##### 

**T. C.**

**ÇUKUROVA UNIVERSITY**

**ENGINEERING FACULTY**

##### COMPUTER ENGINEERING DEPARTMENT

##### CEN 118 – Algorithms and Programming lab. 2

##### Projects

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**1.What’s the problem?**

We have got a bird. This bird try to escape boxes because boxes drop from above and if a box fall on the It’s head, It will be dead. The bird is talented. It can get on the boxes. İf full ground filled the boxes, we lets the boxes drop down the screen.

**2.How do you encode this program?**

We used to many variables and arrays (total 29). All of two keep bird location (xpos, ypos). If I press left arrow xpos decrease and bird move. If I press right arrow xpose increase and bird move. Code give bl random number and bl determine where box drop (bl determine a (a is box x location)). Finally tr is increase and box drop so bird try to escape boxes. Shortly this is program work.

**3.What is the purpose of this program?**

         Solve the problem.

**4.What is the difficult part of this homework?**

There are three topics about this question:

**A**- Group problems

                                            -Make something together: Actually group work harder than single work because everyone has a think.

                                            -Communicate: Our team members live different place so we couldn't meet so we had to use “Discord” to solve this problem but nearly all time someone had a internet problem and it makes hard.

                                            -Writing code: A group member writed code and he shared the screen on “Discort” but it was not useful because others couldn't explain what they think clearly. So we started to use a web site (Link: https://repl.it) to write code together.

**B**- Writing code problems

                                            -Idea: We had a plan at the start but this plan was not enougt so we had to change so we had to find new idea for Code actually it is not diffucult for us.

                                            -Allegro: All of us didn't know allegro and there is not nice source so learning allegro was very difficult. Then we find a source and it is perfect (Link: http://fixbyproximity.com/2d-game-development-course/)

                                            -Bugs: We encounter too many bugs. For example some times, pictures winked in the game and we couldn't find the problem until one week. This problem reason is we write to many al\_flip\_display(); code so again and again draw the picture on display so it cause to the bug.

**C-** Writing report problem

                                            -I think writing report harder than writing game.

**5.How do the program work?**

If you use program, just follow the comment in the game.

**6.What does the methods that you used?**

**Functions:**

**void rest\_game\_array\_0(int a[]);(for bls,ks,kc,kb,tr,yd,yy,bd,bdg,)**

                                All values of the array are equalize to 0.

**void rest\_game\_array\_575(int a[]);(for kct)**

                                All values of the array are equalize to 575.

**void rest\_game\_array\_600(int a[]);(for kut)**

                                All values of the array are equalize to 600.

**void drop\_box(int a[]);(for kut,kct)**

        It Lets To Up The Screen.

**Variable:**

**int xpos**

This variable keep player x location.

**int ypos**

This variable keep player y location.

**int bl**

        This variable keep random number.

**int FPS**

        This variable determine game speed.

**int a**

        This variable keep location where boxes drop.

**int point**

This variable calculate score.

**int mpoint**

        This variable keep last max score.

**int start**

        If this variable is one(ture), we can main menu on the display.

**int tk**

if our answer is y at the end, we can replay.

**int th\_N**

if our answer is n at the end, we can’t replay.

**int dn**

        This variable keep value of main loop (while)).

**int music stop**

This variable stop all music .

**int music1\_play**

        This variable play music 1 and stop music2 if play.

**int music2\_play**

        This variable play music 2 and stop music1 if play.

**int yst**

This variable determinant background.

**int pw**

        This variable determinet player direction.

**int bc**

        If this variable is one(true), draw box between bacground and score table.

**Arrays:**

**int bls[8]**

We divide into 8 parts the screen. This bls show is there a box on the part. (For the boxes where stay on the ground)

**int ks[8]**

                                This array keep box calumn.

**int kc[8]**

                             This array keep all box values according to columns.

**int kct[8]**

                                This array keep all xpos values according to columns.

**int kb[8]**

                                If a box is draw there, its value is one(true).

**int tr[8]**

                                This array keep all boxes y location according to columns.

**int kut[8]**

                                This array keep all boxes first y location according to columns. (For the boxes where stay on the ground)

**int yd[8]**

                                If box is on ground, this array value is one(treu). (For player get on the box)

**int yy[8]**

                                If this array all values is one(true), the boxes which on ground are deleted.

**int bd[8]**

                                If this array value is one(true), its mean box on the ground for this column.

**int bdg[8]**

                                This array use bd value to affairs.

**Variables of Allegro**

**ALLEGRO\_BITMAP\* background1**

This bitmap keep "background1.jpg".

**ALLEGRO\_BITMAP\* background2**

This bitmap keep "background2.jpg".

**ALLEGRO\_BITMAP\* background3**

This bitmap keep "background3.jpg".

**ALLEGRO\_BITMAP\* background4**

This bitmap keep "background4.jpg".

**ALLEGRO\_BITMAP\* box**

This bitmap keep "Kutu.jpg".

**ALLEGRO\_BITMAP\* menu**

This bitmap keep "Start-menu.jpg".

**ALLEGRO\_BITMAP\* alt**

This bitmap keep "alt.jpg".

**ALLEGRO\_BITMAP\* alt2**

This bitmap keep "Alt-kutu.jpg".

**ALLEGRO\_BITMAP\* finish**

This bitmap keep "son.jpg".

**ALLEGRO\_BITMAP\* player1**

This bitmap keep"Player-L.png".

**ALLEGRO\_BITMAP\*player2**

This bitmap keep"Player-R.png".

**ALLEGRO\_SAMPLE\* music1,**

This sample keep "music1.ogg".

**ALLEGRO\_SAMPLE\* music2**

This sample keep "music2.ogg".

**ALLEGRO\_SAMPLE\_INSTANCE\* songinstance1**

This instance create music1.

**ALLEGRO\_SAMPLE\_INSTANCE\* songinstance2**

This instance create music2.

**7.Any Bug?Any Limit?**

         There is a bug but not all time. This bug is bird get on the box but the box is not on ground.

         Actually there is not a limit but random number is unpredictable.

NOT: We prepared in program release and x64 settings. We build the program on Visual Studio 2020