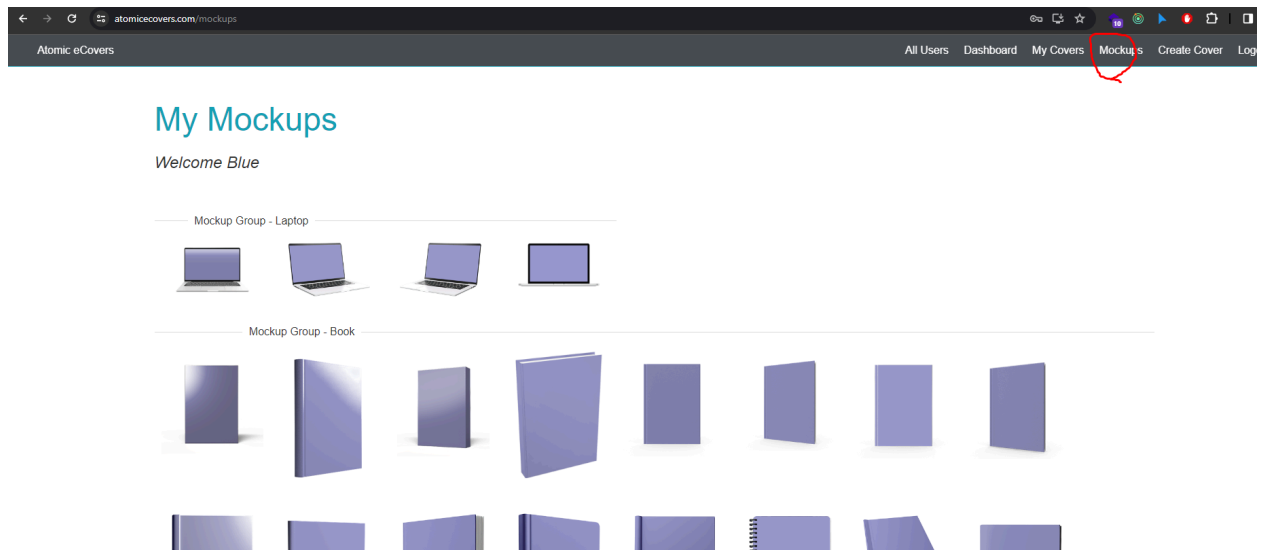
Component file: client\src\components\mycovers\Mycovers.js



6.6. Mockups page

url: /mockups

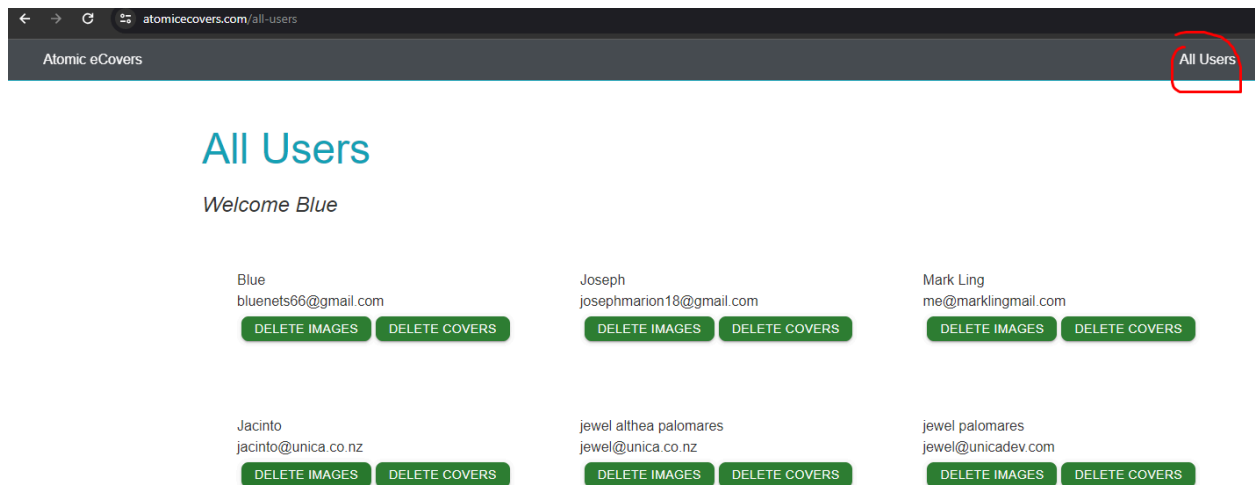
Component file: client\src\components\mockups\Mockups.js



6.7. All users page

url: /all-users

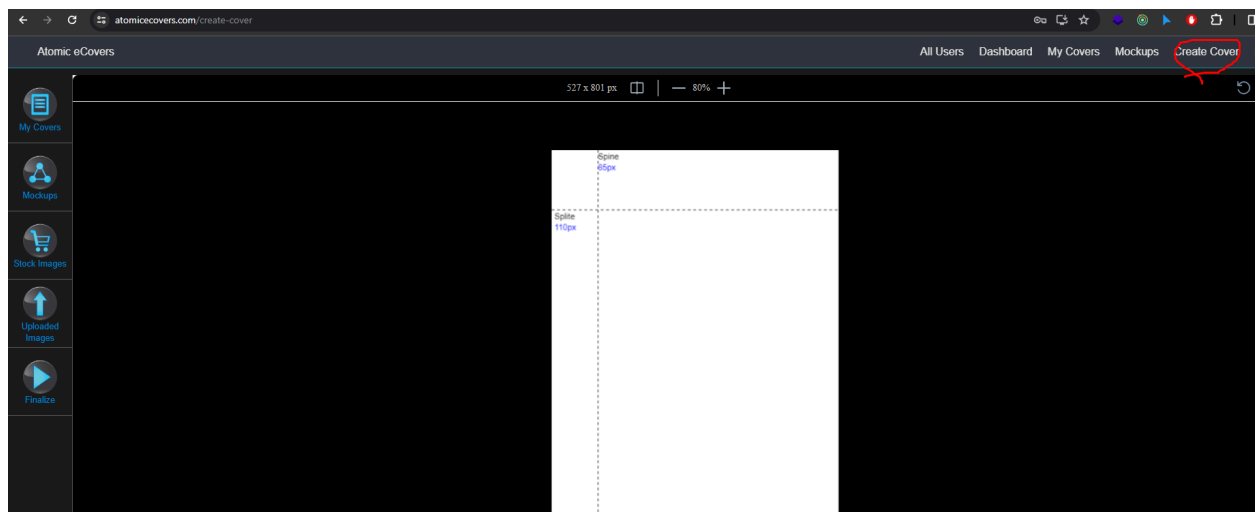
Component file: client\src\components\allusers\AllUsers.js



6.8. Create Cover page

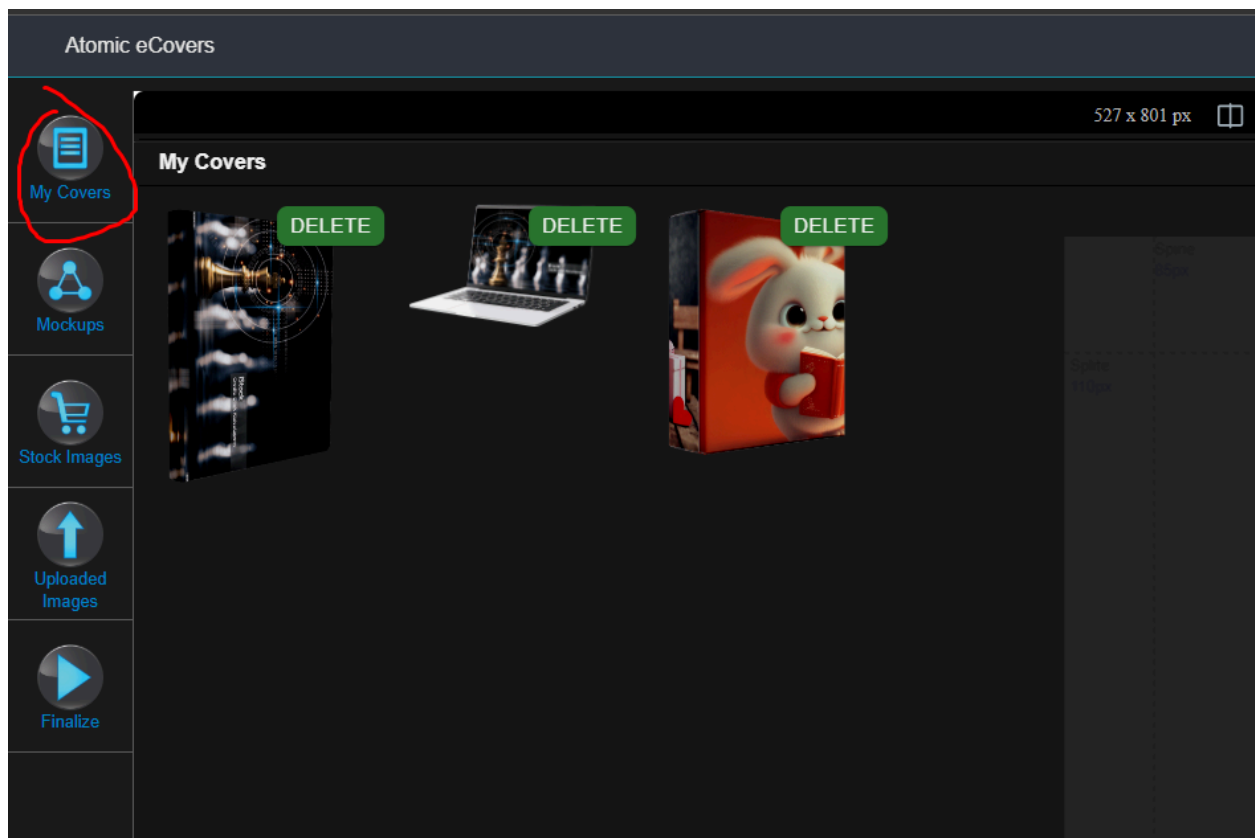
url: /create-cover

Component file: client\src\components\WorkPlace\CreateCover.js



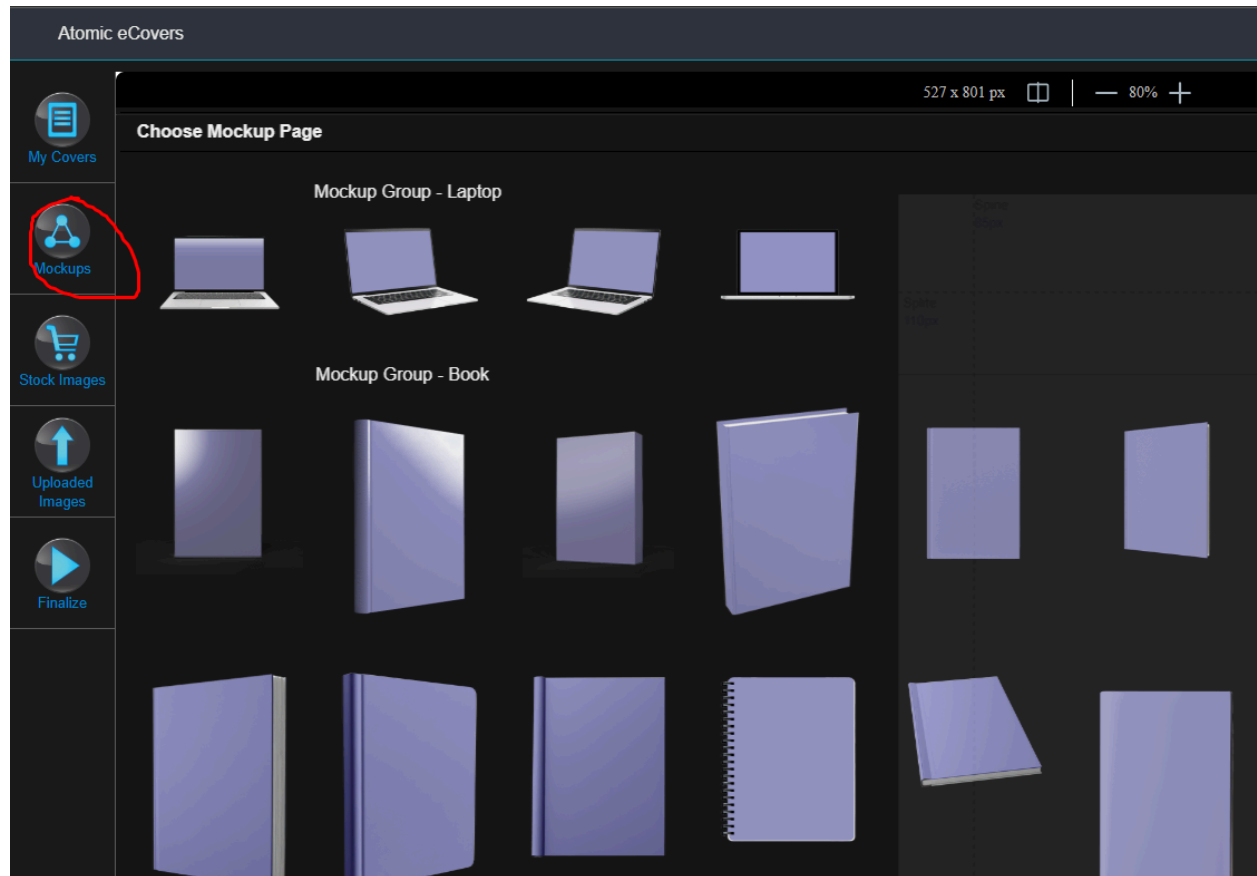
6.8.1. My Covers Component

File: client\src\components\workpages\MyCoverPage.js



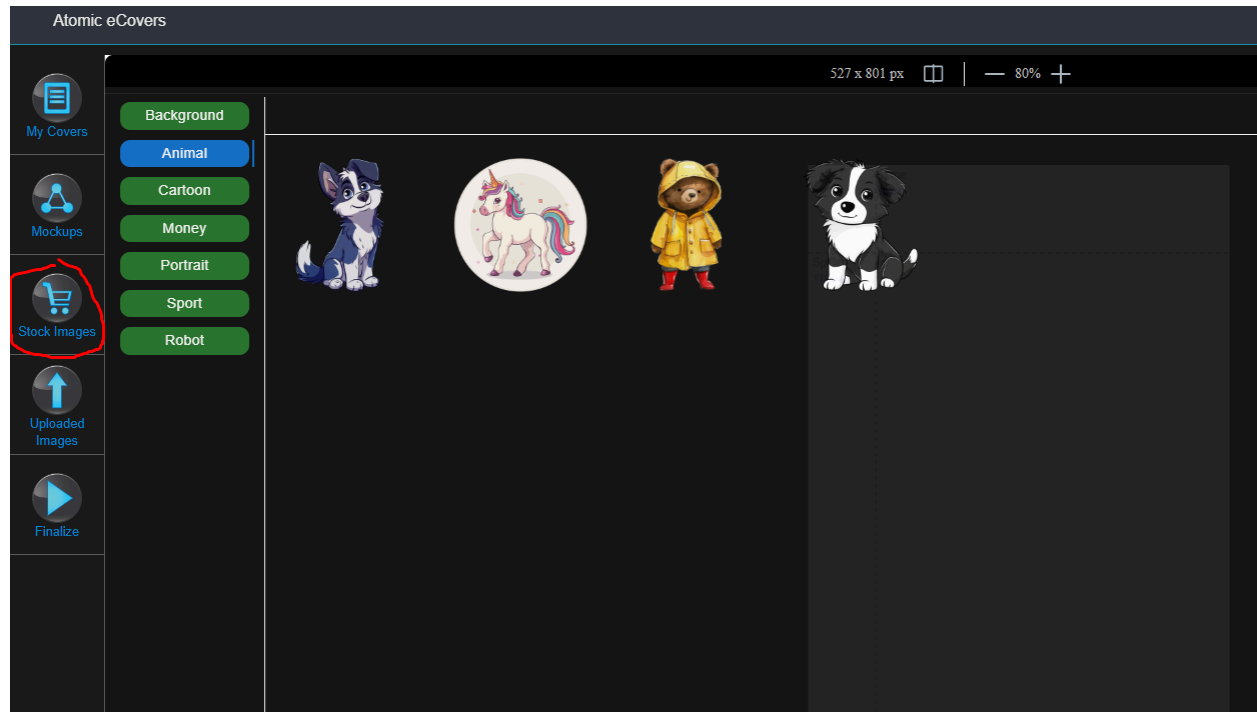
6.8.2. Mockups Component

File: client\src\components\workpages\MockupsPage.js



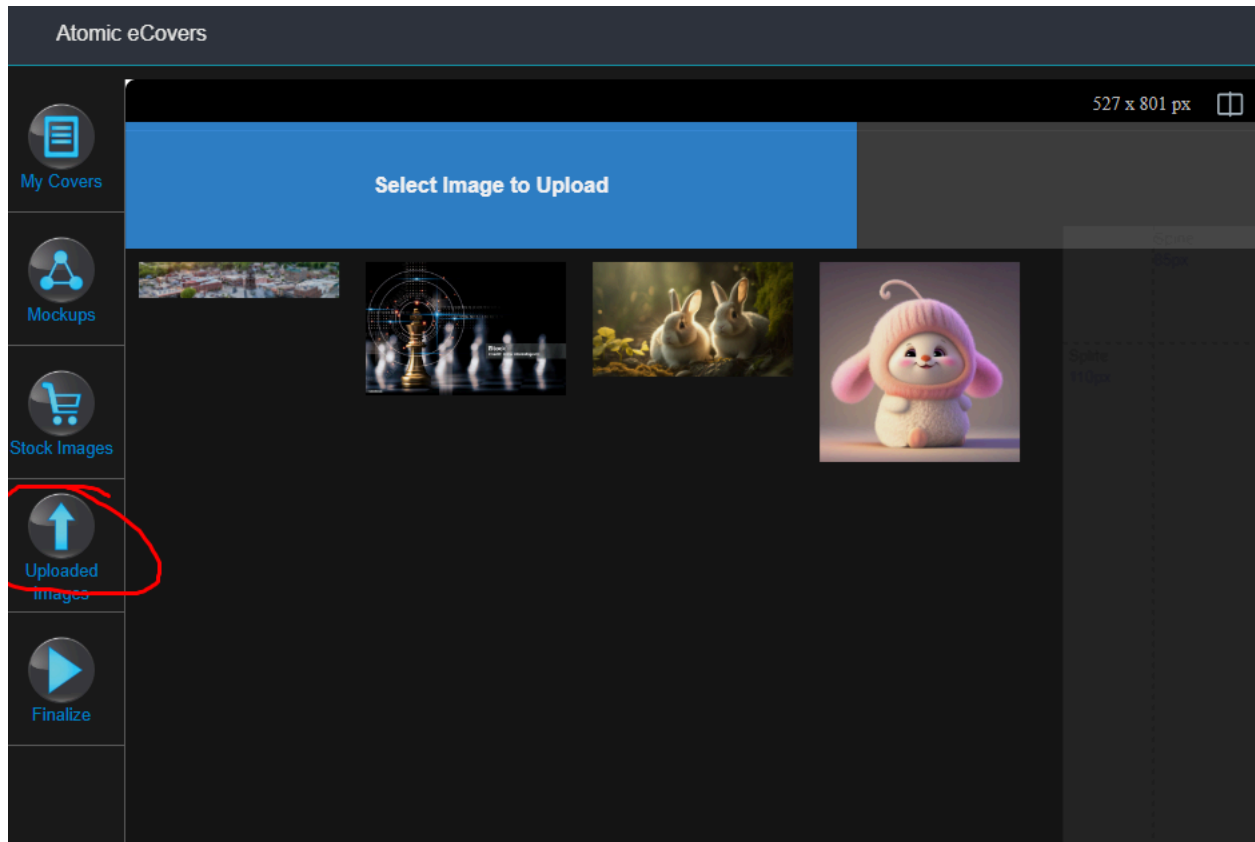
6.8.3. Stock Images Component

File: client\src\components\workpages\StockImagesPage.js



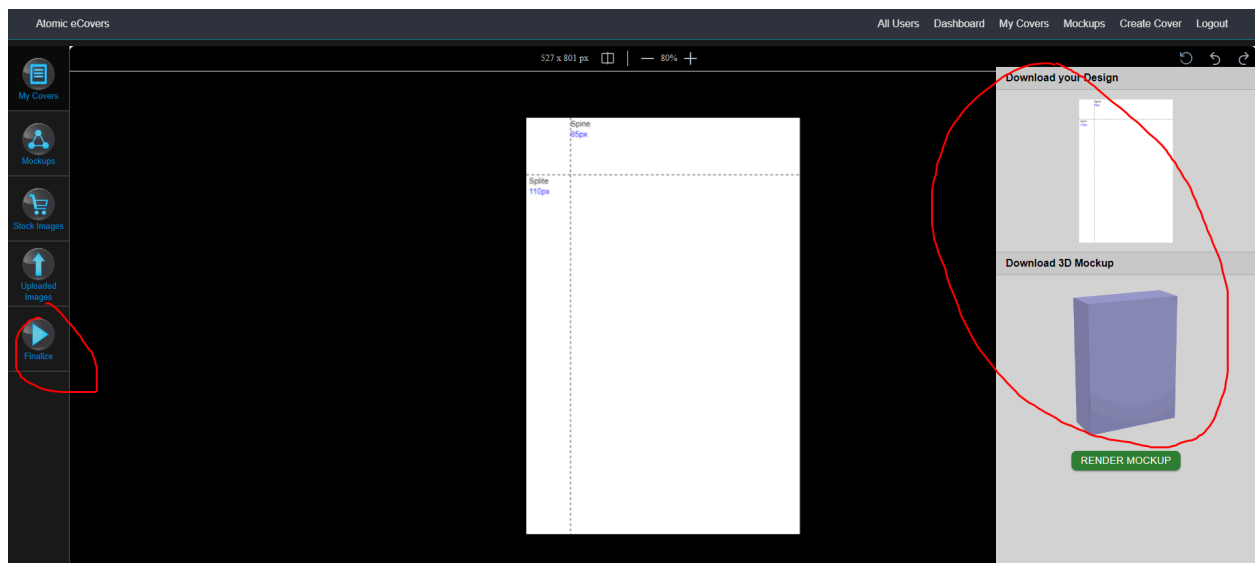
6.8.4. Uploaded Images Component

File: client\src\components\workpages\UploadImagesPage.js



6.8.5. Finalize Component

File: client\src\components\workpages\FinalizePage.js



7. Hosting

7.1. Running project dev version.

Install applications: Node v16.16.0, MongoDB v6.0, Python v3.11.5

Install python package, psd-tools: *run:* `pip install psd-tools`

Navigate to Project folder

run: `npm install`

run: `npm run server`

run: `cd client`

run: `npm install`

run: `npm start`

7.2. Project hosting on CentOS server.

7.2.1. Running Project

Install applications: Node v16.16.0, MongoDB v6.0, Python v3.11.5,

Install python package, psd-tools: *run:* `pip install psd-tools`

Copy and paste Project files to the server.

run: `npm install -g pm2`

run: `npm install -g serve`

Navigate to Project folder

run: `npm install`

run: `pm2 start npm --name "ecover-server" -- run server`

```
run: cd client
```

```
run: npm install
```

```
run: npm run build
```

```
run: cd build
```

```
run: pm2 serve . 3000 --name "ecover-front" -spa -s
```

You can check pm2 processes: `run: pm2 list`

7.2.2. Setting up nginx proxy

Install nginx

Create `/etc/nginx/conf.d/React.conf`

```
server {  
    listen 80;  
  
    listen 443 ssl;  
  
    server_name    atomicecovers.com;  
  
    ssl_certificate /etc/ssl/atomicecovers.com.crt;  
    ssl_certificate_key /etc/ssl/atomicecovers.com.key;  
  
    ssl_protocols  TLSv1 TLSv1.1 TLSv1.2;  
    ssl_ciphers    HIGH:!aNULL:!MD5;  
  
    location / {  
        proxy_set_header X-Forwarded-For $remote_addr;  
        proxy_set_header Host $host;  
        proxy_pass        http://localhost:3000;  
    }  
}
```



```
location /api {  
    proxy_set_header    X-Forwarded-For $remote_addr;  
    proxy_set_header    Host $host;  
    proxy_pass           http://localhost:5000;  
}  
}
```

Create ssl crt and key files:

```
/etc/ssl/atomiccovers.com.crt
```

```
/etc/ssl/atomiccovers.com.key
```

Start nginx process

```
run: systemctl start nginx
```

Before starting nginx process, should stop httpd apache process