



MOBILE APP DEVELOPMENT

MIDTERM EXAM

SUMMER 2019

TIME: 90 MUNUTES

INSTRUCTOR: ALIREZA MOGHADDAM

INSTRUCTIONS:

- Manage your time carefully.
- This is an open book exam and any usage of course material during the exam is allowed.
- Do not forget to write your name and sign.

STUDENT NAME	
STUDENT ID	
SIGNATURE	
EMAIL	
MARK	
RE-MARK	

Note:

This is an open book test and you may use any resource to complete the task that you are requested

For this test, you are requested to develop a 2D simple shooter game on iOS platform.

Back 40 years ago, this game existed on Casio Game Watches. You can search it on youtube to have an estimation of gameplay, search: “EggPanic Casio Game Watch”

The game consists of the following modules:

Contents (25 Marks)

1. A hunter that is located at the bottom middle of the screen and can be controlled to move horizontally toward left or right side of the screen. The hunter’s gun is equipped with infinite number of bullets.
2. Bats that get spawned (1 every two seconds) from the very top side of the screen in random positions. Once spawned, they move downward in **zig-zag** pattern and eventually reach to the very bottom of the screen where they get destroyed (removed from the scene).
3. Eggs that are dropped by each bird on every second as long as the bird lives.

Game Logic:

- Gestures: (25 marks)

- *Tap*: The tap gesture is used for both: shooting and controlling the hunter as follows:

- When the top half of the screen is tapped, a bullet is spawned from the hunter and moves vertically toward the top side of the screen. Once reached, the bullet must get destroyed.
- If the bottom half of the screen is tapped, the hunter moves to the horizontal, X, position where the tapped happened (the hunter only moves horizontally toward left/right).

- **Collisions: (20 Marks)**

- *Bullet and bat*: Both get destroyed.
- *Bullet and egg*: Both get destroyed.
- *Bat/Egg and hunter*: Bat/egg gets destroyed.
- *Bat and egg*: No collision occurs (they pass through).

- **Score: (10 Marks)**

- If a bullet collides with a bat, the score is incremented by ten.
- If a bat or egg collides with the hunter, the health is decremented by ten.

- **User interface: (5 Marks)**

- The score and health must be displayed numerically on the top left and right side of the screen, respectively.

- **Game Over: (15 Marks)**

- As soon as the health reached zero, display a “Game Over” message on the screen.
- Stop spawning birds.
- Stop the user from shooting or controlling the hunter.

Submission:

Follow these instructions carefully:

- Zip (compress) the entire project folder
- Submit the zipped project folder