

**MOBILE APP DEVELOPMENT**

**FINAL EXAM**

**WINTER 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.**
* **To submit: Show your work to the invigilator once you are done.**

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| **STUDENT NAME** |  |
| **STUDENT ID** |  |
| **SIGNATURE** |  |
| **EMAIL** |  |
| **MARK** |  |
| **RE-MARK** |  |

**Before starting your final, read the question carefully**

**Manage your time based on the grade weight for each question**

**Think and plan before you start to implement**

**To save time, use your previously built assets as much as possible**

For your final exam, you are requested to develop the following Game for iOS devices. The specifications of the game are as follows:

The game consists of random alphabetical characters that spawn in random locations in the sky (top of the screen) and fall down afterwards. Then, the user needs to guide them toward the proper section in the bottom of the screen. Consider characters A to I (use an image for each character) and divide the bottom of the screen into three sections. Characters A to C should be placed into section one (left side of the screen). Characters D to F should be placed into section two (middle of the screen) and characters G to I should be placed into section three (right side of the screen). Some sample for characters are as follows:

  

The user must swipe on the screen to guide the falling characters toward their appropriate section. A swipe pointing to right, down, left forwards the characters to right, middle and left sections at the bottom of the screen, respectively. Notice that the speed and the length of the swipe should NOT affect the vertical speed of the ball (as oppose to lab 8), instead it should ONLY alter the direction of the ball toward left or right. Further, the swipe ONLY affects the most recent spawned character and NOT others.

Once each character reaches to the bottom of the screen, it should disappear from the scene.

You will need to display and keep track of the following:

1. **Score:** when the player guides a character correctly, the score is increased by one.
2. **Lives:** Wrong guidance of characters are tolerated up to three times. Whenever the user misguides a character, one life is lost and after three times, the game is over.

To make the game more exciting, increase the rate of the spawning during the gameplay starting from one to three characters per second gradually.

**Rubrics:**

Game scene: 10 marks

Updating score/life: 15 marks

Swipe gesture: 10 marks

Letters spawning (rate, randomization): 20 marks

Correct motion of characters on screen: 30 marks

Disappearance of characters dropped in each section: 10 marks

Game Over: 5 marks

**Submission:**

You are required to submit your work through blackboard.

Write down your name, student ID at the top of this exam book and submit it along with your zipped project folder.