Cahier des charges du projet
"photoStockage"

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I.   Introduction

Project overview

"photoStockage" is a website / platform that enables users to freely download and utilize high-quality photographs for any purpose. The platform also encourages users to upload and share their own photographs and experiences, creating a diverse collection of images. The core functionality of "photoStockage" includes user registration, photo uploading, photo downloading, photo saving, and liking of photos, as well as photo browsing for inspiration.

"photoStockage" addresses the need for easy access to high-quality photos without the need for expensive licenses or annoying credits to websites and creators. The service is free, allowing users to download and upload high-quality photos for personal and commercial use without legal complications. Unlike other websites that charge for commercial usage, impose heavy restrictions on usage, and have availability limitations, "photoStockage" eliminates these barriers by providing a library of images that can be used freely, as long as users agree to the terms of service. However, it is important to note that the platform cannot effectively enforce its terms of service, and users who use photos in unlawful ways will be reported to the authorities.

The target audience of the website includes photographers seeking inspiration for their next project, content creators, graphic designers, web developers, marketing professionals, small and large companies, students, and educators.

The main selling points of "photoStockage" are its free pricing model, with no hidden fees, premium memberships, or subscription-based content. Additionally, the platform's simplicity and user-friendly interface make it easy to use. The spirit of a community and the feeling of contributing to making projects better while sharing stories and experiences are also key selling points.

The main goals of this platform are to create a comprehensive, user-driven webpage for free photography sharing, fostering a community of photographers, photography enthusiasts, and users who contribute to a resource pool, and providing easy access to high-quality images for various users.

The objectives of this project are to promote the value of shared resources and open, truly free content, establish "photoStockage" as a leading platform for free photo sharing, increase brand visibility and recognition, and support the creative industry by providing a resource pool at no cost, which will enhance brand loyalty and user engagement.

Scope

The platform's features include user account creation, photo uploading, downloading, sharing, and management, advanced searching and filtering options for photos, a legal agreement confirmation for photo usage, GDPR compliance, community features such as liking photos and saving downloaded and liked photos, and a mobile-friendly design for usage on various devices.

The target browsers include all major browsers, such as Chrome, Firefox, and Edge, as well as support for older versions of Internet Explorer. The mobile-friendly user interface allows ease of use for both desktop and mobile users worldwide, as the platform is not region-locked or restrictive, making it accessible to any user with internet access.

"photoStockage" does not offer direct photo editing tools, such as cropping or adjusting lighting, as part of its features. Additionally, the platform does not support memberships, whether premium or subscription-based, nor does it offer e-commerce features for buying or selling photos or other merchandise. This means that users can access and utilize high-quality photos without any additional costs or commitments.

II. Objectives

i. Functional Objectives

The platform/app's basic functionalities include viewing and downloading photos, uploading photos, liking photos, and storing photos in the user's profile. Additionally, users can add tags to photos, search photos based on tags, create and manage user profiles, and communicate with the administration of the platform/app via email for reports, suggestions, etc. Users will also have the ability to share personal information like CV/portfolio website and email address for communication with other members.

In more detail, users of the platform/app have the ability to view and download photos without the need for an account or profile but will be reminded of the possibility of creating one. This

way, the user-experience is not interrupted by unnecessary steps like creating an account, if the user only wants to browse the page or download specific photos. However, they are encouraged to do so to access more features if they find them necessary.

Also, users have the ability to share their photos by uploading them to the platform's/app's server, editing their names and tags, and removing them or changing them for others when necessary. These actions require a user account by registering to the website for security and usability reasons.

The users have the ability to "like" photos by clicking on the corresponding button on each photo or simply by downloading a photo using their account. In that way, they can store photos they found inspiring for easier access to them in the future. As content creators, they will be able to view if their photos are liked by the community and measure their performance by counting how many times they were liked/downloaded.

The website features the ability to search for photos based on their names, tags and sort by category. This enables users to find what they are looking for much faster and more efficiently. This is also a feature that does not require an account.

Users have the ability to create accounts and manage them, deciding what parts of their account they want exposed to the public, such as their name or email address or portfolio site, etc. This ensures compliance with privacy of data on the part of the website, as well as give the ability to the users to have more control over their own account, which is an important and appealing feature on modern platforms, as most of them decide on their own for the treatment of given information, by only giving the option to agree or disagree with the sharing of personal information of users.

The platform offers the option to contact the administration directly by completing a contact form or by email for reporting suspicious or illegal acts on part of other users and for suggesting improvements to the platform. Reports will be thoroughly examined by the administration in order for actions to be taken, for example, the ban of a user, reporting an illegal action to authorities or dismissing a case for being a false claim.

Finally, the website enables and encourages its users to contact each other in order to promote the spirit of a community and to enable communication between its members.

Primary features

As mentioned above, the primary features of the website are the ability to view and download photos freely, without the need of an account and without dealing with copyrights and other legal matters that slow down the creative process.

Secondary features

As secondary features, the platform offers the ability to register an account and manage the given data, uploading photos, editing photos owned by the user that uploaded them, and the communication of members between each other and with the administration.

Unique Features

The most important unique feature the website offers is the ability to personally choose what data will be exposed to the public in order to promote your business if, for example, the user is a photographer or other content creator and needs the engagement or hide personal information to avoid being tracked or harassed.

ii.   Non-Functional Objectives

Ideally, performance-wise, the objective is to have a responsive and fast platform that is able to serve photos quickly. In order to achieve this, thumbnails of photos or photos with lower resolution and quality will be displayed on the home page, and only when viewed individually or downloaded will they have their full size and quality. This way, performance will be ensured both for slower machines and for slower internet connections.

Security is a very important task and an objective that is seriously taken into consideration. Both security of personal information and security of content need to be taken into account. The backend of the website is tested thoroughly, and the latest libraries are used to ensure security. Data sent to the database is sanitized and monitored both on the front-end and the back-end, and measures for allowing only specific types of content are implemented (for example, only jpg, jpeg, gif, etc., extensions will be allowed for uploading photos).

The front-end is tailored to each screen size so the usability of the platform is seamless across all platforms. Calls to action, buttons, and navigating the site are clear and obvious, so it is easy for all users to perform these actions. Accessibility is also taken into account; the site offers buttons with

high contrast for the visually impaired, as well as big and clear text, and all photos include automatically an alt tag for alternative text as well as the aria tag for the narrator. Furthermore, users are able to contact the administration to suggest their own changes to be implemented.

III. Stakeholders

i. Project Sponsor

The project sponsor is the same individual who developed and conceptualized the project. There is no specific client in mind, and there are no plans to sell the project. The project's expectations are to create a platform that offers an enjoyable user experience and contributes to the creative community by making photo usage easier, faster, and more efficient.

Upon launch, the platform will require standard hosting fees and domain fees. Since most features are created by the owner, no additional funding will be needed in theory. Any community support or donations are welcome but not necessary.

ii. Project Team

The platform is developed and managed solely by Sotirios NATSIOS, who assumes all responsibilities.

iii. End Users

The platform does not target a specific age demographic or ethnicity demographic but focuses on content creators. It enables navigation and usage on any platform, including desktops with larger monitors and devices like smartphones with smaller screens.

The target audience is primarily content creators, and the platform is tailored to their needs with a variety of features mentioned in Chapter II. Objectives. Secondary users are individuals who visit the website for inspiration or to engage with the website's content creators.

IV. Requirements

i. Functional Requirements

User Roles

"photoStockage" offers three distinct user roles: administrative, user, and guest. The guest role allows users to view, search, and download images without the ability to like or store images for future reference. The user role builds upon the guest role, adding the ability to upload photos, edit and delete photos owned by the account, like other people's photos, and save downloaded photos to the liked album. The administrative role allows users to manage photos and users, with the exception of making changes to the website's appearance and functionality.

Use Cases

In case a user needs to download a photo, the website's flow is as follows: they access the website, navigate the home page featuring the latest uploaded photos, use the search feature if necessary, and finally, upon finding the photo, they can view a full-size and full-quality depiction and download it if they decide to do so.

Another use case scenario is the desire to share a photo with the community, edit or remove a photo from the platform. The process can be split into two types: already owning an account and not owning an account. The user must log in to their account, navigate to the user dashboard, access the photo management tab, and select the option to upload an image. Unregistered users must first create an account before proceeding with these steps.

ii. Non-Functional Requirements

The expected response times would ideally be under three seconds. Optimizations for images and faster loading teams are implemented as it is a crucial part of the user experience. The platform in its current state is not expected to meet heavy loads or scalability issues, but if they do happen, the solution is to divide the server into a number of servers to share traffic, improving response time.

Encryption and authentication methods have been implemented with the help of libraries such as jwt and custom middleware that handles authentication.

The website is designed with respect to smaller screen users and people with accessibility issues and disabilities. The user interface's goal is to offer an enjoyable experience to every user of the platform.

V.   Technical Specifications

i.   Platforms

The "photoStockage" platform is designed to be platform-agnostic, ensuring that its content is accessible and viewable across all browsers. The website's responsive design allows for seamless navigation on various devices, including mobile devices, desktops, and laptops. To ensure a smooth user experience, a stable internet connection with relatively fast speeds is required.

ii.   Technology Stack

The front-end of the platform is built using Next.js, a JavaScript framework based on the popular React library. This choice enables faster development, a more user-friendly experience, and access to a vast community of developers from the JavaScript, React, and Next.js ecosystems, thereby minimizing potential resource availability issues.

The back-end is powered by Node.js, a JavaScript framework that serves as an intermediary between the front-end and the database, with the help of express.js a framework for building lightweight backend applications.

For data storage, PostgreSQL was selected, a reliable and secure SQL-based database. The large community surrounding SQL-based databases and PostgreSQL ensures that solutions are readily available whenever problems arise, and external resources can be easily accessed.

iii.   Integration

The platform integrates third-party services, libraries, that handle back-end and database security as needed. Security is a fundamental feature of the platform, and we prioritize it as a core offering.

Additionally, Large Language Models (LLMs) like ChatGPT, Llama3, Mixtral and Claude are leveraged to provide assistance when the aforementioned resources are insufficient.

VI. Design and User Experience

i.   Wireframes and Prototyping

The platform's wireframes and prototypes were delivered at the end of June, providing a detailed visual representation of the website's layout and functionality.

ii.   User Journey

The user is greeted with a homepage designed for simplicity and ease of navigation. At the top of the site, a discreet main menu features the platform's logo, primary navigation links, and options to register (sign up) or log in. Below the main menu, a hero section is displayed prominently (desktop view), featuring a brief description of the platform alongside call-to-action buttons for registration and login. On the right edge of the hero section, a representative image captures the essence of the website.

The main content area of the homepage includes a filter, positioned in the top-right corner, allowing users to sort photos by category. Photos are displayed in a layout reminiscent of Polaroid pictures, which enlarge upon user interaction—via touch on mobile devices or hover on desktop systems. Clicking or tapping a photo redirects the user to its dedicated photo page.

At the bottom of the homepage is a footer, organized into two rows and three columns. The footer includes the platform's logo with its motto, an account section, and a contact section. Below these, the footer also displays copyright information and social media icons. Additionally, a "scroll to top" button is conveniently placed in the bottom-right corner, providing a smooth and controlled navigation experience. Both the main menu and footer are persistent across all pages of the website, ensuring consistent access to key features.

When the user selects the "About" link in the main menu, they are directed to the About page, which provides general information about the site, options for configuring cookie settings, and a legal notice.

The "Contact Us" section presents a visually engaging form styled as an envelope, allowing users to compose and send messages directly to the site's administration.

The registration (sign-up) process displays a form containing all the required fields for creating a user account. Similarly, the login form includes the necessary fields to authenticate and access an existing account.

Once logged in, the user observes a subtle change in the call-to-action (CTA) button on the main page, which transforms into a "Logout" option. Users can click or tap on their profile icon to access their account dashboard. The dashboard provides functionality for managing their account, uploaded photos, comments, likes, and downloads, as well as the ability to log out.

For administrators, the dashboard includes additional management tools, allowing them to oversee all photos, categories, comments, and user accounts. Administrators also retain the option to log out via the dashboard.

In summary, the navigation and user journey have been designed to be intuitive, unobtrusive, and visually appealing, ensuring a seamless and pleasant user experience throughout the platform.

iii.　Visual Design

The visual direction is guided by a natural color palette, carefully selected to complement the website's logo. The chosen colors are: #FBB328, #A88C66, #FFF8F0, and #DFE0DF. The online tool, mycolor.space, was used to generate this palette based on the logo's primary color.

For typography, Roboto font family from Google Fonts was selected, a clean and modern sans-serif font, ideal for digital interfaces. The logo font, Star Avenue, is also a free Google Font, ensuring consistency and cohesiveness throughout the platform.

The visual style is characterized by simplicity and minimalism, reflecting the core values and focus of "photoStockage". This design approach ensures a clean, intuitive, and user-friendly experience, allowing users to effortlessly navigate and engage with the platform.

VII. Data Management

i.　Data Models

Database Schema
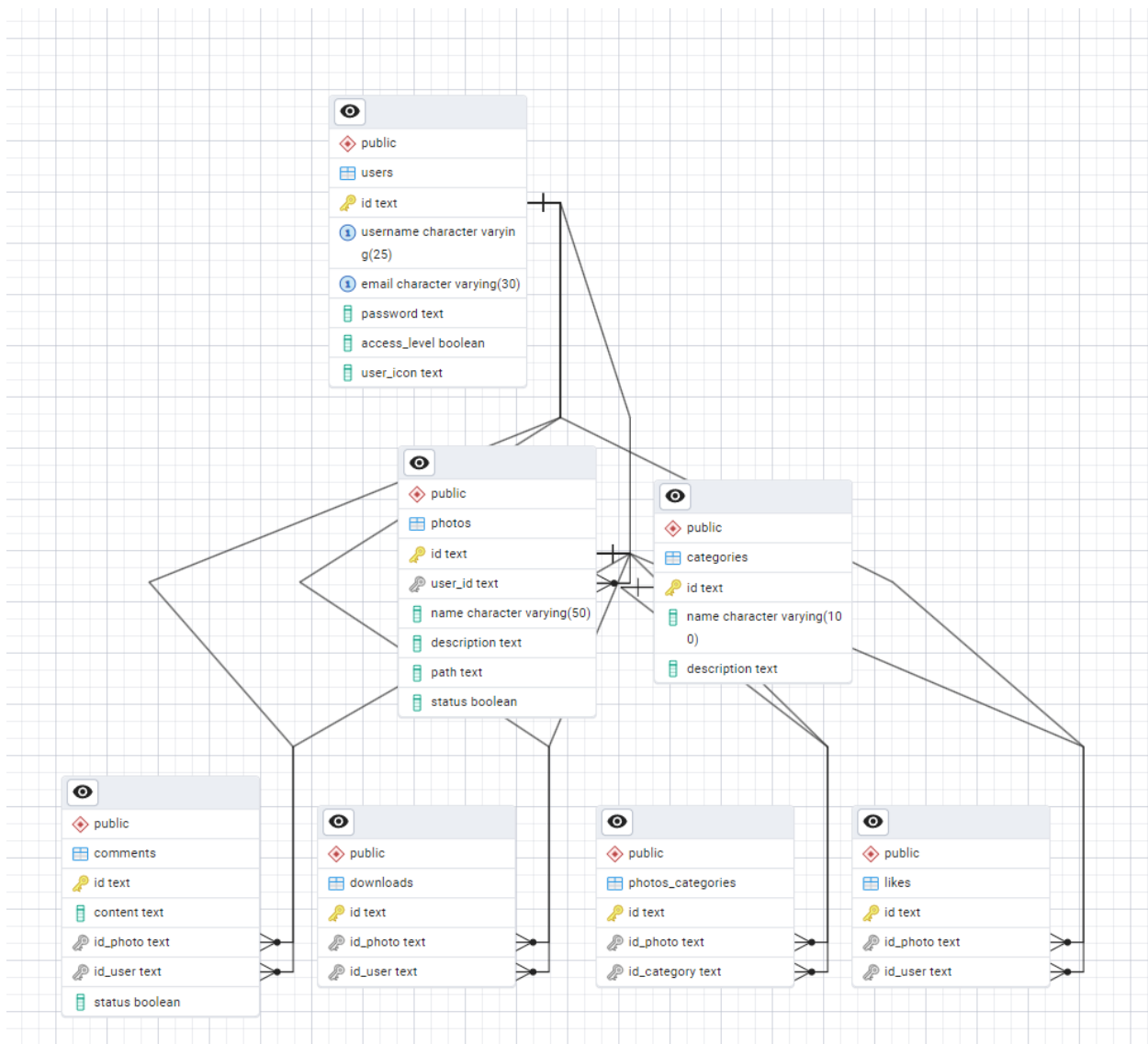
The database consists of seven tables. The users table consists of six columns: an id which serves as the primary key and must be unique and non-null, of type text. The username field is a required character varying field with a maximum length of 25 characters. An email field is included as a character varying with maximum length of 30 characters, and a password field is included as text. An access_level column is included as a boolean type. Additionally, there is a user_icon column of type text.

The photos table comprises six columns: id, user_id, name, description, path, and status. The id field serves as the primary key and is of type text. User_id is a foreign key referencing the users table and is also of type text. Name is a character varying field with a maximum length of 50 characters.

Description is a text field used to describe the photo. Path is a text field that defines where the image is stored. Status is a boolean field indicating the photo's current state.

The likes table (which handles user reactions to photos) consists of three columns: id, id_photo, and id_user. The id serves as the primary key and is of type text. The id_photo field is a foreign key referencing the photos table, and the id_user is a foreign key referencing the users table, both of type text.

The categories table consists of three columns: id, name, and description. The id field is the primary key and is of type text. The name field is a character varying with a maximum length of 100 characters, and description is of type text. These fields store information about the different categories that can be assigned to photos.

The photos_categories table serves as a junction table linking photos with their categories. It contains three columns: id as the primary key of type text, id_photo as a foreign key referencing the photos table, and id_category as a foreign key referencing the categories table, both also of type text.

The comments table has five columns: id as the primary key of type text, content of type text to store the comment's content, id_photo as a foreign key referencing the photos table, id_user as a foreign key referencing the users table, and a status field of type boolean to indicate the comment's state.

The downloads table represents the final table in the schema, containing three columns: id as the primary key of type text, id_photo as a foreign key referencing the photos table, and id_user as a foreign key referencing the users table, tracking which users have downloaded which photos.

ii.   Data Storage

The website's data will be stored on a shared server hosted by Namecheap, a reputable hosting services provider. To ensure data safety and integrity, daily, weekly, and monthly backups will be performed automatically. Furthermore, regular local backups will be conducted to provide an additional layer of security for both database data and the actual photos, minimizing the risk of data loss in the event of errors or breaches.

VIII. Testing and Quality Assurance

i.   Testing Strategy

This project incorporates comprehensive unit testing for both the backend and frontend components to ensure functionality and reliability.

For the backend, all controllers and API endpoints have been thoroughly tested and documented, verifying that they function as intended under various conditions.

On the frontend, each individual component has undergone rigorous testing to confirm proper behavior and integration with the overall user interface.

All tests have successfully passed, producing the expected results and demonstrating that the platform meets the desired quality standards.

IX. Project Timeline and Milestones

i.   Phases

The project was carefully divided into manageable phases to ensure efficient progress and organization.

In May 2024, the specification document (cahier des charges) was created, defining the project's chapters and requirements. During the following two months, UML diagrams, use case diagrams, and visual definitions were completed, providing a clear roadmap for the project.

Development commenced in August 2024, beginning with the backend, which followed the Model-View-Controller (MVC) architecture (not entirely as the frontend was separate). The initial backend development was completed by September. Subsequently, the frontend development began

in late September. Initially, the frontend was built using "dummy" (placeholder) data to create and test all visual elements. Once these elements were finalized and tested, integration with the backend was carried out seamlessly.

By December 2024, the development of the project was completed. In February 2025, the reduction of the specification document and the finalization of the "dossier professionnel" were successfully concluded.

X. Budget and Resources

i. Budget

The estimation of the total cost for the development phase is 100 euros, with minimal or no additional costs. The estimated cost for hosting and domain names is 300 euros, with an annual maintenance cost of 100 to 200 euros. The total estimated cost for the project is 300 euros initially and 200 euros annually. The payment is scheduled to take place at the delivery of the project, at the day of deployment.

ii. Resources

The project requires at least a web developer with knowledge of both back-end and front-end, web design, and experience in creating prototypes. A legal consultant is advised but not required. The requirement for the development of the website includes the use of the Next.js front-end framework, as well as additional libraries for the improvement of the user interface and user experience. For the back-end, libraries such as JWT and Sanitize are required to ensure the security of stored data, along with a library for establishing the database connection and the use of Node.js. For the database, PostegreSQL is required (open source, free of charge), without the need for additional tools. None of the aforementioned tools adds to the total cost of the development of the platform.

XI. Legal and Compliance

i. Intellectual Property

The platform is owned by its developer and is licensed under the MIT license, the most open and non-restrictive license. The code is open source and made available to be forked, pulled, copied, and used by anyone who desires to do so, as is the design of "photoStockage".

The content of the platform is owned by its content creators respectively, but is not protected by any copyright law, which is the main selling point of the platform, making it free for any type of use without the need for crediting the owner or requiring any form of compensation to them or the owner of the platform.

ii. Compliance

"photoStockage" respects privacy and personal data protection laws, including GDPR and other European laws, as it is based in France. A page is dedicated to explaining what data is stored, how the treatment of those data complies with European laws, and giving users the option to disagree and opt out of the storing of their data, which results in them only being able to browse anonymously, making some features of the site unavailable to them. The website also includes terms and conditions, which state that the owner of the site takes no responsibility for how the content is used after being downloaded, but promises to report any illegal activity reported to the authorities.

XII. Conclusion and Approval

i. Summary

In conclusion, "photoStockage" brings a new resource to developers and content creators, providing a free-of-charge service that is fast, easy to use, and available on all devices. It also fosters a sense of community by enabling user communication.

"photoStockage" is required to be fast and responsive, with minimal response times between user interaction and website reaction. A clean, minimalistic front-end is needed, taking into consideration accessibility issues, to provide an enjoyable experience for all users, regardless of their device of choice. The back-end needs to be secure to avoid data breaches and loss of data or service downtime. The database needs to be secured and well-designed to provide and store data as fast and as securely as possible.

XIII. Additional Considerations

i. Documentation

A documentation is included along with all the project files in the github repo. It consists of multiple files, describing backend, frontend implementation as well as general installation and utilization of the project.