

## Activity A (II)

### 1. Business Context:

Riget Zoo Adventures is a wildlife park and tourist attraction aiming to provide an educational and engaging experience for visitors, focusing on animal conservation and sustainable tourism. The zoo attracts many local and international visitors annually and is looking to enhance their visitor experience, improve operational efficiency, and increase customer engagement using digital technologies.

### 2. SWOT analysis:

#### a. Strengths

- i. **Engaging Content:** The website offers a variety of interactive and educational content, such as animal facts, videos, virtual tours, and conservation information.
- ii. **User-Friendly Design:** The website is easy to navigate, with a clear layout that allows visitors to quickly find information about ticketing, exhibits, events, and more.
- iii. **Online Ticket Sales:** Convenient online ticketing system that helps reduce long lines and offers special discounts or promotions.
- iv. **Community Engagement:** Provides opportunities for users to donate, adopt animals, and participate in community events, fostering a sense of involvement and support.

#### b. Weaknesses

- i. **Limited Accessibility Features:** The website may not fully cater to people with disabilities (e.g., lack of screen reader compatibility or language options).
- ii. **Lack of Multi-Language Support:** The site may only be available in one language, limiting accessibility for international audiences.
- iii. **Slow Load Times:** Some pages or high-quality media may take longer to load, which could frustrate users and drive them away.
- iv. **Inadequate Search Functionality:** The search bar may not always yield the most relevant results, making it harder for users to find specific information.

#### c. Opportunities

- i. **Virtual Animal Encounters:** Expand virtual zoo experiences like live-streamed animal feeds, behind-the-scenes tours, or interactive Q&A with zookeepers, which could attract more global visitors.

- ii. **Increased Focus on Conservation:** Highlighting the zoo's conservation efforts through blog posts, videos, and donation opportunities could resonate with eco-conscious visitors and increase support.
- iii. **Partnerships with Schools:** Creating educational resources and programs for schools could lead to increased traffic, both from teachers and students.
- iv. **E-commerce Opportunities:** Adding an online store with zoo-themed merchandise or even tickets and memberships could create an additional revenue stream.
- v. **Enhanced Social Media Integration:** Integrating live social media feeds or user-generated content (e.g., visitors' photos and reviews) on the website could increase engagement and drive traffic.

d. Threats

- i. **Competition from Other Attractions:** Other family-friendly attractions (museums, aquariums, theme parks) may have better marketing or offers, drawing attention away from the zoo.
- ii. **Economic Factors:** Economic downturns or changes in disposable income may reduce overall visitorship to the zoo, affecting both online and on-site engagement.
- iii. **Technology Issues:** Technical glitches or outdated infrastructure could result in downtime, leading to poor user experience or loss of potential ticket sales.
- iv. **Environmental or Animal Welfare Concerns:** Negative press regarding animal welfare or environmental impact could harm the zoo's reputation and online image.
- v. **Security Risks:** Data breaches or security vulnerabilities, especially in online transactions, could damage user trust and the zoo's credibility.

### 3. For the Client (Riget Zoo Adventures):

Enhance the visitor experience through a seamless and interactive digital interface.

Improve customer engagement, increase repeat visits, and boost revenue through digital marketing and services.

Enable efficient operational management for ticketing, visitor flow, and promotions.

Meet accessibility and regulatory standards.

#### For Existing and Potential Users:

Offer an intuitive mobile application for visitors to plan and navigate their visit.

Provide personalized and interactive experiences for different types of users (families, children, education groups, etc.).

Ensure real-time information on animal exhibits, schedules, and events to enrich the visitor experience.

Make ticket purchasing, event booking, and communication with zoo staff easier and more convenient.

#### **4. Empathy Map:**

##### **1. Says**

What users say about their experience or expectations:

- "I want to learn more about animals before visiting."
- "I need to buy tickets online to avoid long queues."
- "I'd love to see live animal cams or virtual tours."
- "How do I donate to the zoo?"
- "I need to know the zoo's opening hours and special events."

##### **2. Thinks**

What users think while using the website:

- "Is this website easy to navigate?"
- "Are the prices fair for tickets and memberships?"
- "I hope I can find clear information about animal welfare and conservation efforts."
- "Will I get a good experience for my kids?"
- "I wonder if I can find any discounts or special promotions."

##### **3. Does**

What users do on the website:

- Browse through the list of animals and exhibits.
- Search for ticket prices and opening hours.
- Check for educational content or events related to conservation.
- Look for ways to donate or adopt an animal.
- Share the website or specific animal info on social media.
- Purchase tickets or memberships online.

##### **4. Feels**

What users feel when interacting with the website:

- Excited to see animals and exhibits.
- Curious about animal behaviour or fun facts.
- Frustrated if the website is slow or hard to navigate.

- Confused if information is scattered or unclear (like event schedules or ticket pricing).
- Happy when they find a simple way to donate or get involved.
- Satisfied when the website is user-friendly and provides the right information quickly.

## 5. UML case diagram:

The Zoo Website system includes various use cases and actors interacting with it. The Visitor can browse exhibits, view animal information, check events, purchase tickets, make donations, buy merchandise, and view educational content. A Member has all the rights of a Visitor but can also register/sign in, join memberships, and access additional features. The Admin can manage content, including adding or editing animal details, events, and educational resources, as well as manage user accounts. The Payment System handles transactions for ticket bookings, donations, and merchandise purchases. The system enables users to engage with the zoo's offerings, with Admin ensuring the backend functionality runs smoothly, including content updates and user management.

## 6. Functional and non-functional requirements:

### - Functional:

#### **Mobile App and Website Integration**

Users can view exhibit information, schedules, events, and purchase tickets through the app or website

A virtual tour guide feature using GPS to help visitors navigate the zoo

A personalized user experience, allowing families or groups to create a custom itinerary for their visit

Integration with an online payment system for easy ticket purchasing, event bookings, and donations

A real-time notification system for important alerts (e.g., animal feedings, special events, weather conditions)

#### **Ticketing and Membership Management**

The system should enable online booking for tickets, season passes, and special events

Offer discounts, loyalty rewards, and membership features for repeat visitors

#### **Visitor Analytics**

Track visitor preferences, most visited exhibits, peak visit times, and customer behaviour

Provide insights for marketing and operational adjustments.

#### **Educational Features**

Interactive learning tools such as quizzes, animal facts, and videos accessible through the app

AR (Augmented Reality) features to bring animal exhibits to life for educational purposes.

### - Non-functional:

**Scalability** The solution should be able to handle high volumes of traffic during peak seasons (e.g., weekends, holidays)

**Security** Secure user data protection, including personal information, payment details, and member records.

**Performance** Fast load times for mobile apps and websites to ensure smooth navigation and transactions.

**Accessibility** Comply with accessibility guidelines (WCAG) to ensure the app and website are usable by all visitors, including those with disabilities.

**Reliability** 99.9% uptime for the platform, ensuring continuous service during operation hours.

**Compatibility** The app should be available on both iOS and Android, with a responsive website accessible on desktops and mobile devices.

## 7. Techstack of the solution

- a. Back end (server)
  - i. Web framework
  - ii. Programming language (JavaScript)
  - iii. Database (MySQL)
- b. Front end (user's browser)
  - i. Javascript
  - ii. CSS
  - iii. HTML

## 8. Decomposition of Problems:

- **User Navigation and Experience**  
Problem: Visitors may find it challenging to navigate the zoo efficiently, especially during peak seasons  
Solution: Develop a GPS-based navigation feature integrated with the app to guide visitors through the zoo in real time.
- **Ticketing and Booking System**  
Problem: Managing high visitor traffic can lead to delays in ticket purchases and long queues

Solution: Implement an online ticketing system with fast checkout and real-time availability to streamline the purchasing process.

- **Data Security**

Problem: Ensuring the secure handling of customer data (personal and financial)

Solution: Integrate robust encryption and security protocols to protect user data and meet regulatory standards like GDPR.

- **User Engagement**

Problem: Visitors may not fully engage with educational content or stay interested throughout their visit.

Solution: Use AR and interactive elements to enhance engagement and learning, such as animal exhibits coming to life through the app.

- **Performance during high traffic**

Problem: The system may experience slowdowns during peak visitor times, especially with real-time notifications and ticketing

Solution: Optimize back-end infrastructure for scalability and use cloud solutions for load balancing.

## 9. Key Performance KPIs and User Acceptance Criteria:

- **KPIs:**

**User Engagement Rate** Measure how often users interact with the app's features (e.g., viewing exhibits, using the navigation, booking tickets)

**Conversion Rate** Track the percentage of app visitors who make a purchase (ticket or membership)

**Customer Satisfaction (CSAT)** Collect feedback from visitors about their experience using the app

**App Retention Rate** Monitor how many users return to the app after their first visit

**Peak Traffic Handling** Assess system performance during peak visitor periods (load time, response time)

- **User Acceptance Criteria:**

The app should load within 3 seconds and provide clear instructions for navigation

All features (ticketing, AR, navigation, educational tools) should work seamlessly with no crashes

The app should support multiple languages to accommodate international visitors

The booking system should allow quick and easy access to tickets with a secure payment gateway

The app should be accessible, with features like text-to-speech for visually impaired users.

## 10. Description of the proposed Solution:

The proposed digital solution is a **mobile app and website integration** that enhances the visitor experience at Riget Zoo Adventures. The app will feature real-time navigation, an online ticketing system, interactive educational content, and AR tools to make the zoo visit more engaging.

Key features:

**Zoo Navigation** GPS-based guides, interactive maps, and real-time alerts about events and feeding times.

**Ticketing System** Seamless booking experience for tickets, memberships, and event reservations with secure payment options.

**Educational Tools** Interactive features, AR animal exhibits, and learning games for visitors of all ages.

**User Profiles** Personalized experiences, allowing users to create itineraries, save favourite exhibits, and receive customized recommendations.

## 11. Justification of the Proposed Solution:

### Meeting the Client and User Needs:

For Riget Zoo Adventures The solution will drive more foot traffic and revenue through seamless online ticketing, loyalty programs, and customer engagement. It helps the zoo stand out by offering a unique, interactive visitor experience.

For Users The mobile app provides convenience, real-time updates, and personalized experiences, improving their overall visit.

### Risk Mitigation:

**Security Risks** Data encryption and secure payment systems will ensure compliance with privacy laws (e.g., GDPR)

**Performance Issues** Scalable cloud infrastructure ensures the system can handle high traffic volumes

**User Adoption** User testing and regular feedback collection will help refine the app and ensure it meets visitor expectations.

### Regulatory and Legal Requirements:

**GDPR Compliance** The app will adhere to data protection regulations, ensuring the secure collection and handling of personal data

**Accessibility Standards** The app and website will meet WCAG guidelines, making it usable for visitors with disabilities

**Tourism Regulations** The app will comply with local tourism and business regulations, ensuring it aligns with industry standards and best practices.

## Conclusion:

The proposed digital solution for Riget Zoo Adventures is designed to enhance the visitor experience, streamline zoo operations, and increase customer engagement through advanced digital tools like a mobile app, real-time navigation, and online ticketing. This solution addresses both the client's needs and the expectations of diverse users, while ensuring scalability, security, and compliance with relevant regulations. The solution is positioned to boost visitor satisfaction and operational efficiency while mitigating potential risks.