**Group Project Report – Travel Agency Record Management System**

For our project, a GUI record management system was designed for a specialist travel agency. The system handles three different types of records: client records, airline company records, and flight records. The project was developed using Python and the Tkinter library.

**Core features**

The system features full support for all CRUD operations, that is create, read, update and delete. The GUI includes tabs for the three types of records along with pop-up windows in the tab for adding, editing and deleting records. Finally each tab is also equipped with a search field.

**Data structure and storage**

Records are stored in memory via a list of dictionaries (records = [{...}, {...}]). Data is then saved using the JSON format, which has been chosen over binary formats as it is human-readable, portable, lightweight and easily parsed while avoiding security risks when loading data (Python Software Foundation, 2024; Bray, 2014). On system start-up, the application checks for existing files and saves updated records upon exit.

**GUI and accessibility**

The GUI was designed with the Tkinter library, a standard library provided by python (Moore, 2018). The three tabs were colour- coded for usability and so were the three different action- elements.  The popups have been resized and restyled to align with W3C accessibility guidelines including the 4.5:1 contrast ratio requirement in all areas based on WCAG 2.1 standards (W3C,2024).

**Testing and Quality Assurance**

Unit tests have been written using Python’s unittest framework. The testing was designed to target core features including editing, adding, deleting, saving and was guided by principles from *The Art of Software Testing* (Myers *et al.,* 2011).

**Team collaboration**

The four members of our team have split the roles as follows:

Eva has taken on the role of GUI design as well as most of the project management tasks.

Arjan has taken the role of the main programmer, designing the main application.

Ali has taken on the tester task and has also supported Arjan in programming.

Finally Francesco integrated the main application into the GUI to make a working and complete application.

Microsoft Teams and WhatsApp were used for coordination with the three meetings marking the project milestones.

**Source Control and Versioning**

GitHub has been used to host the codebase with all commits following PyInstaller’s message guidelines (PyInstaller, 2023). The repository was then exported and submitted as a ZIP file through the VLE. Git has been chosen for collaboration as it supports team-based development and provides clear traceability (Atlassian, 2023).

**Project outcomes**

The main goal has been achieved by delivering a fully functional record management system with an accessible GUI and persistence. The team has also gained practical experience in GUI design with Tkinter, file I/O and JSON, software testing and sharing group work via Git and GitHub.

Of course, given more time the project could be further improved via an enhanced search function for example including filters and a persistent backend for example via cloud storage.

Word count: 495

**Reference List**

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