EECE 435L Final Report

Fall 2017-2018

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I.   User Manual

How to install the application

Clone the following git repository, and build it in Qt.

Add the included ressources (images and sounds) to the build directory.

Add an empty file called users.txt to the build directory.

Install the included fonts.

A. Game 1

Description

Three little aliens want to join the Earth.
In order to do so, they have to prove they can differentiate a good value from a bad one.
Help them acquire catch the good values on their way to Earth, and avoid the bad ones!
Be careful, the number of bad values on the way increases with the level of difficulty.

How to use the game

First, the player has the option to choose between 3 levels of difficulty. The alien character changes depending on the level.

Upon choosing a character, a countdown is shown. When the countdown ends, the game starts. The alien is positioned at the top of the window, and the player can start moving the alien on the screen by using the left, right, up and down arrow keys.

When the alien catches a good value, he gains a life. He can have at most 7 lives.
When he catches a bad value, he loses a life and is repositioned at the starting position.

There are 3 ways to end the game:

- The alien has lost all of his lives
- The timer has ended
- The alien reached the bottom of the screen

When the game ends, the score is shown, along with the values and vices the alien catched, the number of lives left and the remaining time.

A message is shown to determine whether the alien has been accepted to Earth or not.

B. Game 2

Description

An alien engineer and an alien doctor want to follow a training that will either allow them to join Earth and perform their services there, or not.

Help them go through the everyday challenges they could face, and make the right choices to acquire the maximum amount of good values, and the minimum amount of bad ones!

Be careful! Some situations will require from you to make fast decisions, at the risk of losing values or money.

How to use the game

First the player chooses to play as either an engineer or a doctor. This game evaluates the following values:

1. Friendship
2. Compliance with rules and regulations and with work ethics
3. Honesty
4. Forgivingness
5. Helping others
6. Family
7. Courage

After choosing the character, the player accesses an interface from which he can go to the next question, see his current position in the game and see how much money he has.

I. Engineer

If the player chooses to play as an engineer, he will be put through several engineering and everyday life scenarios that measure all of the values listed above.

Example:

- Being a victim of an accidental annoying act by a colleague.
- Having to make important managerial decisions that relate business and family.
- Being put in tight situations where he should act quickly.

Values measured by scene:

1. Compliance with rules and regulations and with work ethics, honesty and friendship.
2. Forgivingness.
3. Compliance with rules and regulations and with work ethics and friendship.
4. Compliance with rules and regulations and with work ethics and family. He gains money depending on his choice.
5. Friendship.
6. Honesty and helping others. He gains or loses money depending on his choice.
7. Courage and helping others.
8. Honesty. He gains or loses money depending on his choice.

II. Doctor

If the player chooses to play as a doctor, he will be put through several medical and everyday life scenarios that measure most of the values listed above.

Example:

Having to make tough decision between ethical choice and family.

Having to sacrifice from his time and gain less money to help patients.

Values measured by scene:

1. Helping others.
2. Family and compliance with rules and regulations and with work ethics.
3. Helping others. He gains money depending on his choice.
4. Compliance with rules and regulations and with work ethics.
5. Family and compliance with rules and regulations and with work ethics.
6. Compliance with rules and regulations and with work ethics.
7. Honesty.

C. Game 3

Description

Aliens should also have a good sense of logic and memorization, helped by a little bit of luck...

Help one of the three little aliens match the good values, and avoid matching the bad ones.

How to install the game

How to use the game

First, the player has the option to choose between 3 levels of difficulty. The alien character changes depending on the level.

Upon choosing a character, the game starts. A set of cards, back shown, are displayed. Every card has on its front either a good value or a bad one. All the values exist in duplicate items.

The player has to use the left, right, up and down arrow keys to make the alien hop from one card to the other. To flip the card the alien is on top of, the player has to press the SPACE tab.

When one card is flipped, it stays with its front showing until another card is flipped.

- If they are both matching good values, the alien gains this good value
- If they are both matching bad values, the alien loses a life and gains this bad value
- If they don't match, the cards are simply flipped back

There are 2 ways to end the game:

- The alien has lost all of his lives
- The alien found all the matching values

When the game ends, the score is shown, along with the values and vices the alien catched and the number of lives left.

A message is shown to determine whether the alien has matched enough good values or not.

II. Developer Manual

A. Description

1. Platform

The platform we used is Qt Creator, which is part of the SDK for the Qt GUI application development framework.

2. Language

Our code is written in C++.

3. Library

We used many Qt libraries in our application for the different functionalities we needed:

- Basic QWidget libraries
- GraphcisView and GraphicsScene libraries for our games
- KeyEvent and Sound libraries to add effects to our games

4. Online Code

Used the following library for authentication using facebook:

https://github.com/pipacs/o2

B. Issues Faced

We encountered many problems:

1. Lack of game oriented documentation for qt

Qt's documentation is very detailed but lacks extended documentation for QGraphicsView and QGraphicsScene as they seem outdated and not used that much by the community.

2. Difficulty of testing while modifying

Qt is not game engine, so testing after a minor change takes as much as testing the complete application.

3. No official support for game developers

As mentioned above, by not being a game engine, Qt does not implement many functions that make the game developer life easy (motion according to laws of physics or fast ui update).

4. Ui problems

Fast UI updates are not supported, we worked on a centisecond timer for interactive scenes but we could not use it as Qt crashes if UI updates are fast.

No easy ways to place items on top of each other and to modify dynamically the scene Content.

5. Reading and writing to files

After we started to use files to store information, we experienced some difficulties when we wanted to add a single entry for a game score as in c++ it is not possible to modify a file in a certain position without rewriting the whole file.

C. Profiling Analysis

D. Current Bugs

- Resume game does not always work for game 1 if the user opens another game after exiting game1
- Small delay of sounds in game 3
- Some cases when score does not reflect best analysis of values gained

III.   Task Report

	Task	Person in charge
Phase 1	Welcome page and signup page	Hadi Ghattas
	Login and navigation bar	Morgane Ayle
Phase 2	Design	Hadi Ghattas Morgane Ayle
	Obstacles and character functionalities	Morgane Ayle
	Object collision handling, random movement of obstacles	Hadi Ghattas
	Lives and timer functions	Hadi Ghattas
	Score menu	Morgane Ayle
Phase 3	Design	Hadi Ghattas Morgane Ayle
	Start/Next page	Morgane Ayle
	Scenes Engineer/Doctor	Hadi Ghattas Morgane Ayle
	Features, effects and sounds	Hadi Ghattas Morgane Ayle
	Score menu	Morgane Ayle
Phase 4	Card functionalities Vices/values distribution	Hadi Ghattas
	Character movement and Score	Morgane Ayle
Phase 5	Sign up with facebook	Hadi Ghattas
	Login and signup menus	Hadi Ghattas

	Resume game option	Hadi Ghattas
	User profile	Morgane Ayle
	History of games	Morgane Ayle