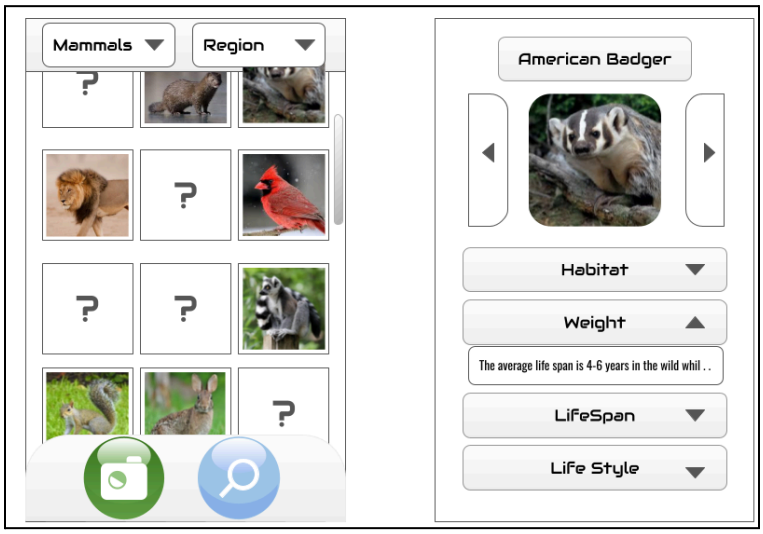
Animal Encyclopedia Summary

Group 7 - Nick Pintar, Dane Clute, Damon Chen, Jason Merino-Garcia

The Animal Encyclopedia is an educational animal app that allows users to discover animals. Users can take a picture of an animal and our AI will identify the animal. This unlocks the animal and users can view the animal profile. The animal profile includes information about any dangers concerning the animal. Additionally, it will provide descriptions about its habitat, lifestyle and life cycle. With millions of animals globally users can work on collecting and learning about as many animals as they can.



Users will be able to scroll through thousands of animal profiles all filled with information. They'll be able to look up information about animals in their region sorted by type (ex mammal). Here on the right is a mock UI of what a finished product would look like.

Our primary customers will be zoo's, national parks, aquariums and educational institutions. We plan to have customizable encyclopedias for each customer. So a user can go to the zoo and use the animal encyclopedia for that zoo. They'll be able to see what animals are available and collect them all. The animal profiles for these locations will also be unique if the customer wishes for it. The same option will be available for other locations. Outside of these locations a general animal encyclopedia will be available.

Our application will be in multiple languages, with measurement systems, maps, and names all updated per language. Maintaining information accuracy across all languages will be a high priority when developing the application.

Another high priority will be the AI's identification accuracy. The AI should make an effort to identify even low quality photos. If not, the application will provide feedback about improving photo quality.

The app's data requirements focus on what classes must be defined and how they are linked with each other to provide the functionality our application requires. The key components include User, Animals, and Animal classes, which manage the animals in the database and collections of animals for each user. An AI class is also used for animal identification, and a UI class links the interface with the components that provide functionality.

Additionally, the app must be maintainable, scalable, and secure. It should support iOS and Android offline functionality and handle high user traffic. Our database access should be restricted to developers only and protected against common attacks and malware. Furthermore, we value our users' privacy. We will collect minimal data to protect it and ensure accounts are secure with login credentials and an option to enable two-factor authentication (2FA). We also aim to keep our app running for as long as possible and to do so, we will ensure our app runs reliably, is under budget, and is tracked through audits.

The dependability requirements ensure the Animal Encyclopedia app remains reliable, available, fault-tolerant, and safe. Reliability is maintained through fail-safe mechanisms with a 95% success rate and graceful degradation to prevent crashes. Load balancing distributes traffic efficiently, while availability guarantees 99.9% uptime, limiting downtime to under 8 hours and 46 minutes per year. Fault tolerance includes offline progress saving and limited functionality mode for access without an internet connection. Safety measures ensure all content is suitable for younger audiences. Fit criteria and acceptance tests validate these standards for a seamless user experience.

The Operational and Environmental Requirements ensure the app remains accessible, integrates with essential systems, and receives continuous updates. Physical environment mandates mobile outdoor functionality under various weather conditions with a stable internet connection. System integration requires cloud-based image recognition and online databases for real-time animal identification. Productization ensures free access via app stores for broad availability. Regular updates introduce new features every four months, such as plant identification, mini-games, and wildlife scanning events, to keep users engaged. Fit criteria and acceptance tests ensure alignment with user needs and system goals.

Final System Design: