**Pomegranate Tree Project**

**Lingzhi Li** (ID: 01/961492)**:**

This report tries to review the processes of the teamwork of our final Pygame project. It is such a privilege that have the chance to take part in this Python and Pygame course. Because nowadays computer languages have become such useful tools that people can take advantages of it. Python upon its easier learning efforts without doubt is one of those favorite ones.

The main theme of our final Pygame project is the actual pomegranate tree. Before we begin to focus on coding. We have had a small discussion on the outline of the workflow and work distribution of each of us. At the very beginning, we want to separate it into three parts. The program won’t involve much animation and audio. At the first part the hero will be made to review what he had learnt about Dothraki before out section. At the second part he learns what are the Dothraki words for pomegranate. At the last part, he will acquire a rough view of what he is going to learn later.

Meanwhile we had several small discussions via instant messenger. Finally, because it is a Pygame program, so we decided to have more animations and audio during the whole game to make it more like a modern game.

Back to my part, my main task in this project is to create an animation interface for the users to step into our game. I have learnt how to create the interface through the examples in Making Games with Python & Pygame by Al Sweigart. However during the coding process, there are lots of functions in the example have to be re-examined. Because of the co-references in context and connections with different variables is much different in our game environment. So I have imported all the useful functions from the existed examples and then debugged all the bugs to realize such a scenario, that our hero stands in bush and in front him are three different trees. Players have to move the hero around with press of direction buttons. If the hero stands in front of the pomegranate tree, an icon of pomegranate will appear. Correspondently, he will move on to the main game part which my teammates were in charge.

Basically I have create a welcome game scene and the main structure of out Pygame project. In my opinion, although this game could be better and more complicate, but we have achieved what we wanted during the planning phase.

**Mengyuan Xiao** (ID: 887430)**:**

Mengyuan Xiao is responsible for the introduction, menu and the achievement interfaces.

Background music is displayed throughout the whole game. To control the background music, two button functions were programmed, to pause and to unpause. The buttons are put at the top left of the interfaces. The buttons become bright grey when the mouse moves to it and the users could pause music/play music with a click.

In the Introduction interface, a background picture, a game introduction pictures and the background text “Introduction” are displayed. There are mainly three buttons, Menu, Back - back to the previous interface created by Li, Quit - end pygame and end python. The users can see the colour changes to brighter colour when the mouse is there and go to respective functions with a click.

The Menu interface displays a background picture, the background text “Menu” and four buttons. Start game button allows the user to play the game. This function is linked to the part written by Gao. After the user play the game, the achievement is stored in the variable achievement and it is used in the Achievement interface. Every time the users click the start game, the variable achievement would be reset. Introduction button leads the users to the introduction interface. Quit button allows the user to quit pygame and python. The users can see the colour changes to brighter colour when the mouse is there and go to respective functions with a click.

After clicking the Achievement button, the users come to the Achievement interface. The variable achievement is returned from Gao’s part. Background picture and the background text “Achievement” are displayed. The text is displayed differently according to the value of the variable achievement. When achievement = 0, there is only text displayed to tell the user that they have nothing. If achievement = 1, there is one picture of pomegranate displayed and the users are informed that they have 1 pomegranate. If achievement = 2, there are two pictures of pomegranate displayed and the users are informed that they have 2 pomegranates. But this would never be displayed because the game ends when the user achieve two pomegranates. Just in case of an error value of the variable achievement, other values except for 0, 1 and 2 would lead to a failure and the game would be stop. The wrong information would be displayed on the shell to indicate that the achievement value is wrong. There are two buttons, Menu and Quit. The users can see that the colour changes to brighter colour when the mouse is there and go to respective functions with a click.

**Xiyuan Gao** (01/865373):

The part I am responsible for is the main game loop when clicking the button “start game” on the menu page made by Xiao. My intention is to create two questions which will test if the user has the knowledge (word meaning and dativ case) from the previous journey. The user will choose the answer by clicking the mouse. The codes will test whether the answer chosen is correct or not by comparing the position of the clicking with a coordination which set previously. As a part tightly linking with the “menu” page created by Xiao, a variable called “achievement” will be created during the game, and the user can check achievement (equals the number of pomegranates) she or he got from participating the game by clicking the “achievement” button on “menu” page. In the following content, I will describe the game loop in detail.

1). First chunk. Setting the basic images and texts.

2). Second chunk. Sub-functions will be used during the game.

3). Third chunk. The main game loop (being divided into four sub-functions).

In the first chunk, I set the screen size which was the same as before, as well as the font where I used arial with size 32.Then, I loaded images and texts which would be shown on the interface during the game. The wav. files were used to present the effect sounds to enhance the interactive feeling.

In the second chunk, I set up the mouse and the exit sub-functions. For the mouse, I wanted to change the normal arrow into a png. picture. Firstly I grasped the position of the mouse by pygame.mouse.get\_pos(), and then made the normal one invisible. Putting the mouse to the centre of the picture by adjusting the position of mouse, then "blit" the picture named “mouse\_cursor” to the position of mouse. For the exit function, I used the pygame.event.get() to grasp the event that introduced the quit order.

The third chunk, I would call this the main game loop. The main game loop had been divided into three parts with three individual sub-functions: question1(), question2(), and final(). In question1(), the very important thing for me is to create the achievement variable, because it was going to be changed during the loop, I set it after the “global”. Of course, the initial value for it was 0. As the first step of the visual representation, game background and all the texts regarding the first question were "blit". After the mouse being settled, I used pygame.event.get() to get the mouse event again, here I wanted to grasp the clicking movement presented by pygame.MOUSEBUTTONDOWN. When the user click the mouse, an effect sound would be played and the position of the mouse would be caught by x\_mouse and y\_mouse. Because the correct answer for the question was on the left side of the screen, x\_mouse<=320 and y\_mouse<=200 were set to be the “correct" area. If the right answer is chosen, we would add 1 into "achievement" and the loop would go to question2(). If the wrong answer which was on the right side of the screen was chosen, the loop continued as well but none would be added into achievement. Except for these two options, the loop stayed on this page till a right or wrong answer was caught. In question2(), the first thing was also to create the achievement variable, and then “blit” the background again but changed the texts to question2. Basically, the left part was the same as that in question1(), but I changed the question2() on line 533 and line 537 into final().

Before going to the final(), a get() function calculated a total achievement which was returned by combining achievement1 from question1() and achievement2 from question2(). By the final() function, I presented the outcome of the game to the user. If get()<2 means the user did not get the two questions above right, then a background and texts of showing being defeated and a matching sound effect will be presented. If get() is not less than 2, which means the user got both of the answers correct, then a background showing two pomegranates and the matching sound will be presented. At this final stage, the mouse motion would transfer the user to the menu which created by Xiao, and the user can check how many pomegranates achieved during the game by clicking the button “achievement”.

Work Distribution:

Lingzhi Li (ID: 01/961492): line 22-251

Mengyuan Xiao (ID: 887430): line 259-412

Xiyuan Gao (01/865373): line 420-571