Topic 4 Assignment - List Comprehensions, Lambdas, Closures, and I/O Operations

Instructions:

There is one exercise in this assignment. A sample solution is made available for this exercise. Please post any queries about this exercise in the Topic 4 forum on the eCollege course.

Lucky Numbers App – Version 2

Your task here is to take the app that you created as part of the topic 2 assignment, and modify it, adding some additional features.

App requirements:

- The first change is a very subtle one. The line of code declaring the available_nums list is very long and unwieldy. Please look to use list comprehension to shorten this line of code and tidy it up
- It would be nice if the date was shown for the current draw. Inside of the lotto_draw function, create a new date using the current date. You will need to import the relevant module for this
  Just before printing out the winning numbers, the following should be printed to the console (assume that this code was run on the 1st of Jan 2023):

  ```
  The result of today's draw on 01/01/2023 is........
  ```
- As there should only be one draw per day, we would like all subsequent executions of the app on the same day to reproduce the same three pseudo-random numbers again. This can be accomplished by setting the seed at the top of the lotto_draw function. If you pass the current date as the argument when setting the seed, this will ensure that multiple executions on the same day produce the same results. As the date changes, the seed therefore changes, so we see three new numbers drawn, which are then duplicated for the remainder of the day
- When printing the drawn numbers to the console, a delay of 3 seconds should be added between the printing of each number drawn (for suspense!). This can be accomplished by importing the time module and calling the appropriate function

- Along with displaying the current day's lotto result, we also want to allow the user to search for the result of a prior lotto draw if they so wish. To accomplish this, you should define a function called load_historical_draws
    - The results of some previous draws have been saved in a file called lotto_results.txt, which has been made available for download on eCollege. With the file downloaded and available, you can use the open function to read in those results
    - The date and numbers drawn should be stored in a dictionary, with the date being the key, and the numbers being the value
- After printing out the current day's lotto numbers, you should go ahead and ask the user if they wish to view the results for a previous draw
    - If the user enters 'y' or 'Y', then you should go ahead and ask them to enter the date of the draw in the following format: dd/mm/yyyy
    - You should call the load_historical_draws function
    - You can then go ahead and check to see if the date entered by the user exists in the dictionary
        - If it does, then print the result in the following format:
          The numbers drawn on 31/12/2022 were: 6,18,24
        - If the date entered isn't a key in the dictionary, then the following should be printed:
          There wasn't a draw on that particular date.
- The final change to be made is to print out the winnings for matching 1, 2, or 3 numbers
    - You should define the following list up top: payouts = [10, 75, 1000]
    - Using the above list, you should print out the winnings in the following format:
      Payouts as follows:
      1 number: €10
      2 numbers: €75
      3 numbers: €1000
    - Using the map function (and a lambda), please look to modify the payouts in the above list, increasing the winnings by 20%

End Of Exercise