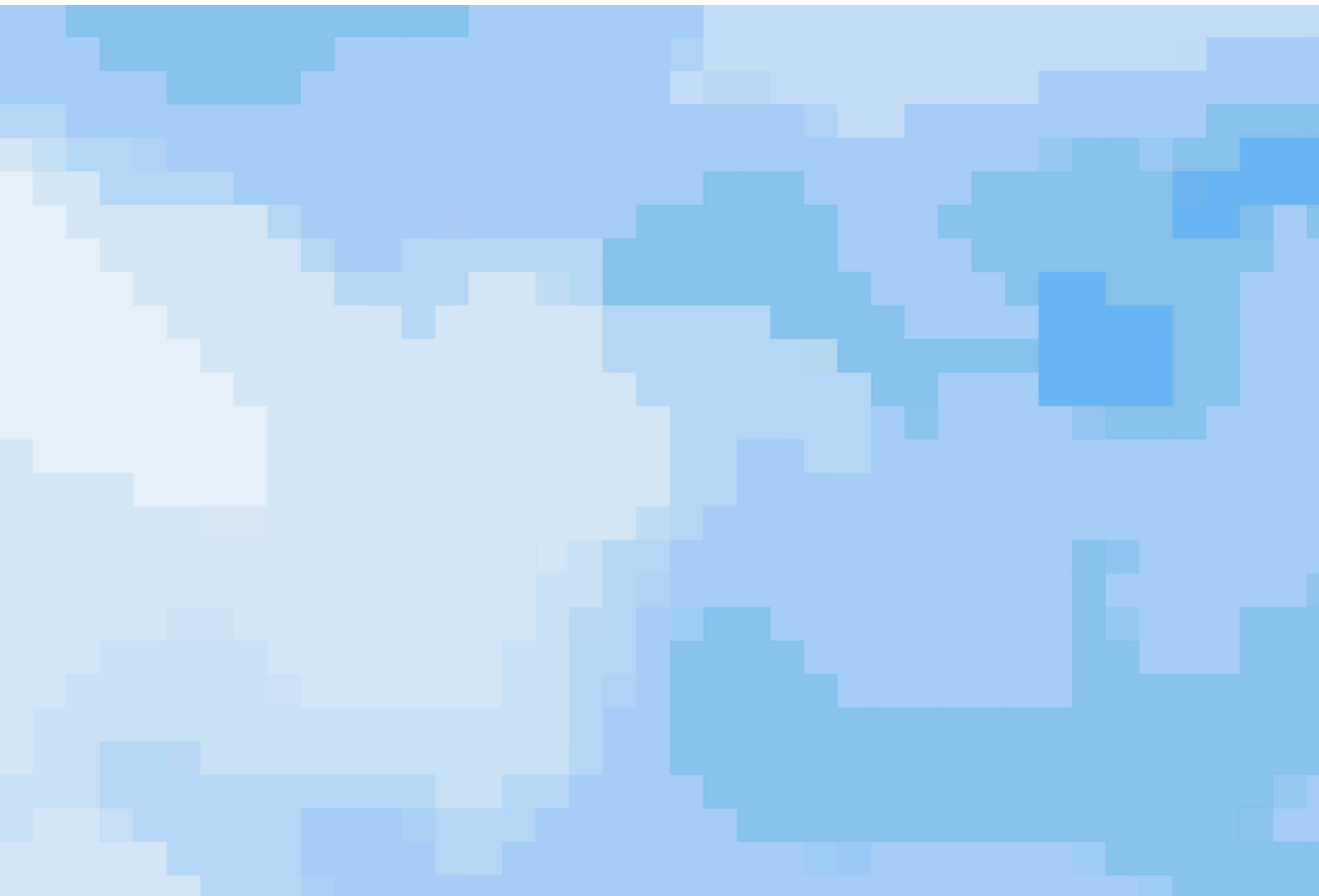# Requirement Analysis Document

Group: JARS with an E

Project: Napoelon's Adventures

REQUIREMENT ANALYSIS DOCUMENT

1. <u>Introduction</u>

a. The purpose of this document is to outline the requirement analysis for Napoleon's Adventure, and environmentally sustainable treasure hunt web app focus on to educate users regarding waste management. Napoleon's Adventure designed to promote sustainability and encourage students to explore their university campus. The platform integrates a digital treasure hunt where users navigate a campus map, visit real-world location, and scan QR codes to access mini-games themed around waste management and sustainability. By engaging in these activities, users gain awareness of eco-friendly practices while actively walking across campus.

2. <u>Functional Requirement</u>

a. **Player Users:**

   i. Player Users registration and profile management:

   - Register account

   - Reset account password

   - Login account

   - Logout account

   - Delete account

   - View user profile

   - Change account Username

   - Change account Email

   ii. Mini-Games functionality:

   - Scan QR codes to access mini-games

   - Play mini-games

   - View overall leaderboards for mini-games

   - Unlock the Play-Again functionality

b. **Game keepers / Admins:**

   i. Player Users management:

   - Delete user

   - Delete user's leaderboard data

   ii. Mini-games management:

   - Change/Add/Edit/Delete mini-games location on the map

iii. Gamekeeper / Admin management:

- Create new gamekeeper / admin account
- Delete gamekeeper / admin account

3. Non-Functional Requirements

a. Performance:

- The app will be accessed by mobile devices, hence the app must be responsive and able to handle multiple users.

b. Security:

- The app should protect users data.

c. Usability:

- The app should be intuitive and easy to navigate.

d. Scalability:

- The app should allow for new game features and more locations.

e. Compatibility:

- The app should be able to work on both mobile and desktop browsers.

f. Sustainability:

- The app must educate and promote topics related to sustainability to its users.

4. Assumptions

a. Gamekeepers are willing to maintain and update QR codes in all locations across university campus.

b. Users have smartphones with internet access to access the app.

c. Users have smartphones with usable camera to scan the QR codes.

5. GDPR

a. This apps practices the GDPR guidelines in the following ways:

- The app will only collect necessary data, such as emails address and login credentials.
- User passwords will be hashed and stored securely using Django's authentication system.
- The app will follow Django security practices.

- Users can request for account deletion, and all related data will be permanently deleted.

- Users can update their information such as usernames and email address.

- QR scanning tool that had been implemented comply with GDPR rules.

- Users must agree to the app's Privacy Policy before registration.

- Require a Terms of Service & Privacy Policy page that will outline how data is stored, used and collected.

- User can access and download their data upon request.

6. <u>Ethics of our app</u>

a. **Accessibility & Inclusion**

- The app is designed to be accessible to all students, including those with disabilities, by complying with web accessibility standards (WCAG 2.1)

- QR codes will be placed in a location that is accessible to everyone.

- The treasure hunt concept is inclusive, it require no specialized knowledge to participate.

b. **Environmental Responsibility**

- The app encourages sustainable behaviours by promoting waste management education reducing environmental impact through interactive learning.

- Our app also encourage users to walk across university campus, which reduce carbon emissions and will expose users to university buildings.

- QR codes will be placed in a location that is sustainable themed. For example, put it near a recycling bin, near a water cooler etc.

7. <u>Technology Stack</u>

a. **Django Framework**

   i. Rapid Development

- Django is a high-level framework that promotes rapid application development (RAD). It includes built-in features such as admin interfaces, database management and authentication. This allows developers to quickly build and deploy web applications.

   ii. Security Features

- It offers protection against common we application vulnerabilities, such as SQL Injection and Cross-Site Scripting (XSS).

   iii. Scalability

- Django's modular design makes it easy to scale. Django can efficiently manage large amounts of data and traffic.

   iv. Versatility

- Django is suitable for a wide variety of web applications. It is flexible to support different types of API integrations, databases and various front-end technologies.

b. **QR Codes**

   i. Ease of use

- It is very easy for people to use QR codes especially on mobile devices.

ii.   Fast access to information

- QR codes provide a fast and direct way to access information and in this case the mini-games.

iii.   Low cost & easy to implement

- QR codes are cost-effective to generate. QR codes can be easily created using any free online tools in the internet.

iv.   Trackable & Analytics

- QR codes can be tracked to analyse engagement where we can check how many times the QR code is scanned.

c. Bootstrap

i.   Responsive and Modern Interface:

- Ensure responsive layouts and a user friendly experience to all users across all devices including desktop, tablets and mobile phones.

- Maintain consistent styling and have a ready-to-use UI components.

d. AWS (Amazon Web Services)

i.   Provides a scalable infrastructure to handle different traffic levels.

ii.   Provides a strong security features to protect the application.

iii.   Provides many type of tools that supports both production environments and development.

e. Custom .com Domain

i.   Improves brand identity.

ii.   Improve credibility and maintain a professional online presence.