**Ore Excavation**

The goal of the game is getting 1 million ores. You will get 1 ore every time you click on the rock at the center of the screen. You can also trade in ores for upgrades to your pickaxe or to buy excavation tools. Upgrading your pickaxe will allow you to earn more ores every time you click, and the excavation tools will passively generate rocks every few seconds.

There will be a main.py:

* It will declare a clock variable
* Creates instance of ore class
* Creates instance of score class
* Creates instance of tools class
* Set the icon for the application
* Set the fonts for arial-title and arial
* Set a variable to track mouse clicking
* Have an asset.py
  + Handles all the assets for the files
  + Has all the colors used in the project
  + Has all the images loaded here
  + Has the screen size loaded here
* Import for a text.py
  + Has a draw text method
    - Prints the text on the canvas
  + Has a generate title method
    - Generates random pre-set title from a list of titles
    - This returns a random title from the list
* Support these screens
* These screens have an event loop for tracking certain keyboard presses and mouse clicks
  + Secret
    - Entered by inputting a special code. The special code is a prompt in the title.
    - This screen will have buttons allowing the user to start the game with certain bonuses
    - The player can click on the button to choose which bonuses they want to start with.
    - The player can go back my clicking on the button at the bottom or ESC
  + Bonus
  + Win
  + Help Manual
    - Prints text on how to play game
    - Uses draw\_text to print title and button name
    - Has a button to return to menu
    - Button can be clicked or press ESC to go to menu
  + Game
    - Handles all the features for the game
    - These features are explained in the class section
    - Button to go to shop by press S or clicking on shop button
    - Draws ore sprite and buttons
  + Shop
    - Explained in shop section in classes
    - Button to return to game screen by pressing ESC or pressing button
  + Main Menu
    - Has a blue background
    - Tracks the mouse position
    - Transition buttons/rectangles
    - Press H to change to help menu
    - Press ENTER to start game
    - Click either button to enter said screen
    - Use draw\_text method

**Classes**

­Ore

* This is a class for the ore.
* The ore will have the following attribute.
* Image
* Rectangle
* The ore will interact with the pickaxe class.
* Draw Ore Method
  + The ore sprite will be in the middle of the screen.

Pickaxe

* Sprite for the main player class
* The pickaxe will the following attributes.
* Rectangle
* Image
  + ~~Level (Integer) [This will describe the current upgrade level of the pickaxe.]~~
  + Pickaxe level now changed to score multiplier
* ~~Default level is 1.~~
* Draw Pickaxe Image
  + This will draw the image of the pickaxe on the game screen.
* ~~Display Level Method~~
  + ~~This will display the current level of the pickaxe on the canvas.~~
* ~~Update Level Method~~ Pickaxe level now changed to score multiplier
  + ~~Every time the pickaxe is upgrade it will add a level to the pickaxe.~~
* Update Position Method
  + The sprite will follow the main player’s cursor.
  + The sprite itself should be directly on the cursor.
* ~~Click Method~~ 
  + ~~This method will track the player’s left click.~~
  + ~~Whenever the player left clicks and it is in the radius of the ore sprite, call the add score method.~~
  + ~~While on the shop screen, if the pickaxe clicks on the purchase button, it will call a purchase method.~~
  + ~~Player gains score for clicking on the ore.~~
  + ~~The score will be based on 1 \* Level.~~
  + ~~It should call the add score method from score class.~~

Score

* Score should have the following attributes.
  + Score (Integer) [Described the current score of the player]
  + Multiplier (Integer) [Describes the multiplier on score gain]
  + Price (Integer) [Described price to upgrade multiplier in shop]
  + Completed (Boolean) [Describes if the game has been completed or not]
  + Double (Boolean) [Describes if the player has the double bonus activated or not]
  + Lottery (Boolean) [Describes if the player has lottery bonus activated or not]
* Score is the number of ores the player currently has.
* Score cannot go below zero.
* Lottery Method
  + See Lottery in bonuses section
* Increase Price Method
  + Changes the price attribute of score
  + Structure for price increase is adding a zero at the end, so 10 -> 100 -> 1000 etc
* Increase Multiplier Method
  + If the player does not have enough points, do nothing
  + Increases the multiplier attribute through the shop
  + Increases multiplier by 2
  + Calls subtract method to subtract price
  + Calls increase price method
* ~~Win Method~~
  + ~~Displays a win screen or prints a win message when the player’s score is 1 million.~~
  + ~~Closes the application after printing win screen or message.~~
* ~~Display Score Method~~
  + ~~This will display the player’s current score on the canvas.~~
  + ~~Located on the top middle of the canvas.~~
* ~~Update Score Method~~
  + ~~Every time the player gains or loses score, it will call this function.~~
  + ~~When the score is changed it will call the display score method, allowing it to update the score on the canvas.~~
  + ~~If the score is larger than or equal to 1 million call the win method~~
* Add Score Method
  + Every time the player clicks on the ore it will call this function.
  + This function will add to the current score.
  + It should call the update score method.
* Subtract Score Method
  + This method should subtract from the player’s score.
  + This function will be called every time the player makes a purchase in the shop.
  + It should subtract by score – shop.price.

Tools

* These tools should have the following attributes.
  + Name (String) [Displays name of tool.]
  + Amount (Integer) [Displays amount of tool purchased.]
  + Score Value (Integer) [Displays score generated by tool.]
  + Purchased (Boolean) [Show if tool is purchased or not, default = true]
* When tools are purchased, they will become active.
* Generate Score Method
  + When tools are active this method will be called.
  + This method will be called every 10 seconds.
  + This method should get the score value generated by the tool and add it to the score.
  + The score incremented should be score value \* amount.
  + It should call the add score method from score class.
* Display Tool Amount Method
  + While on the shop screen it will display the amount of each tool you have on the canvas
  + If the tool amount is None, display 0.
* Update Tool Amount Method
  + Every time a tool with the purchase amount of 1 or more is purchased, update the amount of tool.
  + It will call the display tool method to update the display.

Shop

* The shop screen will allow the players to upgrade their ore multiplier and purchase tools to help generate ores.
* There will be a back button to switch screens from shop to ore screen.
* Graphic display allowing users to purchase items.
* Will display price of item and quantity generated from items
* Can only click to buy items
* Returns the score class received from game menu

There will be a button on the ore canvas to open the shop screen.

~~Upgrade~~

* + ~~This method within the shop screen will allow the player to upgrade or purchase tools.~~
  + ~~There are buttons to purchase tools.~~
  + ~~This method has a few attributes.~~
    - ~~Name (String) [The name of the upgrade]~~
    - ~~Type (String) [The type, only accepts upgrade or tool]~~
    - ~~Price (Integer) [The price required to purchase the item]~~
  + ~~Purchase Tool Method~~
    - ~~If purchase is tool call this method~~
    - ~~If score is less than price do nothing~~
    - ~~If score is greater than price call on subtract score method.~~
    - ~~Create an instance of tool if the tool does not exist.~~
    - ~~If instance exists call update tool amount.~~
* ~~Upgrade Pickaxe Method~~
  + ~~If purchase is upgrade call this method~~
  + ~~If score is less than price do nothing~~
  + ~~If score is greater than price call on subtract score method~~
  + ~~Then call the upgrade level method.~~
* ~~Display Purchase Method~~
  + ~~Graphic interface allowing user to purchase tools.~~
  + ~~It will display text about the items.~~
  + ~~There will be a purchase button that the pickaxe can interact with to call a purchase method.~~

~~Event~~ (Renamed to Bonuses)

* ~~This class is an additional feature I hope to implement when I finish other classes.~~
* ~~I do not have a current idea on these features but will add to this document if I add events.~~
* ~~These events should occur when users hit certain score intervals.~~
* Bonuses are earnt after beating the game and choosing the prestige menu.
* The double bonus will give a 50% chance to give double the ore when clicked
* The lottery bonus will draw tickets every 30 seconds
  + It will draw two random numbers from a range of 1 – 100
  + If these numbers are the same payout 10000 \* score.multiplier
  + If these numbers end in a multiple of 5 payout 1000 \* score multiplier
  + If these numbers end in a multiple of 3 payout 100 \* score multiplier
  + If these numbers are both, payout both