**SETaP Coursework 2**

Team ID: Group 7E

**Specification**

The specification process began with structured interviews involving five individuals representing diverse user profiles, such as hikers, commuters, and cyclists. Participants were asked targeted questions regarding their typical usage of navigation apps, features deemed necessary, and desired improvements. Additionally, a short quantitative survey rated the importance of identified features. Ethical practices such as informed consent, anonymity of data, and secure data handling were strictly observed.

From the collected data, essential user requirements emerged clearly:

| **ID** | **Requirement** |
| --- | --- |
| **UR1** | Routes must clearly display complexity, duration, remoteness, and user-rated busyness. |
| **UR2** | Users must have the option to share their routes either publicly or anonymously. |
| **UR3** | The app must support both guest access and profile creation for continuous engagement. |
| **UR4** | The capability to download and access maps offline must be present for remote usage. |
| **UR5** | Advanced search features with filtering based on complexity, length, and ratings must be integrated. |
| **UR6** | Routes must be reviewable and ratable by the user community. |
| **UR7** | Creators must have the ability to edit and update previously shared routes. |

Functional system requirements developed from these user demands included robust route discovery with advanced filters, user authentication (both anonymous and registered), comprehensive route creation capabilities, offline map functionalities, and a dynamic social interaction system incorporating reviews and ratings. Non-functional requirements covered performance expectations, security protocols including encrypted data handling, scalability to accommodate significant user growth, and enhanced usability considerations such as accessible interfaces and readability standards.

Platform compatibility targets Android 6.0 and above, considering typical hardware configurations with a minimum of 2 GB RAM and storage requirements adequate for offline map caching.

**Design**

A clear and detailed use-case diagram was constructed, showcasing user interactions between guests, registered users, and system administrators. Essential use cases include:

1. Route Searching: Users apply advanced filters to discover suitable routes.

2. Offline Map Download: Users save routes for offline access.

3. Route Creation & Sharing: Registered users create, customize, and share routes.

4. Review & Rating System: Users submit feedback, enhancing route discovery quality.

5. Profile Management: Users maintain their profiles, managing personal data and preferences.

Architecturally, Pathfinder Pro employs an effective client-server model:

* The Android application acts as the primary client interface.
* An API server facilitates interactions between the client app and backend storage.
* A robust database stores critical user data, route details, and user-generated content.

The overall system design prioritizes responsiveness, modularity, and future scalability. Interfaces between modules are standardized, and system communication is optimized for efficiency and reliability.

**Implementation**

**Link to video demo:** <insert link to a 3-5 minute demo of your prototype>

**Link to GitHub repository:** <insert link to the project’s Github repository>

**Link to code documentation (readthedocs):** <insert link to a built version of your code documentation>

**Link to code documentation sources (if not part of the project repository):** <insert link to rst files of the code documentation>

**Discuss any implementation issues faced.**

**Testing**

**Link to test plan:** <insert link to test plan or point where in the Github repository the plan is located> Please share with editing rights.

**Link to automated tests and evidence of a test report:** <insert link to automated tests or point where in the GitHub repository the tests are stored>

**Critical analysis**

**Provide examples of teamwork management in terms of:**

* **Leadership:** How did your team manage leadership as part of this project?, Has anything changed since the first semester?
* **Progress monitoring:** How did you keep track of the progress made as a team?, Has your approach changed from the first semester?
* **Conflict resolution:** Give examples of a couple of strategies you put in place to address team conflicts. Do these differ from the strategies used during the first semester?

**Contributions table**