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1 PROJECT OVERVIEW

Revivor is an entrainment company specialized in all-times video games classic revivals. They have successfully been selling small gaming devices for TV sets for 3 years and wants to take the next step. Their previous product was a compilation of legacy video games like Pong, Pac-mac or even Space invaders.

Revivor now wants to launch a new product targeting middle-range PC's: a compilation of games released in 1982.

For this project, the Revivor executives have decided to outsource all game development to contractors. Each contractor will undertake the development of one video game of the collection.

Revivor not only wants the game collection to be a simple rewrite of existing games. They also want to add new features. The contract stipulates that each contractor must provide at least two innovative features to the game they rewrite. A network-based multiplayer mode would be greatly appreciated.

Your team as been chosen to rewrite the all-times classic "Choplifter".

You have just one technical constraint: uses C language (and if course whatever graphic/sound library you want).

2 FUNCTIONAL EXPRESSION

2.1 THE GAME

Choplifter is a helicopter game where the player has to rescue hostages.

The player starts on a safe zone (U.S. military base), go on the warzone to pickup hostages and bring them back to the base.

Hostages are kept in buildings that must be destroyed to release their captives. The buildings can be destroyed by the player fire or it's opponents'. Each building holds 16 hostages. The player cans also pickup 16 passengers in the chopper by landing near hostages. If there is enough room left in the chopper hostages will step in until the chopper is full.

When the chopper lands, all hostages run to the copter to be picked up.

The chopper can fly backward, forward and facing the player. It can fire bullets while flying in all directions.

Each time the player rescue an hostage batch (does a rotation between the warzone and the base while bringing hostages to the base), new opponents appears. There are four levels of enemies:

- Tanks. These enemies that can only roll and hit the player when he is flying near the ground.
- Planes. They fire rockets at the player. They must face the player to fire.
- Flying saucers. They follow the player and try to touch it. Collision between the player and a flying saucer result in the chopper destruction

The player has three lives and must try to save as much hostages as possible.

Hostages can be killed when:

- Crushed by the copter
- Crushed by enemies
- Shot by friendly or enemy fire
- They are in a copter crash.

2.2 GRAPHICS

You're free to use whichever graphic assets you want.

2.3 VIDEO RESOURCES

You can use the following links to get an impression of what the game should look like:

- <http://www.youtube.com/watch?v=NgkhC0XGFjs>
- <http://www.youtube.com/watch?v=beuC4njtLUE>
- <http://www.youtube.com/watch?v=-4ciAg6Xv4M>

3 DELIVERABLES

Students should include the following elements in their final delivery:

- A zip archive with the project source code and at least one executable for Win32 and/or Linux. The source code must also come with the build system used (Project file, autotools, ...).
- Project documentation, based on the template.
 - Technical documentation explaining your choices and/or implementation choices/details on the following items (at least):
 - Graphic engine

- Scrolling
- Enemies / Hostages moves
- Bullets/rockets/... handling
- Game manual

The first document is an academic document. Address the reader as a teacher, not a client. The last one (game manual) should address the reader as a user. These documents can be in French or in English, at your option.

4 GRADED ITEMS

The project will be graded as follows, on a 49/45 scale:

Documentation (2 points)

- Spelling and grammar (0.5 points)
- Relevancy (0.5 points)
- Technical documentation (1 point)

Graphics (7 points)

- Game aesthetics (3 points)
- Sprite animations (2 point)
- Ammo animations (2 point)

The copter (12 points)

- The copter can move in three directions (forward, backward, facing) (2 points).
- The copter can fire in all directions (2 points).
- The copter can take off and land (1 point).
- The copter can pickup hostages (1 point).
- The copter crashes when hit by opponents/fire (3 points).
- The copter crushes hostages (2 points).
- The copter can destroy barracks (1 point).

Opponents (9 points)

- There are three levels of opponents (tanks, planes, flying saucers) (2 points).
- Opponent track and try to kill the player (3 points).
- Opponents are destroyed by the players' fire (2 points).
- Opponents fire can destroy barracks (2 points).

Hostages (9 points)

- Hostages run out of destroyed barracks (3 points).
- Hostages wave at the flying copter (2 points).
- Hostages run to the copter to be picked up (3 points).
- Hostages run out of the copter at the base (1 points).

Core game engine (6 points)

- The screen scrolls as the copter moves in the stage (2 points).
- New opponents appear endlessly as the player kills them (2 points).
- The player wins when no more (alive) hostages are left out (1 points).
- The player loses when he has lost three copters (1 points).

Bonus features (4 points)