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Project Elf Delivery Dash

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Definitions and Abbreviations

UAS: University of Applied Sciences

EDD: Elf Delivery Dash

Elf: Main character controlled by the player

Grinch: The character with difficult challenges

Reindeer: The character who is a companion of the elf

Santa Claus: The target character

1 Introduction

This document provides a functionality and quality specification for the development of Python console game named Elf Delivery Dash (EDD). This project is a flight simulator game for first year students in Information Technology degree at Metropolia UAS. The paper outlines the vision, functional requirements, and quality requirements of the game development process with clear project implementation.

In EDD, players take on the role of an Elf, navigating through a series of Nordic airports to deliver wish letters to Santa Claus. Along the way, they choose their route by choosing to go left or right at each stop. The players need to visit first 20 random airports, each offering either rewards or challenges. After that, they must visit two more airports before reaching Rovaniemi where Santa Claus is located. The goal is to deliver at least 100 letters to win the game.

The primary audience for this requirement specification document includes a development team consisting of three IT students, course lecturers Chau Truong Minh and Juha Tauriainen, English lecturer Ulla Paatola, and fellow classmates.

2 Vision

The concept of EDD was inspired by the idea of the upcoming Christmas season. Given Finland as the location of the degree, it was considered beneficial to design a game that is both practical and relevant to the local culture. With the recognition of the market saturation of combat-oriented games, the project is aimed at casual gamer (K12) and adults seeking a relaxing and holiday-themed game experience.

In EDD, the player become an Elf with the mission of delivering 100 or more letters to Santa Claus in Rovaniemi Airport. The game session begins at Helsinki-Vantaa Airport, where the player starts with 100 letters and selects a reindeer companion. From there, the Elf has to navigate firstly through 20 different airports,

choosing either left or right from a random selection of 58 airports of Nordic countries (the game database contains 60 airports including the starting airport and the destination airport). The names of the first 20 airports will be revealed to the player at each stop.

Each airport holds a unique challenge or reward, creating an unpredictable and exciting experience where the player can either gain or lose letters. During the game session, the reindeer character offers support by helping the Elf save letters in a specific airport which is related to the reindeer's attribute. At one random airport, the Grinch character appears and steals letters or challenges the player with a task. After passing the first 20 airports, the player must still have at least 100 letters and find Santa Claus at the 23rd airport to win the game. The 21st and 22nd airports' names are not shown for the logic of the story (which is when the player has lost the map).

The brief of game features is provided below:

- Elf Role and Mission: Players become an Elf and have to deliver at least 100 letters to Santa Claus.
- Reindeer Selection: At the beginning, players select a reindeer with a unique attribute which is useful at a certain airport.
- Airport Exploration and Loss and Reward System: Players will explore 22 Nordic airports, each presenting unpredictable challenges that affect their total letter count. These challenges may include educational quizzes or fun and random facts about the countries of where the airports are located.
- Airport Direction: Players can decide their route by either choosing left or right with the name of each airport displayed on the screen.
- The Grinch Encounter: the Grinch's location and challenge will be randomly chosen at the beginning of the game. If the Elf arrives at an airport at the same time as the Grinch, he will challenge the Elf and take a certain number of letters away.

3 Functional requirements

Below are several stories that show how users might interact with the game.

- As a player, he/she can select one reindeer at the beginning of the game, so that he/she can use its special attribute to influence the gameplay in certain airports. He/she can view all reindeers' introduction which has hints of their attributes, so that he/she can choose the reindeer that he/she likes.
- As a player, he/she is granted 100 letters at the start, so that he/she can begin the mission to deliver them to Santa Claus.
- As a player, he/she can select the direction (left or right) of which airport to visit next, so that he/she has the indications for his/her route.
- As a player, he/she can gain letters when visiting certain airports, so that he/she increases the chance of winning by delivering 100 or more letters to Santa.
- As a player, he/she can lose letters in some airports, so that he/she must be prepared to overcome the obstacles.
- As a player, he/she can lose letters to the Grinch, so that he/she should try to win his challenges.
- As a player, he/she can always check the number of letters by an announcement after finishing each airport's challenge, so that he/she can track the progress during the game.
- As a player, he/she can win the game by succeeding in the mission of delivery at least 100 letters to Santa Claus.
- As a player, he/she can lose the game if he/she arrives at Santa Claus's location with fewer than 100 letters, so that he/she understands the importance of loss and reward system in the game.

4 Quality requirements

Besides its core functionality, the progress of the EDD game relies on its usability, accessibility and performance. These aspects are crucial for delivering a smooth and entertain user experience, especially within the context of a text-based and Python console-based game.

4.1 Usability

Console interface is one of the most important components for this game's usability. EDD is a text-based game designed for a Python console environment. Therefore, the prompts should be clear and straightforward, and the text instructions need to be easy to follow. For example, the game utilizes simple prompts such as "Type L for LEFT or R for RIGHT: " to choose directions, or "Type A, B or C to answer: " for multiple-choice quizzes. In addition, since EDD allows the players to choose their reindeer at the start, the reindeers' description must be presented in a well-structured and readable format. Using bullet points can help illustrating this information clearly. This simplicity helps players quickly understand what actions to do without any confusions.

To enhance visual clarity, EDD uses the built-in Python module Colorama. This module allows to make color-coded text, as well as choosing the text background. In EDD, instructions are displayed in yellow (a good contrast against the black background of Python console), while updates on letter count are displayed in cyan for easy tracking. Additionally, the use of colour coding can help separate different game sections and events, making the experience more exciting and engaging.

Additionally, it is likely that the users may enter invalid commands or make mistakes during their game session. To address this, the game must provide informative error messages that clearly explain the error and guide the player how to retry. For instance, if the players type in different words while choosing

their direction instead of L or R, the game will respond with “Invalid choice! Type L for LEFT or R for RIGHT: ”.

4.2 Accessibility and Stability

Accessibility is essential for EDD to approach all players in its target group. Clear text formatting and compatibility with Python installation without requiring additionally third-party applications are the key factors for this game accessibility.

The game must operate without any crashes or delays during the session while tracking and updating players' progress precisely and constantly. A single database is utilized to manage all game data efficiently, including airports' information, reindeer attributes, the Grinch challenges and player's current progress. This database helps simplify data management and retrieval, as well as updating any changes to the game.

By prioritizing these usability and accessibility features and utilizing only one database, Elf Delivery Dash can create a welcoming and exciting gaming environment for all players, regardless of their skill levels or former gaming experience.