**PROJECT XFOTOS**

**Team**

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| Team member | Role |
| Nathanael Alimsiwen Akowan | Frontend developer |
| Danyo Nathaniel | Backend developer |

These roles has being decided because Alimsiwen has good sense of developing good UI(user interface) and Danyo’s strong area is building backend .

**Technologies**

***Libraries***

Bootstrap, SQLalchemy, pillow, numpy

***Languages***

HTML, CSS, JavaScript, python

***Platform***

Heroku

***Hardware***

Computer /server

**Framework**

Flask

For the backend framework we had the options of using either flask or Django, since the project is a very minimal one we chose to use flask instead of Django.

And for the user interactive UI(user interface) we decided to use vanilla JavaScript to jQuery because Jquery is way too overkill since our application will not need to use complex JavaScript.

**Challenge**

This project is to help users be able to resize any picture, convert picture to black and white, crop or convert to thumbnail and also convert images to other formats such as jpeg , jpg, png and ico.

The project is not for photo editing ,or Ai generative photo applications such Adobe firefly, MidJourney, Adobe photo shop, Adobe lightroom etc.

The target users of this web application could be anyone especially students who sometimes apply for jobs ,programs online, and quickly need to convert png image to jpeg to meet photo requirement size or photo format type and still maintain image quality.

The XFOTOS project, which focuses on image conversion and manipulation, is not inherently dependent on a specific locale. The functionality and purpose of the application, such as resizing images, converting to black and white, cropping, and changing formats, are generally applicable across different locales and regions.

The need to convert image formats or perform image manipulations is not limited to a specific geographical location. Users from various countries and regions may have requirements to modify image formats or dimensions for different purposes, such as job applications, online programs, or personal use.

**RISK**

Technical risks that might arise is traffic handling and request handling , we intend to solve this problems using load balancers.

on-technical risks in the XFOTOS project can include various factors that may impact the success and user experience of the application. Here are some potential non-technical risks, their potential impact, and strategies to prevent negative outcomes:

User Dissatisfaction:

Potential Impact: Users may find the application difficult to use, encounter issues with image conversions, or be dissatisfied with the overall experience.

Prevention Strategy: Conduct user research and usability testing to ensure the application meets the needs of the target audience. Gather feedback and iterate on the design and functionality based on user input. Prioritize user-friendly interfaces and provide clear instructions for using the features. Continuously monitor user feedback and address any reported issues promptly.

Adverse Advertising:

Potential Impact: Annoying or intrusive ads could negatively impact the user experience and discourage users from utilizing the application.

Prevention Strategy: Implement strict ad policies to ensure only relevant and non-intrusive ads are displayed. Collaborate with reputable ad networks or platforms that adhere to user-friendly advertising practices. Regularly monitor ad content to ensure it aligns with the intended user experience. Consider implementing a paid tier option for users who prefer an ad-free experience.

Insufficient Revenue Generation:

Potential Impact: If the income generated through ads or paid tiers is insufficient, it may affect the sustainability of the project and hinder its growth and future development.

Prevention Strategy: Conduct market research to estimate the potential revenue from ads and evaluate the viability of the business model. Continuously monitor the revenue generated and adjust the ad placement and pricing strategies accordingly. Explore alternative revenue streams such as partnerships, sponsored content, or premium features. Regularly review and optimize the ad revenue strategy based on user engagement and feedback.

Competitor Dominance:

Potential Impact: Other similar applications with better features or marketing strategies could attract users away from XFOTOS.

Prevention Strategy: Conduct a thorough analysis of the competition to identify unique selling points and differentiators. Continuously innovate and improve the application based on user feedback and emerging trends. Develop a strong branding and marketing strategy to effectively communicate the benefits and value of XFOTOS. Regularly assess the competitive landscape and adjust the application's features and offerings to stay ahead.

Data Security and Privacy:

Potential Impact: Data breaches or privacy violations could harm user trust and damage the reputation of the application.

Prevention Strategy: Implement robust security measures to protect user data, including encryption, secure storage, and adherence to best practices for data handling. Comply with relevant data protection regulations, such as GDPR or CCPA. Regularly conduct security audits and penetration testing to identify and address vulnerabilities. Provide clear and transparent privacy policies to inform users about data collection and usage.

**INFRASTRUCTURE**

1.Branching and Merging:

The team can adopt the GitFlow workflow for branching and merging in the team's repository. This workflow involves two main branches: "master" and "develop". The "develop" branch serves as the main integration branch where all features and bug fixes are merged. Individual team members create feature branches off the "develop" branch, work on their assigned tasks, and then create pull requests to merge their changes back into the "develop" branch. Once features are thoroughly tested, the "develop" branch can be merged into the "master" branch for deployment.

2.Deployment Strategy:

The chosen deployment platform is Heroku. The team can utilize continuous integration and deployment (CI/CD) practices to automate the deployment process. Whenever changes are merged into the "master" branch, a CI/CD pipeline can be triggered to build and deploy the application to the Heroku platform. This ensures that the latest stable version of the application is automatically deployed and available to users.

Data Population:

To populate the app with data, the team can utilize various methods. It could include manual data entry during development, using existing datasets for testing purposes, or implementing an import feature to allow users to upload their own images. Additionally, the team can consider integrating with external APIs or services that provide image-related data to enhance the functionality of the application.

Testing Approach:

To ensure the quality and reliability of the application, the team can adopt a combination of manual and automated testing approaches. Manual testing can involve thorough testing of different features, use cases, and user scenarios. Automated testing can be implemented using testing frameworks and libraries compatible with the chosen technologies such as Flask and JavaScript. This can include unit tests, integration tests, and end-to-end tests to cover critical functionality and edge cases. Continuous Integration (CI) tools can be employed to automate the execution of tests on each code commit or pull request to catch any potential issues early in the development process.

**EXISTING SOLUTIONS**

Existing solution is free convert, Free convert has many converters such as image converters image, video, audio, document, eBook, archive converters . etc Freeconvert can convert files including images to other formats ,but to be able to convert files with larger side you will have to upgrade to a paid tier program.

Similarities

The two solutions are able to convert image from on extension to the other

Differences

1. Xfotos is a free online application which will earn it income using ads while freeconvert uses an upgrade or paid tier.
2. Xfotos only have image converters but freeconvert have other converters such as document , audio converters etc

NB: Xfotos will in time add more services such as document converters and video converters as services upgrade.

I choose to re implement the system because freeconvert offer best qualities at a paid price , instead of making the system paid , we will use ads for free tier which includes accessing all services and a paid tiers which eliminates ads.