Odd Semester (2021)



**BINUS UNIVERSITY**

**BINUS INTERNATIONAL**

**Assignment Cover Letter**

**(Individual Work****)**

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| 1. | | **Weku** |  | |
|  |  |
| **Course Code** | **: COMP6502** |  |  | | **Course Name** | | **: Introduction to Programming** | |
| **Class** | **: L1AC** |  |  | | **Name of Lecturer(s)** | | **:** 1. Ida Bagus Kerthyayana | |
|  |  |  |  | |  | | 2. Tri Asih Budiono | |
| **Major** | **: CS** |  |  | |  | |  | |
| **Title of Assignment**  (if any) | :BIRDOP | |  |  | |  | |  | |
| **Type of Assignment**    **Submission Pattern** | **: Final Project** |  |  | |  | |  | |
| **Due Date** | **: 6-11-2016** |  |  | | **Submission Date** | | **: 6-11-2016** | |

The assignment should meet the below requirements.

1. Assignment (hard copy) is required to be submitted on clean paper, and (soft copy) as per lecturer’s instructions.
2. Soft copy assignment also requires the signed (hardcopy) submission of this form, which automatically validates the softcopy submission.
3. The above information is complete and legible.
4. Compiled pages are firmly stapled.
5. Assignment has been copied (soft copy and hard copy) for each student ahead of the submission.

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# Declaration of Originality

By signing this assignment, I understand, accept and consent to BiNus International terms and policy on plagiarism. Herewith I declare that the work contained in this assignment is my own work and has not been submitted for the use of assessment in another course or class, except where this has been notified and accepted in advance.

Signature of Student: (Name of Student)

1. Brian Moses Weku

**“BIRDOP”**

**Name : Brian Moses Weku**

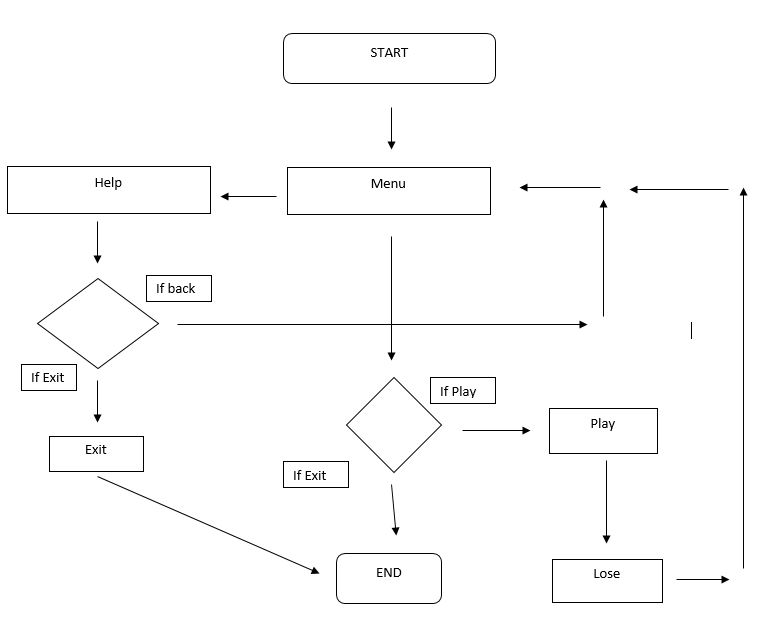
**ID : 2101709995**

1. **Description**

**The function of this program:**

This program is built to entertain users. The game type is endless and if you die it resets from the beginning. With simple gameplay, the user can interact with the object in the screen and could have a fun moment and could be used as a competition to be played with others in search of higher scores

**II. Design/Plan**

**Project’s Hierarchy Chart**

1. **Explanation of Each function and Lessons that Have Been Learned**

22nd of October,

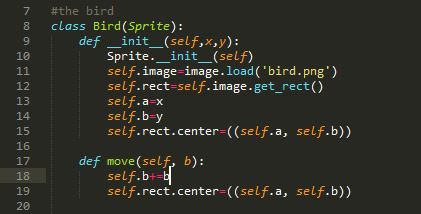
I searched for ideas and decided to create a game through pygame. At first, I was trying to create an endless game that involves alien and obstacles.



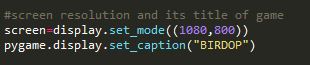
This day I learned plenty of basic things to create a game and the logic to it. Such as, if you were a human when you ride a car, when the car accelerates and goes forward the view from your car will go backwards while you gain distance, but for a programmer it’s different, we manipulate the image background and let the main object still as if it was moving forward. As starters we need to import the required packages such as pygame. Next, I learned to create text boxes as sprites through class. The class involves position, the message, and color. Self.x and self.y serves as the position that will be input to locate the file position, message is the words that will be shown inside, and font is for how big is the size to create the text\_box. Render means making so when you insert a message it will built the message, while self.rect is where it will get the rectangle size so if you will click on the rectangle it can create a command or do a command. For the Alien class, the definition of init() is initializing the program for starters so it’s the basic of it and for the self. A and self. B it is similar to the text\_box self.x and self.y and self.image is the loading of the picture that I wanted. For def move it is a function where I can control the object and can change its location.

24th of October,

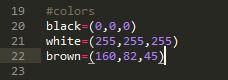
On Wednesday, I changed my mind into creating a bird but have the ability to become an alien. While bird will go unalterable, the alien is more flexible to control. Think of the alien as a power up.



This part is similar to the alien but the difference is the image that I want to load and the movement, because the bird movement is only allowed to go upwards and goes down through time. This class requires position.



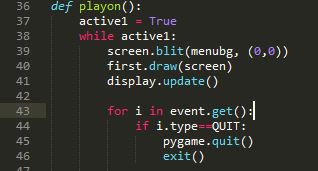
This is the name of the game and its resolution. The width of the screen is 1080 pixels and the height is 800 pixels. The name of this endless game is BIRDOP. It is a combination of bird that drops.



RGB codes to be input in on the class text\_box for colors.



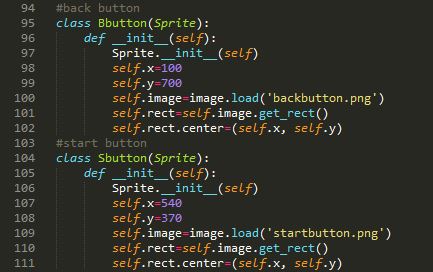
Image of the loading screen background.



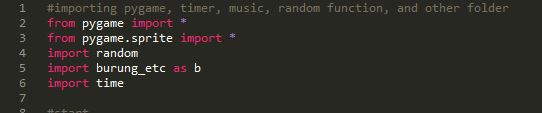
This is the main menu I insert it inside a function so it will be easy for me to call the function. I name the function playon() inside the playon there is active1=True this means while the program is still true it will run over and over until I quit the program. With the menubg as my preferred background picture I blit or insert it into my screen with the postion 0,0 that means my top left corner and because of my image is as big as my screen resolution it will fit right in (the first.draw(screen) will be explained later. Display.update() means that everytime it passes this stage it will be updated. Then I created a loop, this loop will take every command there is and choose it and in this program when you pressed the close button (usually on top right if in windows) it will close and quit the program.

26th of October,

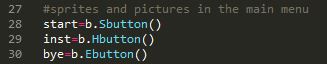
I made more sprites or buttons. The button will be displayed in different location and has different function



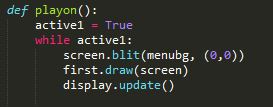
I learned that you can create buttons through pictures, so I decided to make buttons so that it will be different and look more game like. The first button that I create is back button this button will be used to get back to previous page, start button to start the game, help button is to go to the help screen, and exit button same as the close button on your window but I will insert it in the main menu too for easier access. The self.x and self.y is similar to the class text\_box this will determine its location.



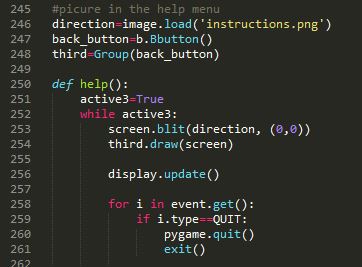
This is the part that I imported again because basically I used 2 files, first is the classes named burung\_etc and second is the main file named burung. From the first file I imported it to the second by typing import burung\_etc as b so the b will tell you that I imported the function from the burung\_etc file.



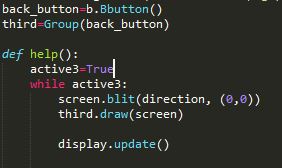
In the second file I call the class from the burung\_etc to burung. So I can summon it in my menu and others.



First, I group my sprites inside a variable and the first.draw(screen), the created button such as start, insst, bye will be inserted in my main menu.



This is the help menu as you can see it is similar with the main menu it uses active and uses direction as an image to load the background. The function to call this help menu is help().



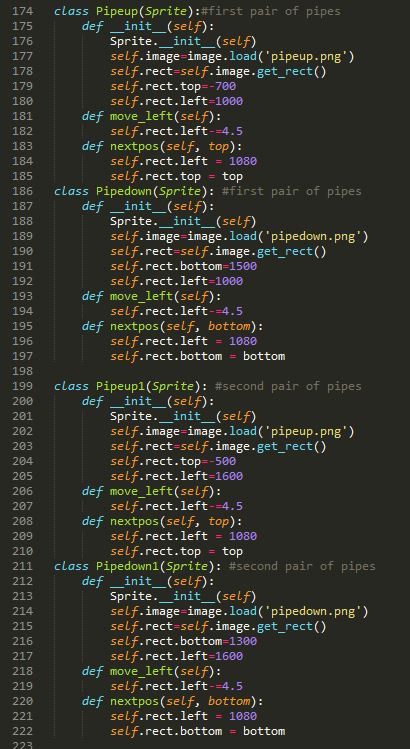
While the back button is similar to the other buttons and inserting it



I.type==MOUSEBUTTONDOWN this means that if you click your mouse down and if you touched the rectangle or part of the image it will deactivate the while so it will return to the activated program which is the main menu.

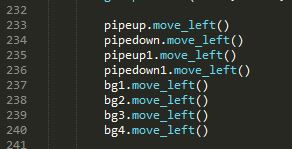
2nd of November,

Figuring out the moving objects. The objects that is required to set the background moving in my program is the pipes and the background itself.

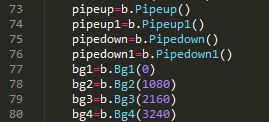


The pipes that is used is in this class Pipeup and Pipedown. Pipeup is the pipe on top and Pipedown is on bottom. The function move\_left is so the pipe will decrease its x axis location and nextpos is the scramble of location after it touches a corner.

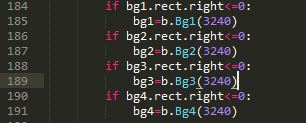
The background that is use is similar to the pipes it uses images and decreases its location’s x-axis for the background I uses different colors of background to make it look better.



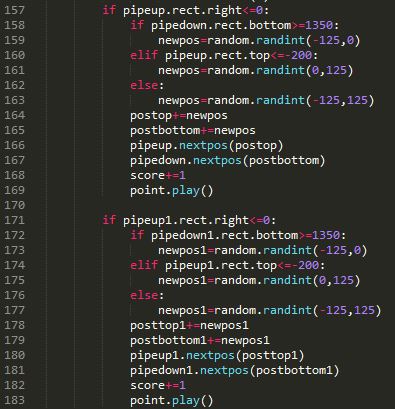
These function will move the backgrounds and pipes to the left.



Inserted the classes in my main file. Bg1 too bg4 has inputs because the class requires their starting position



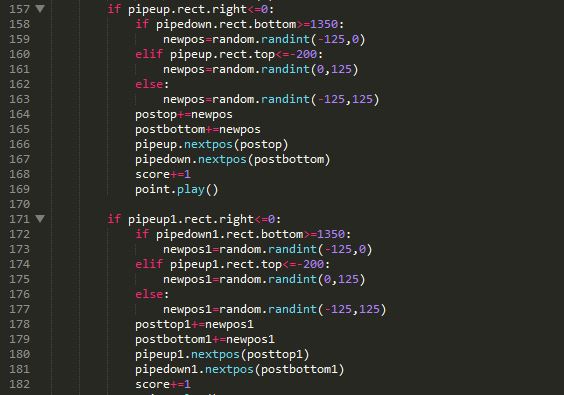
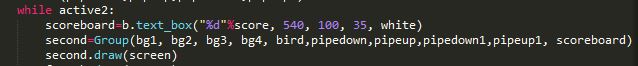
This is the function if the background reaches 0 it will have a new set position to start and move to the left.



For the pipes it is slightly different from the background. First I set the pipes as big as my screen resolution and so I just need to manipulate the space in between and how it will change its y axis. So after it reaches the left part of the screen the position will be either increase or decrease, in order to have no misconduct I set a limit of how much it can decrease and how much it will increase. For example if you reach a top part of the position it will be forced to go low.

3th of November,

Creating the scoreboard that updates every time.

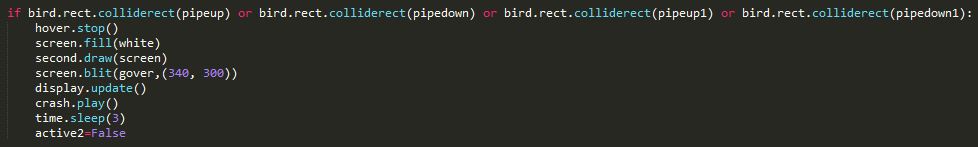


First, I set my score=0 so every time it starts it will be 0. For scoreboard I insert the text\_box class function. “%d”%score is the score replaces the d so for example the score is 5 it will show five. The position is set on 540 and 100, font size is 35 and the background color is white. Next is I inserted it inside the loop so every time it will be updated. The difference is when you put inside the loop the score will update over and over. Next, when the right part of the pipe touches the left screen the score will be added by one.

4th of October,

Creating my main object. The object will be a bird that can go up.

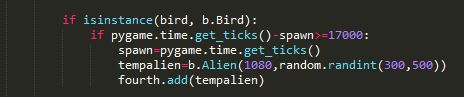
First I inserted the class and I set its first location and I set a variable named moveup to be False. If I pressed space start\_time will start taking time and moveup which is before false becomes True. After that I specified that if it is true it will move up. If it will go up it will load different images so it will look better and when it will fall it will be different. For the time if the time reaches 500 millisecond it will stop and it will go down, I also inserted pictures to set if it is falling and if its at the highest point.



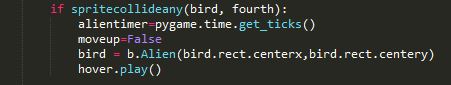
In this part if the object collide with the obstacle it will stop all the screen action because I sleep it for 3 seconds and when it doess active2 becomes False so it will go back to the menu.

5th of October,

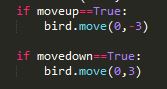
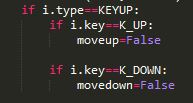
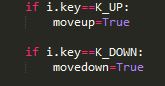
I added the alien as power up with some music.

Fourth is an empty grup. Then for every 17 seconds it will spawn an alien icon by inserting it in the fourth group so it can be drawn

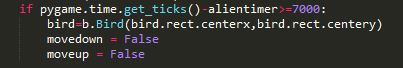


When the bird collides with the alien it will become the alien by taking its last position.

`

When the bird inherits the alien it will have different types of movement. So when you hold a button down it will be directed always and if you llet go of the button it stops.

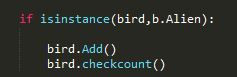
To improve my code I will delete the alien if it touches the pipes, so the alien will not get inside the pipes.



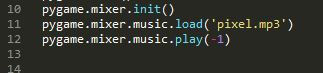
This is the timer for how long the bird can be an alien. After the timer reaches 7 seconds it will return the bird and its location.



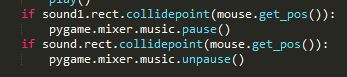
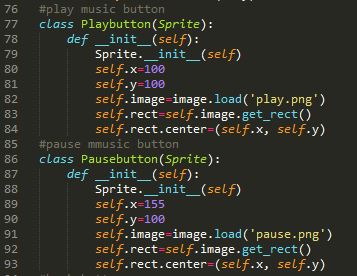
If instance means that if the bird is in the class b.Bird it will give a True. So, while it is an alien the if instance(bird,b.Bird) it will give a False so it will no use the program but if it is true it will run the program.



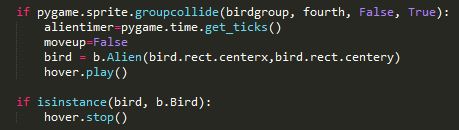
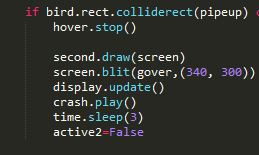
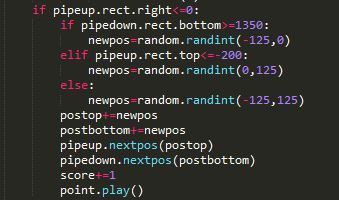
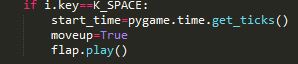
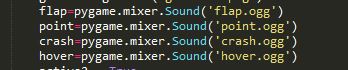
Self.add and self.checkcount will work together to make the alien animation. So when the count is less than 5 it will load the first image and if it is mre than 5 it will load the second image and this will go on until it reaches 15, if it is greater than 15 it will start from 0 again so this will go on and on.

Last but not least I included music to the game so the game will not be so silent. 

The init will initialize the music while the music.load loads the doccument and play will play the music but it will be asked to play how many time because I wanted it to be played forever I run the program I set it too -1.



Playbutton is the new sprite class that I will give a function if it’s clicked it will play the music and if pausebutton is another sprite class that gives the pause function



These are some other files that will be played whenever I did a function whether if I became an alien, when I tap space to fly, when it crashes, or when you receive a score

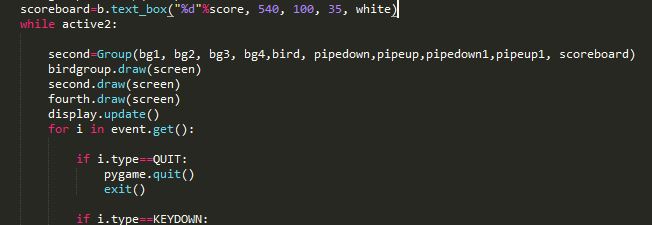
**III. Problem that Have Been Overcome**

There are many problem that I have trouble with and after some help I was able to overcome it. Here are problems and some ways that I overcome it.

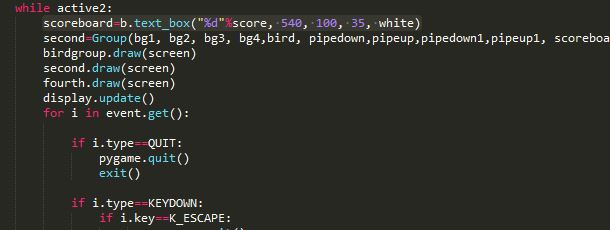
Problems that I encounter:

1. score

My problem with the score is that the score wont update, it only updates the score when the bird die. For example on the first game you played, you received 5 points, but the score above it still shows zero. The second time I played the game the point then shows five, where it should be zero.



The mistake on that code is that the scoreboard is outside the loop and so it will not be updated so otherwise I put it inside the loop then it worked.



1. alien popping

At first when I scramble my alien to be drawn inside the screen, sometimes its random and the icon alien is in the pipes where the bird cannot touch the pipe because if it did it will die.



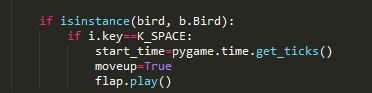
Fifth is groups of objects which is the pipes whether it is the upper part of the part or lower, while the fourth is the group of the alien. So this code will make that if the pipes touches the alien the pipes will stay and the icon will die.

1. Changing the bird form

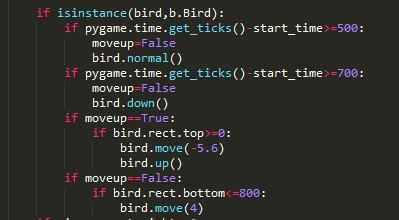
At first I was not impressed with my bird that can only go up and down but is still in motion, so Instead I play through the time and the code.



In here you can see that up, normal, down loads a different file or picture.



So when you pressed space button it will start the time.



And in here this showed that if it is greater than 500 ms it will load the bird.normal, and if its more it will load the bird.down.