''' A program to help with Dictionary Program #5

Assume there is a file storing data about YouTube cat videos. The data is organized using the following fields:

- Name of video
- Number of views
- Number of likes
- Number of dislikes

This program will load the data into a list of dictionaries from a file calledDictionaryProgram5DataFile.txt and allow the user to do one or more of the following:

- See the total number of views of all the videos in the file
- See the name and views sorted by number of views
- Add a video

When the program ends, the data file will be updated with the new information'''

```
def loadList (catVideos):
    ''' Inputs data into the list of dictionaries from the file.
    catVideos is the formal parameter and is a list of videos with each key containing a dictionary with the
    following 4 keys - Title, Views, Likes, Dislikes '''

    snIn = open ("DictionaryProgram5DataFile.txt", "r")  # Opens the data file

    while True:
        video = {} # Creates an empty dictionary

        # Loads each record from the file into a dictionary
        video ["Title"] = str.strip (snIn.readline ())
        if video ["Title"] == "":
            break
        video ["Views"] =int (str.strip (snIn.readline ()))
        video ["Likes"] = int (str.strip (snIn.readline ()))
        video ["Dislikes"] = int (str.strip (snIn.readline ()))

        catVideos.append (video)          # Appends the video dictionary to the list

    snIn.close ()  # File is closed because the data has been loaded into the list and therefore the file # does
                   not have to be accessed until the end of the program


def totalViews (catVideos):
    ''' Calculates all of the views in the video.
    catVideos is the formal parameter and is a list of videos with each key containing a dictionary with the
    following 4 keys - Title, Views, Likes, Dislikes '''

    totalViews = 0 # Local variable which stores the total number of views

    for index in catVideos     # Iterates through each elements in list of dictionaries
        totalViews = totalViews + index ["Views"] # We only need the "Views" key

    print ("The total number of views of all the videos is", totalViews)
```

```
def sortVideos (catVideos):
    ''' Outputs the title and views of the videos sorted by number of views.
     catVideos is the formal parameter and is a list of videos with each key containing a dictionary with the
      following 4 keys - Title, Views, Likes, Dislikes '''

    from operator import itemgetter          # Required to use the itemgetter function to sort

    catVideosSorted = sorted (catVideos, key = itemgetter ("Views")) # Creates a new sorted list

    print ("Video Name".ljust (20), "Views".rjust(7) )
    for index in reversed (catVideosSorted) :          # Iterates through each elements in list of dictionaries
                                                       # Reversed to make the list in descending order
        print (index["Title"].ljust (20), str(index ["Views"]).rjust (7))


def addVideo (catVideos):
    ''' Allows user to add a video.
     catVideos is the formal parameter and is a list of videos with each key containing a dictionary with the
    following 4 keys - Title, Views, Likes, Dislikes '''

    video = {} # Creates an empty dictionary

    # Allows the user to input data into a dictionary
    video ["Title"] = input ("Input the name of the video")
    video ["Views"] = int (input ("Input the number of views"))
    video ["Likes"] = int (input ("Input the number of likes"))
    video ["Dislikes"] = int (input ("Input the number of dislikes"))

    catVideos.append (video) # Appends the video dictionary to the list


def updateFile (catVideos):
    ''' Updates the file - this must be done at the END of the program after all the changes
     have been made to the data in the list.
    catVideos is the formal parameter and is a list of videos with each key containing a dictionary with the
    following 4 keys - Title, Views, Likes, Dislikes '''

    snOut = open ("DictionaryProgram5DataFile.txt", "w")     # Opens the data file to overwrite the old
                                                             # data with the new data
    # Outputs the the list of dictionaries to the file
    # This MUST be done one key at a time
    for index in catVideos :
        snOut.write (index ["Title"] + "\n")
        snOut.write (index ["Views"]) + "\n")
        snOut.write (index ["Likes"]) + "\n")
        snOut.write (index ["Dislikes"]) + "\n")

    snOut.close()

def showMenu():
    print ("1. Show total views of all videos.")
    print ("2. Show videos sorted by views.")
    print ("3. Add a video.")
    print ("4. Exit")
```

```
# Mainline
videosOfCats = [] # Actual Parameter

loadList (videosOfCats)          # Loads the list of dictionaries. This must be done once before the loop

while True:
        showMenu()
        userChoice = input ("Enter choice: ")
        if userChoice == "1":
                totalViews (videosOfCats)
        elif userChoice == "2":
                sortVideos (videosOfCats)
        elif userChoice == "3":
                addVideo (videosOfCats)
        elif userChoice == "4":
                break
        else:
                 print ("Wrong choice")

updateFile (videosOfCats) # Must be called after the program is done to update the data file
```