Learn the Solar System

Application and Game

- **Introduction**:

  I made a animation/game in which people can learn about solar system and can take quiz after learning it.

  In this project, if you click on “Start Learning” then you’ll see sun in centre and planets revolving around sun, when you take your cursor on planet then it will increase in size and show its name, when you click it then it will show image of it in left side and will give some information regarding it on right side. You can learn by reading it,

  After learning about it, There is another option “Take Quiz”, when you go to that, you’ll get 10 question regarding information you read, you’ll get 4 options and you need to select the correct one. After completing 10 questions you’ll get your score out of 10 and feedback of your performance.

- **Explanation of Code:**

  I made this using pygame module of python. First created a display of 800 x 600 and set the icon of it as “icon.png” that I uploaded with project. Then I made the dictionary of facts in which there are facts in value and planets in key. In next line, I made a list ‘planet_files’ which have location of images of planets with there pixels according to planet size. Then a

dictionary called name in which key is location and value is name of planet.

First from planet_files list I called path and size in loop and loaded it and resized it and appended it in image list of ‘planet’ and also appended path in ‘paths’

- **draw_text:**

  I made this function to write some text on screen, in this function first the string gets rendered and then It is drew on screen by scr.blit()

- **Main menu function(main_menu):**

  In this first called a while loop to make the program running and not stopped until closed. In centre I wrote “Learn the Solar System” by draw_centred_text function. Then drew two boxed below it and wrote “Start Learning” and “Take Quiz”

  If cursor will go to the coordination of that box then boarder will come and if we click on “Start Learning” button then the function will return “start” and If we click on another button then it will return “quiz”

- **Solar system function(sol_sys):**

  In this loop is running on planets list and taking ‘i’ as index and planet as planet, index is starting from 1.

Then orb_rad is radius of orbital which is 50 times index and drew orbit according to this radius.

Then orb_speed is speed of planet moving which is set to 1/i. and angel is t*orb_speed, where t is current time. And planets are moving according to this x and y values,
x=center[0]+math.cos(angle)*orb_rad
y=center[1]+math.sin(angle)*orb_rad

Here size is size of planet, if mouse cursor is in less then size+6 than size will increase by 1.4 times.

When we click then it will take value of selected_plane as index of that planet, than created image named big_img with selected planet on right side of screen. And in left side facts are written by facts dictionary and fx.

- **Quiz function(quiz):**

  First created question with loop on facts and shuffled it and selected first 10 questions from it.

  - **Generate_que:**

    First this will take q_index and answer from dictionary and for options it will take random planet names and store it in ‘wrong’ list. Then shuffle it and will get first 3 planet and joints it with answer list and shuffles it. And returns q_text which is question, answer, opts which is options and rect.

If we select right option then score wil be incremented by 1 and

Index will also increase by 1. Then it will again call generate_que to get next question.

Then it will wrote “Which is: {que}” and options below it and on upper right corner score will be mentioned.

- Show_result:

  This function is made to show score after completing quiz, in this first it will write “QUIZ COMPLETE!” and score out of 10 below it.

  And according to score it will give feedback, different feedback for scores 0-3,4-6,7-9 and 10.

- main:
  if main_menu will return “start” then this will run sol_sys() and if it will return “quiz” then it will run quiz()