Week-9, Graded, Programming

Problem 1

Question

Write a python program to use `WorldPopulation.csv` to provide the answer for the following questions.

World Population Dataset

1. What is the population in the given year?

   - The first line of input is a year. Print the population in this year.

2. When did the world population first exceed the given population?

   - The second line of input is a positive number. Print the earliest year in which the world population exceeded the given number.

3. What is the maximum value of the given field?

   - The third line of input is the name of a field in the header, print the maximum value in the given field.

Sample dataset

```
1  Year,Population,ChangePerc,NetChange,Density,Urban,UrbanPerc
2  2020,7794798739,1.05,81330639,52,4378993944,56
3  2019,7713468100,1.08,82377060,52,4299438618,56
4  ...
5  ...
6  1952,2630861562,1.81,46827301,18,799282533,30
7  1951,2584034261,1.88,47603112,17,775067697,30
```

Evaluation Format

The name of the file you have to read is `WorldPopulation.csv`. Write a function named `solution` that does the following task.

```
1  def solution():
2      '''
3      0. Read the file.
4      1. Accept input from the user as specified in the question.
5      2. The input will be on three lines.
6      3. For each of the three questions given in the problem statement,
7         print your answer.
8      '''
```

- You have to accept input from the user. You have to read the file. You have to print the output to the console. All these activities should be done within the function named `solution`.

- Calling the function `solution` will be the autograder's responsibility.

Answer

```python
def solution():
    f = open('WorldPopulation.csv', 'r')
    year = int(input().strip()) # year from user
    popln = int(input().strip()) # population from user
    title = input().strip() # field from user

    head = f.readline() # read the first line having all the field names
    yearIndex = head[:head.find('Year')].count(',') # index of year in the
    list head
    populationIndex = head[:head.find('Population')].count(',') # index of
    population in the list head
    titleIndex = head[:head.find(title)].count(',') # index of field in the
    list head

    populationInYear = -1 # initilization of variable to hold the population
    in the given year
    yearCrossed = 3000 # initilization of variable to hold the year for the
    given year
    maxTitle = -1 # initilization of variable to hold the maximum value of
    the given field

    line = f.readline() # read the next line
    while line: # Loop upto the end of file
        i = line.strip().split(',') # split the row to list
        if int(i[yearIndex]) == year: # check for the year and get the
    population value
            populationInYear = int(i[populationIndex])
        if int(i[yearIndex]) < yearCrossed and int(i[populationIndex]) >
    popln: # check for the minimum value of year where the population is over
    the given population from user.
            yearCrossed = int(i[yearIndex])
        if int(i[titleIndex]) > maxTitle: # check for the maximum value and
    update it if that is greater than maxTitle
            maxTitle = int(i[titleIndex])
        line = f.readline() # read next line, returns '' if the the end of
    file reached.

    print(populationInYear)
    print(yearCrossed)
    print(maxTitle)
```

Invisible Code

```python
def get_data():
    file = '''Year,Population,ChangePerc,NetChange,Density,Urban,UrbanPerc
2020,7794798739,1.05,81330639,52,4378993944,56
2019,7713468100,1.08,82377060,52,4299438618,56
2018,7631091040,1.1,83232115,51,4219817318,55
2017,7547858925,1.12,83836876,51,4140188594,55
2016,7464022049,1.14,84224910,50,4060652683,54
2015,7379797139,1.16,84506374,50,3981497663,54
2014,7295290765,1.17,84708789,49,3902831934,53
2013,7210581976,1.19,84753917,48,3824990329,53
2012,7125828059,1.2,84633758,48,3747842586,53
```

```
12   2011,7041194301,1.21,84370698,47,3671423872,52
13   2010,6956823603,1.22,84056510,47,3594868146,52
14   2009,6872767093,1.23,83678407,46,3516830263,51
15   2008,6789088686,1.24,83142076,46,3439719128,51
16   2007,6705946610,1.24,82428777,45,3363609560,50
17   2006,6623517833,1.25,81610806,44,3289446226,50
18   2005,6541907027,1.25,80747638,44,3215905863,49
19   2004,6461159389,1.25,79974275,43,3143044892,49
20   2003,6381185114,1.26,79411926,43,3071743997,48
21   2002,6301773188,1.27,79146582,42,3001808223,48
22   2001,6222626606,1.29,79132783,42,2933078510,47
23   2000,6143493823,1.31,79254768,41,2868307513,47
24   1999,6064239055,1.33,79445113,41,2808231655,46
25   1998,5984793942,1.35,79748154,40,2749213598,46
26   1997,5905045788,1.38,80153837,40,2690813541,46
27   1996,5824891951,1.4,80678972,39,2632941583,45
28   1995,5744212979,1.43,81062552,39,2575505235,45
29   1994,5663150427,1.46,81552881,38,2518254111,44
30   1993,5581597546,1.5,82677737,37,2461223528,44
31   1992,5498919809,1.56,84630365,37,2404337297,44
32   1991,5414289444,1.63,87058383,36,2347462336,43
33   1990,5327231061,1.71,89789503,36,2290228096,43
34   1989,5237441558,1.79,92015550,35,2233140502,43
35   1988,5145426008,1.84,92903861,35,2176126537,42
36   1987,5052522147,1.85,91954235,34,2118882551,42
37   1986,4960567912,1.84,89646172,33,2062604394,42
38   1985,4870921740,1.82,86910119,33,2007939063,41
39   1984,4784011621,1.8,84442317,32,1955106433,41
40   1983,4699569304,1.78,82182762,32,1903822436,41
41   1982,4617386542,1.77,80389780,31,1854134229,40
42   1981,4536996762,1.77,78993248,30,1804215203,40
43   1980,4458003514,1.77,77497414,30,1754201029,39
44   1979,4380506100,1.76,75972599,29,1706021638,39
45   1978,4304533501,1.77,75027441,29,1659306117,39
46   1977,4229506060,1.8,74839196,28,1616419308,38
47   1976,4154666864,1.84,75186258,28,1577376141,38
48   1975,4079480606,1.89,75686434,27,1538624994,38
49   1974,4003794172,1.94,76013934,27,1501134655,37
50   1973,3927780238,1.98,76129993,26,1462178370,37
51   1972,3851650245,2.01,75890628,26,1424734781,37
52   1971,3775759617,2.04,75322571,25,1388834099,37
53   1970,3700437046,2.06,74756419,25,1354215496,37
54   1969,3625680627,2.09,74081500,24,1319833474,36
55   1968,3551599127,2.09,72829165,24,1285933432,36
56   1967,3478769962,2.08,70847332,23,1252566565,36
57   1966,3407922630,2.05,68339033,23,1219993032,36
58   1965,3339583597,2,65605259,22,1188469224,36
59   1964,3273978338,1.96,62977329,22,1157813355,35
60   1963,3211001009,1.92,60580214,22,1122561940,35
61   1962,3150420795,1.89,58577288,21,1088376703,35
62   1961,3091843507,1.87,56893759,21,1055435648,34
63   1960,3034949748,1.86,55373563,20,1023845517,34
64   1959,2979576185,1.84,53889480,20,992820546,33
65   1958,2925686705,1.82,52380615,20,962537113,33
66   1957,2873306090,1.8,50862808,19,933113168,32
67   1956,2822443282,1.78,49423346,19,904685164,32
68   1955,2773019936,1.77,48173195,19,877008842,32
69   1954,2724846741,1.76,47237781,18,850179106,31
```

```
70  1953,2677608960,1.78,46747398,18,824289989,31
71  1952,2630861562,1.81,46827301,18,799282533,30
72  1951,2584034261,1.88,47603112,17,775067697,30'''
73      return file
74
75  def write(file, filename):
76      with open(filename, 'w') as f:
77          f.write(file)
78
79  if __name__ == '__main__':
80      file = get_data()
81      write(file, 'WorldPopulation.csv')
82      solution()
```

Test cases

Public

Input	Output
2009 6000000000 Year	6872767093 1999 2020
2000 5000000000 NetChange	6143493823 1987 92903861

Private

Input	Output
2004 3430000000 Population	6461159389 1967 7794798739
1982 4500000000 ChangePerc	4617386542 1981 2.09
1951 2000000000 UrbanPerc	2584034261 1951 56

Problem 2

Question

IMDB is a database of information related to movies. You will be working with a subset of this database in this problem. Your task is to find the highest grossing movie from a specific genre in a given time frame. `IMDB_reviews.csv` is the file that contains information about movies. For more information, refer [IMDB Dataset](#).

Sample `IMDB_reviews.csv`

```
1   id,name,year,runtime,genre,rating,metascore,timeline,votes,gross
2   0,The Shawshank Redemption,1994,142,Drama,9.3,80,Two imprisoned men bond over
    a number of years finding solace and eventual redemption through acts of
    common decency.,2394059,28340000
3   1,The Godfather,1972,175,Crime Drama,9.2,100,An organized crime dynasty's
    aging patriarch transfers control of his clandestine empire to his reluctant
    son.,1658439,134970000
4   2,Soorarai Pottru,2020,153,Drama,9.1,,Nedumaaran Rajangam "Maara" sets out to
    make the common man fly and in the process takes on the world's most capital
    intensive industry and several enemies who stand in his way.,78266,
5   3,The Dark Knight,2008,152,Action Crime Drama,9.0,84,When the menace known as
    the Joker wreaks havoc and chaos on the people of Gotham Batman must accept
    one of the greatest psychological and physical tests of his ability to fight
    injustice.,2355907,534860000
```

Evaluation Format

Write a function `highest_grossing` that accepts three arguments as input:

- `yearFrom`
- `yearUpto`
- `genre`

The function should return the highest grossing movie that falls under the genre specified by `genre`, and in the time frame [`yearFrom`, `yearUpto`], both endpoints inclusive. The file named `IMDB_reviews.csv` contains all the information that you need.

```
1   def highest_grossing(yearFrom, yearUpto, genre):
2       '''
3       Arguments:
4           yearFrom: int
5           yearUpto: int
6           genre: string
7       Returns:
8           movie_name: string
9       '''
```

- Do not accept input from the user. Do not print output to the console.
- Your task is to complete the body of the function.

Answer

```python
def highest_grossing(yearFrom, yearUpto, genre):
    f = open('IMDB_reviews.csv', 'r') # opening the file
    head = f.readline().strip().split(',') # reading the first line and split with comma

    nameIndex = head.index('name') # variable to hold the index of name
    yearIndex = head.index('year') # variable to hold the index of year
    genreIndex = head.index('genre') # variable to hold the index of genre
    grossIndex = head.index('gross') # variable to hold the index of gross

    maxGrossing = 0 # variable to hold maxGrossing value
    maxGrossingMovie = '' # variable to hold maxGrossing movie name

    while True:
        line = f.readline().strip() # reading next line
        if not line: # null string will be returned when end of file (EOF) is reached
            break # break when the EOF is reached
        l = line.split(',') # split the line with comma
        if l[yearIndex] != '' and yearFrom <= int(l[yearIndex]) <= yearUpto and genre in l[genreIndex]: # checking for the given conditions for year range and genre
            if l[grossIndex] != '' and int(l[grossIndex]) > maxGrossing:
                maxGrossing = int(l[grossIndex]) # current max grossing value
                maxGrossingMovie = l[nameIndex] # current max grossing movie
    f.close() # closing the file
    return maxGrossingMovie # returing the final max grossing movie
```

Invisible Code Block

```python
def get_data():
    file =
'''id,name,year,runtime,genre,rating,metascore,timeline,votes,gross
0,The Shawshank Redemption,1994,142,Drama,9.3,80,Two imprisoned men bond over a number of years finding solace and eventual redemption through acts of common decency.,2394059,28340000
1,The Godfather,1972,175,Crime Drama,9.2,100,An organized crime dynasty's aging patriarch transfers control of his clandestine empire to his reluctant son.,1658439,134970000
2,Soorarai Pottru,2020,153,Drama,9.1,,Nedumaaran Rajangam "Maara" sets out to make the common man fly and in the process takes on the world's most capital intensive industry and several enemies who stand in his way.,78266,
3,The Dark Knight,2008,152,Action Crime Drama,9.0,84,When the menace known as the Joker wreaks havoc and chaos on the people of Gotham Batman must accept one of the greatest psychological and physical tests of his ability to fight injustice.,2355907,534860000
4,The Godfather: Part II,1974,202,Crime Drama,9.0,90,The early life and career of Vito Corleone in 1920s New York City is portrayed while his son Michael expands and tightens his grip on the family crime syndicate.,1152912,57300000
```

```
8   5,12 Angry Men,1957,96,Crime Drama,9.0,96,A jury holdout attempts to
    prevent a miscarriage of justice by forcing his colleagues to reconsider
    the evidence.,706079,4360000
9   6,The Lord of the Rings: The Return of the King,2003,201,Action Adventure
    Drama,8.9,94,Gandalf and Aragorn lead the World of Men against Sauron's
    army to draw his gaze from Frodo and Sam as they approach Mount Doom with
    the One Ring.,1672460,377850000
10  7,Pulp Fiction,1994,154,Crime Drama,8.9,94,The lives of two mob hitmen a
    boxer a gangster and his wife and a pair of diner bandits intertwine in
    four tales of violence and redemption.,1862472,107930000
11  8,Schindler's List,1993,195,Biography Drama History,8.9,94,In German-
    occupied Poland during World War II industrialist Oskar Schindler gradually
    becomes concerned for his Jewish workforce after witnessing their
    persecution by the Nazis.,1236213,96900000
12  9,Inception,2010,148,Action Adventure Sci-Fi,8.8,74,A thief who steals
    corporate secrets through the use of dream-sharing technology is given the
    inverse task of planting an idea into the mind of a
    C.E.O.,2113984,292580000
13  10,Fight Club,1999,139,Drama,8.8,66,An insomniac office worker and a devil-
    may-care soap maker form an underground fight club that evolves into much
    more.,1892181,37030000
14  11,The Lord of the Rings: The Fellowship of the Ring,2001,178,Action
    Adventure Drama,8.8,92,A meek Hobbit from the Shire and eight companions
    set out on a journey to destroy the powerful One Ring and save Middle-earth
    from the Dark Lord Sauron.,1693187,315540000
15  12,Forrest Gump,1994,142,Drama Romance,8.8,82,The presidencies of Kennedy
    and Johnson the Vietnam War the Watergate scandal and other historical
    events unfold from the perspective of an Alabama man with an IQ of 75 whose
    only desire is to be reunited with his childhood
    sweetheart.,1851357,330250000
16  13,The Good the Bad and the Ugly,1966,178,Western,8.8,90,A bounty hunting
    scam joins two men in an uneasy alliance against a third in a race to find
    a fortune in gold buried in a remote cemetery.,700347,6100000
17  14,The Lord of the Rings: The Two Towers,2002,179,Action Adventure
    Drama,8.7,87,While Frodo and Sam edge closer to Mordor with the help of the
    shifty Gollum the divided fellowship makes a stand against Sauron's new
    ally Saruman and his hordes of Isengard.,1512442,342550000
18  15,The Matrix,1999,136,Action Sci-Fi,8.7,73,When a beautiful stranger leads
    computer hacker Neo to a forbidding underworld he discovers the shocking
    truth--the life he knows is the elaborate deception of an evil cyber-
    intelligence.,1710438,171480000
19  16,Goodfellas,1990,146,Biography Crime Drama,8.7,90,The story of Henry Hill
    and his life in the mob covering his relationship with his wife Karen Hill
    and his mob partners Jimmy Conway and Tommy DeVito in the Italian-American
    crime syndicate.,1042578,46840000
20  17,Star Wars: Episode V - The Empire Strikes Back,1980,124,Action Adventure
    Fantasy,8.7,82,After the Rebels are brutally overpowered by the Empire on
    the ice planet Hoth Luke Skywalker begins Jedi training with Yoda while his
    friends are pursued by Darth Vader and a bounty hunter named Boba Fett all
    over the galaxy.,1178844,290480000
21  18,One Flew Over the Cuckoo's Nest,1975,133,Drama,8.7,84,A criminal pleads
    insanity and is admitted to a mental institution where he rebels against
    the oppressive nurse and rallies up the scared patients.,933318,112000000
22  19,Parasite,2019,132,Comedy Drama Thriller,8.6,96,Greed and class
    discrimination threaten the newly formed symbiotic relationship between the
    wealthy Park family and the destitute Kim clan.,608406,53370000
```

```
23  20,Interstellar,2014,169,Adventure Drama Sci-Fi,8.6,74,A team of explorers
    travel through a wormhole in space in an attempt to ensure humanity's
    survival.,1558558,188020000
24  21,City of God,2002,130,Crime Drama,8.6,79,In the slums of Rio two kids'
    paths diverge as one struggles to become a photographer and the other a
    kingpin.,709284,7560000
25  22,Spirited Away,2001,125,Animation Adventure Family,8.6,96,During her
    family's move to the suburbs a sullen 10-year-old girl wanders into a world
    ruled by gods witches and spirits and where humans are changed into
    beasts.,670674,10060000
26  23,Saving Private Ryan,1998,169,Drama War,8.6,91,Following the Normandy
    Landings a group of U.S. soldiers go behind enemy lines to retrieve a
    paratrooper whose brothers have been killed in action.,1262408,216540000
27  24,The Green Mile,1999,189,Crime Drama Fantasy,8.6,61,The lives of guards
    on Death Row are affected by one of their charges: a black man accused of
    child murder and rape yet who has a mysterious gift.,1173460,136800000
28  25,Life Is Beautiful,1997,116,Comedy Drama Romance,8.6,59,When an open-
    minded Jewish librarian and his son become victims of the Holocaust he uses
    a perfect mixture of will humor and imagination to protect his son from the
    dangers around their camp.,636745,57600000
29  26,Se7en,1995,127,Crime Drama Mystery,8.6,65,Two detectives a rookie and a
    veteran hunt a serial killer who uses the seven deadly sins as his
    motives.,1477013,100130000
30  27,The Silence of the Lambs,1991,118,Crime Drama Thriller,8.6,85,A young
    F.B.I. cadet must receive the help of an incarcerated and manipulative
    cannibal killer to help catch another serial killer a madman who skins his
    victims.,1298483,130740000
31  28,Star Wars: Episode IV - A New Hope,1977,121,Action Adventure
    Fantasy,8.6,90,Luke Skywalker joins forces with a Jedi Knight a cocky pilot
    a Wookiee and two droids to save the galaxy from the Empire's world-
    destroying battle station while also attempting to rescue Princess Leia
    from the mysterious Darth Vader.,1250920,322740000
32  29,Hara-Kiri,1962,133,Action Drama Mystery,8.6,85,When a ronin requesting
    seppuku at a feudal lord's palace is told of the brutal suicide of another
    ronin who previously visited he reveals how their pasts are intertwined -
    and in doing so challenges the clan's integrity.,44985,
33  30,Seven Samurai,1954,207,Action Adventure Drama,8.6,98,A poor village
    under attack by bandits recruits seven unemployed samurai to help them
    defend themselves.,321308,270000
34  31,It's a Wonderful Life,1946,130,Drama Family Fantasy,8.6,89,An angel is
    sent from Heaven to help a desperately frustrated businessman by showing
    him what life would have been like if he had never existed.,412456,
35  32,Hamilton,2020,160,Biography Drama History,8.5,90,The real life of one of
    America's foremost founding fathers and first Secretary of the Treasury
    Alexander Hamilton. Captured live on Broadway from the Richard Rodgers
    Theater with the original Broadway cast.,64486,
36  33,Raatchasan,2018,170,Action Crime Thriller,8.5,,A sub-inspector sets out
    in pursuit of a mysterious serial killer who targets teen school girls and
    murders them brutally.,29637,
37  34,Whiplash,2014,106,Drama Music,8.5,88,A promising young drummer enrolls
    at a cut-throat music conservatory where his dreams of greatness are
    mentored by an instructor who will stop at nothing to realize a student's
    potential.,738672,13090000
38  35,The Intouchables,2011,112,Biography Comedy Drama,8.5,57,After he becomes
    a quadriplegic from a paragliding accident an aristocrat hires a young man
    from the projects to be his caregiver.,778379,13180000
```

```
39  36,The Prestige,2006,130,Drama Mystery Sci-Fi,8.5,66,After a tragic
    accident two stage magicians engage in a battle to create the ultimate
    illusion while sacrificing everything they have to outwit each
    other.,1215602,53090000
40  37,The Departed,2006,151,Crime Drama Thriller,8.5,85,An undercover cop and
    a mole in the police attempt to identify each other while infiltrating an
    Irish gang in South Boston.,1212956,132380000
41  38,The Pianist,2002,150,Biography Drama Music,8.5,85,A Polish Jewish
    musician struggles to survive the destruction of the Warsaw ghetto of World
    War II.,748697,32570000
42  39,Gladiator,2000,155,Action Adventure Drama,8.5,67,A former Roman General
    sets out to exact vengeance against the corrupt emperor who murdered his
    family and sent him into slavery.,1366190,187710000
43  40,American History X,1998,119,Drama,8.5,62,A former neo-nazi skinhead
    tries to prevent his younger brother from going down the same wrong path
    that he did.,1049308,6720000
44  41,The Usual Suspects,1995,106,Crime Mystery Thriller,8.5,77,A sole
    survivor tells of the twisty events leading up to a horrific gun battle on
    a boat which began when five criminals met at a seemingly random police
    lineup.,1007527,23340000
45  42,Leon: The Professional,1994,110,Action Crime Drama,8.5,64,Mathilda a 12-
    year-old girl is reluctantly taken in by Leon a professional assassin after
    her family is murdered. An unusual relationship forms as she becomes his
    protegee and learns the assassin's trade.,1056159,19500000
46  43,The Lion King,1994,88,Animation Adventure Drama,8.5,88,Lion prince Simba
    and his father are targeted by his bitter uncle who wants to ascend the
    throne himself.,961309,422780000
47  44,Terminator 2: Judgment Day,1991,137,Action Sci-Fi,8.5,75,A cyborg
    identical to the one who failed to kill Sarah Connor must now protect her
    ten year old son John Connor from a more advanced and powerful
    cyborg.,1010778,204840000
48  45,Cinema Paradiso,1988,155,Drama Romance,8.5,80,A filmmaker recalls his
    childhood when falling in love with the pictures at the cinema of his home
    village and forms a deep friendship with the cinema's
    projectionist.,236441,11990000
49  46,Grave of the Fireflies,1988,89,Animation Drama War,8.5,94,A young boy
    and his little sister struggle to survive in Japan during World War
    II.,243008,
50  47,Back to the Future,1985,116,Adventure Comedy Sci-Fi,8.5,87,Marty McFly a
    17-year-old high school student is accidentally sent thirty years into the
    past in a time-traveling DeLorean invented by his close friend the
    eccentric scientist Doc Brown.,1081797,210610000
51  48,Once Upon a Time in the West,1968,165,Western,8.5,80,A mysterious
    stranger with a harmonica joins forces with a notorious desperado to
    protect a beautiful widow from a ruthless assassin working for the
    railroad.,307736,5320000
52  49,Psycho,1960,109,Horror Mystery Thriller,8.5,97,A Phoenix secretary
    embezzles $40000 from her employer's client goes on the run and checks into
    a remote motel run by a young man under the domination of his
    mother.,615511,32000000
53  50,Rear Window,1954,112,Mystery Thriller,8.5,100,A wheelchair-bound
    photographer spies on his neighbors from his apartment window and becomes
    convinced one of them has committed murder.,452067,36760000
54  51,Casablanca,1942,102,Drama Romance War,8.5,100,A cynical expatriate
    American cafe owner struggles to decide whether or not to help his former
    lover and her fugitive husband escape the Nazis in French
    Morocco.,530400,1020000
```

```
55  52,Modern Times,1936,87,Comedy Drama Family,8.5,96,The Tramp struggles to
    live in modern industrial society with the help of a young homeless
    woman.,222623,160000
56  53,City Lights,1931,87,Comedy Drama Romance,8.5,99,With the aid of a
    wealthy erratic tippler a dewy-eyed tramp who has fallen in love with a
    sightless flower girl accumulates money to be able to help her
    medically.,171097,20000
57  54,Capharnaum,2018,126,Drama,8.4,75,While serving a five-year sentence for
    a violent crime a 12-year-old boy sues his parents for
    neglect.,68968,1660000
58  55,Joker,2019,122,Crime Drama Thriller,8.4,59,In Gotham City mentally
    troubled comedian Arthur Fleck is disregarded and mistreated by society. He
    then embarks on a downward spiral of revolution and bloody crime. This path
    brings him face-to-face with his alter-ego: the Joker.,998809,335450000
59  56,Ayla: The Daughter of War,2017,125,Biography Drama History,8.4,,In 1950
    amid-st the ravages of the Korean War Sergeant Suleyman stumbles upon a
    half-frozen little girl with no parents and no help in sight. Frantic
    scared and on the verge of death ... ,35523,
60  57,Vikram Vedha,2017,147,Action Crime Drama,8.4,,Vikram a no-nonsense
    police officer accompanied by Simon his partner is on the hunt to capture
    Vedha a smuggler and a murderer. Vedha tries to change Vikram's life which
    leads to a conflict.,30657,
61  58,Your Name.,2016,106,Animation Drama Fantasy,8.4,79,Two strangers find
    themselves linked in a bizarre way. When a connection forms will distance
    be the only thing to keep them apart?,208863,5020000
62  59,Dangal,2016,161,Action Biography Drama,8.4,,Former wrestler Mahavir
    Singh Phogat and his two wrestler daughters struggle towards glory at the
    Commonwealth Games in the face of societal oppression.,163336,12390000
63  60,Spider-Man: Into the Spider-Verse,2018,117,Animation Action
    Adventure,8.4,87,Teen Miles Morales becomes the Spider-Man of his universe
    and must join with five spider-powered individuals from other dimensions to
    stop a threat for all realities.,400000,190240000
64  61,Avengers: Endgame,2019,181,Action Adventure Drama,8.4,78,After the
    devastating events of Avengers: Infinity War (2018) the universe is in
    ruins. With the help of remaining allies the Avengers assemble once more in
    order to reverse Thanos' actions and restore balance to the
    universe.,874948,858370000
65  62,Avengers: Infinity War,2018,149,Action Adventure Sci-Fi,8.4,68,The
    Avengers and their allies must be willing to sacrifice all in an attempt to
    defeat the powerful Thanos before his blitz of devastation and ruin puts an
    end to the universe.,877735,678820000
66  63,Coco I,2017,105,Animation Adventure Drama,8.4,81,Aspiring musician
    Miguel confronted with his family's ancestral ban on music enters the Land
    of the Dead to find his great-great-grandfather a legendary
    singer.,405773,209730000
67  64,Django Unchained,2012,165,Drama Western,8.4,81,With the help of a German
    bounty-hunter a freed slave sets out to rescue his wife from a brutal
    plantation-owner in Mississippi.,1388935,162810000
68  65,The Dark Knight Rises,2012,164,Action Adventure,8.4,78,Eight years after
    the Joker's reign of anarchy Batman with the help of the enigmatic Catwoman
    is forced from his exile to save Gotham City from the brutal guerrilla
    terrorist Bane.,1545023,448140000
69  66,3 Idiots,2009,170,Comedy Drama,8.4,67,Two friends are searching for
    their long lost companion. They revisit their college days and recall the
    memories of their friend who inspired them to think differently even as the
    rest of the world called them "idiots".,354804,6530000
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70  67,Like Stars on Earth,2007,165,Drama Family,8.4,,An eight-year-old boy is
    thought to be a lazy trouble-maker until the new art teacher has the
    patience and compassion to discover the real problem behind his struggles
    in school.,174528,1220000
71  68,WALL E,2008,98,Animation Adventure Family,8.4,95,In the distant future a
    small waste-collecting robot inadvertently embarks on a space journey that
    will ultimately decide the fate of mankind.,1019165,223810000
72  69,The Lives of Others,2006,137,Drama Mystery Thriller,8.4,89,In 1984 East
    Berlin an agent of the secret police conducting surveillance on a writer
    and his lover finds himself becoming increasingly absorbed by their
    lives.,365313,11290000
73  70,Oldboy,2003,120,Action Drama Mystery,8.4,77,After being kidnapped and
    imprisoned for fifteen years Oh Dae-Su is released only to find that he
    must find his captor in five days.,526864,710000
74  71,Memento,2000,113,Mystery Thriller,8.4,80,A man with short-term memory
    loss attempts to track down his wife's murderer.,1144823,25540000
75  72,Princess Mononoke,1997,134,Animation Action Adventure,8.4,76,On a
    journey to find the cure for a Tatarigami's curse Ashitaka finds himself in
    the middle of a war between the forest gods and Tatara a mining colony. In
    this quest he also meets San the Mononoke Hime.,352513,2380000
76  73,Once Upon a Time in America,1984,229,Crime Drama,8.4,,A former
    Prohibition-era Jewish gangster returns to the Lower East Side of Manhattan
    over thirty years later where he once again must confront the ghosts and
    regrets of his old life.,318184,5320000
77  74,Indiana Jones and the Raiders of the Lost Ark,1981,115,Action
    Adventure,8.4,85,In 1936 archaeologist and adventurer Indiana Jones is
    hired by the U.S. government to find the Ark of the Covenant before Adolf
    Hitler's Nazis can obtain its awesome powers.,897322,248160000
78  75,The Shining,1980,146,Drama Horror,8.4,66,A family heads to an isolated
    hotel for the winter where a sinister presence influences the father into
    violence while his psychic son sees horrific forebodings from both past and
    future.,917316,44020000
79  76,Apocalypse Now,1979,147,Drama Mystery War,8.4,94,A U.S. Army officer
    serving in Vietnam is tasked with assassinating a renegade Special Forces
    Colonel who sees himself as a god.,617196,83470000
80  77,Alien,1979,117,Horror Sci-Fi,8.4,89,After a space merchant vessel
    receives an unknown transmission as a distress call one of the crew is
    attacked by a mysterious life form and they soon realize that its life
    cycle has merely begun.,802900,78900000
81  78,High and Low,1963,143,Crime Drama Mystery,8.4,,An executive of a shoe
    company becomes a victim of extortion when his chauffeur's son is kidnapped
    and held for ransom.,36530,
82  79,Dr. Strangelove or: How I Learned to Stop Worrying and Love the
    Bomb,1964,95,Comedy,8.4,97,An insane general triggers a path to nuclear
    holocaust that a War Room full of politicians and generals frantically
    tries to stop.,457287,280000
83  80,Witness for the Prosecution,1957,116,Crime Drama Mystery,8.4,,A veteran
    British barrister must defend his client in a murder trial that has
    surprise after surprise.,111853,8180000
84  81,Paths of Glory,1957,88,Drama War,8.4,90,After refusing to attack an
    enemy position a general accuses the soldiers of cowardice and their
    commanding officer must defend them.,181972,
85  82,Sunset Blvd.,1950,110,Drama Film-Noir,8.4,,A screenwriter develops a
    dangerous relationship with a faded film star determined to make a
    triumphant return.,205267,
86  83,The Great Dictator,1940,125,Comedy Drama War,8.4,,Dictator Adenoid
    Hynkel tries to expand his empire while a poor Jewish barber tries to avoid
    persecution from Hynkel's regime.,206839,290000
```

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87  84,Chhichhore,2019,143,Comedy Drama,8.3,,A tragic incident forces Anirudh a
    middle-aged man to take a trip down memory lane and reminisce his college
    days along with his friends who were labelled as losers.,37268,900000
88  85,1917,2019,119,Drama Thriller War,8.3,78,April 6th 1917. As a regiment
    assembles to wage war deep in enemy territory two soldiers are assigned to
    race against time and deliver a message that will stop 1600 men from
    walking straight into a deadly trap.,460797,159230000
89  86,Tumbbad,2018,104,Drama Fantasy Horror,8.3,,A mythological story about a
    goddess who created the entire universe. The plot revolves around the
    consequences when humans build a temple for her first-born.,31444,
90  87,Drishyam,2013,160,Crime Drama Thriller,8.3,,A man goes to extreme
    lengths to save his family from punishment after the family commits an
    accidental crime.,35465,
91  88,The Hunt,2012,115,Drama,8.3,77,A teacher lives a lonely life all the
    while struggling over his son's custody. His life slowly gets better as he
    finds love and receives good news from his son but his new luck is about to
    be brutally shattered by an innocent little lie.,292306,690000
92  89,A Separation,2011,123,Drama,8.3,95,A married couple are faced with a
    difficult decision - to improve the life of their child by moving to
    another country or to stay in Iran and look after a deteriorating parent
    who has Alzheimer's disease.,225106,7100000
93  90,Incendies,2010,131,Drama Mystery War,8.3,80,Twins journey to the Middle
    East to discover their family history and fulfill their mother's last
    wishes.,155335,6860000
94  91,Dara of Jasenovac,2020,130,Drama War,8.3,,Follows the story of a young
    girl named Dara who is sent to a concentration camp in Croatia during World
    War 2.,34568,
95  92,The Father I,2020,97,Drama,8.3,88,A man refuses all assistance from his
    daughter as he ages. As he tries to make sense of his changing
    circumstances he begins to doubt his loved ones his own mind and even the
    fabric of his reality.,59314,
96  93,My Father and My Son,2005,112,Drama Family,8.3,,The family of a left-
    wing journalist is torn apart after the military coup of Turkey in
    1980.,80887,
97  94,Inglourious Basterds,2009,153,Adventure Drama War,8.3,69,In Nazi-
    occupied France during World War II a plan to assassinate Nazi leaders by a
    group of Jewish U.S. soldiers coincides with a theatre owner's vengeful
    plans for the same.,1297579,120540000
98  95,Eternal Sunshine of the Spotless Mind,2004,108,Drama Romance Sci-
    Fi,8.3,89,When their relationship turns sour a couple undergoes a medical
    procedure to have each other erased from their memories.,927213,34400000
99  96,Amelie,2001,122,Comedy Romance,8.3,69,Amelie is an innocent and naive
    girl in Paris with her own sense of justice. She decides to help those
    around her and along the way discovers love.,713537,33229999
100 97,Snatch,2000,102,Comedy Crime,8.3,55,Unscrupulous boxing promoters
    violent bookmakers a Russian gangster incompetent amateur robbers and
    supposedly Jewish jewelers fight to track down a priceless stolen
    diamond.,794366,30330000
101 98,Requiem for a Dream,2000,102,Drama,8.3,68,The drug-induced utopias of
    four Coney Island people are shattered when their addictions run
    deep.,779993,3640000
102 99,American Beauty,1999,122,Drama,8.3,84,A sexually frustrated suburban
    father has a mid-life crisis after becoming infatuated with his daughter's
    best friend.,1084775,130100000
103 100,Dances with Wolves,1990,181,Adventure Drama Western,8.0,72,Lieutenant
    John Dunbar assigned to a remote western Civil War outpost befriends wolves
    and Indians making him an intolerable aberration in the
    military.,245310,184210000
```

```
104   101,Avatar,2009,162,Action Adventure Fantasy,7.8,83,A paraplegic Marine
      dispatched to the moon Pandora on a unique mission becomes torn between
      following his orders and protecting the world he feels is his
      home.,1135001,760510000
105   102,Goldfinger,1964,110,Action Adventure Thriller,7.7,87,While
      investigating a gold magnate's smuggling James Bond uncovers a plot to
      contaminate the Fort Knox gold reserve.,176600,51080000
106   103,E.T. the Extra-Terrestrial,1982,115,Family Sci-Fi,7.8,91,A troubled
      child summons the courage to help a friendly alien escape Earth and return
      to his home world.,378313,435110000
107   104,The Conversation,1974,113,Drama Mystery Thriller,7.8,85,A paranoid
      secretive surveillance expert has a crisis of conscience when he suspects
      that the couple he is spying on will be murdered.,101397,4420000'''
108       return file
109
110   def write(file, filename):
111       with open(filename, 'w') as f:
112           f.write(file)
113
114   def run_user_code():
115       yearFrom = int(input())
116       yearUpto = int(input())
117       genre = input().strip()
118       print(highest_grossing(yearFrom, yearUpto, genre))
119
120   if __name__ == '__main__':
121       file = get_data()
122       write(file, 'IMDB_reviews.csv')
123       run_user_code()
```

Test cases

Public

Input	Output
1980 1990 Drama	Dances with Wolves
2000 2021 Fantasy	Avatar

Private

Input	Output
1950 1970 Action	Goldfinger
1300 2000 Sci-Fi	E.T. the Extra-Terrestrial
2000 3000 Crime	The Dark Knight
1973 1997 Adventure	The Lion King

Tags

files, strings

Problem 3

Question

Assume that there are two versions of a text document: `version_1.txt` and `version_2.txt`. Write a Python program to find the **difference** between the two versions of this document. Specifically, print the number of lines in `version_2.txt` that are NOT present in `version_1.txt`. Assume that no two lines in a given file are the same. While processing the files, you can strip all the lines of beginning and trailing whitespaces.

For example:

```
1   # version_1.txt
2   a
3   b
4   c
```

```
1   # version_2.txt
2   d
3   a
4   e
5   c
```

The **difference** here is 2. This is because, `d` and `e` are present in `version_2.txt` but not in `version_1.txt`.

Evaluation Format

Write a function named `solution`. Inside this function, process the files `version_1.txt` and `version_2.txt`, and print the **difference**. Note that you don't have to accept any input from the user. But, you have to print the output to the console.

```
1   def solution():
2       '''
3       1. Process version_1.txt and version_2.txt
4       2. Print the number lines in version_2.txt that are not in version_1.txt
5       '''
```

- You don't have to call the function. This will be the autograder's responsibility.
- Each test case corresponds to a different pair of files.

Answer 0

```
1   def solution():
2       f1 = open('version_1.txt', 'r') # open file version_1.txt in read mode
3       f2 = open('version_2.txt', 'r') # open file version_2.txt in read mode
4       f1Lines, f2Lines = [ ], [ ] # two list to store the lines in the files
    version_1.txt and version_2.txt
5       for line in f1:
6           f1Lines.append(line.strip()) # append all the lines from
    version_1.txt
7       for line in f2:
8           f2Lines.append(line.strip()) # append all the lines from
    version_2.txt
9       print(len(set(f2Lines) - set(f1Lines))) # printing the new lines present
    in version_2.txt
10      f1.close() # closing the file version_1.txt
11      f2.close() # closing the file version_2.txt
```

Answer 1

```
1   def solution():
2       f1 = open('version_1.txt', 'r') # open file version_1.txt in read mode
3       f2 = open('version_2.txt', 'r') # open file version_2.txt in read mode
4       file1 = set() # set to store the lines in the files version_1.txt
5       for i in f1.readlines():
6           file1.add(i.strip()) # add all the lines from version_1.txt
7       file2 = set() # set to store the lines in the files version_2.txt
8       for i in f2.readlines():
9           file2.add(i.strip()) # add all the lines from version_1.txt
10      print(len(file2) - len(file1.intersection(file2)))  # printing the new
    lines present in version_2.txt
11      f1.close() # closing the file version_1.txt
12      f2.close() # closing the file version_2.txt
```

Invisible Code Block

```
1   def write():
2       lines = [ ]
3       line = input()
4       while line:
5           lines.append(line)
6           line = input()
7
8       v = lines.index('version_2.txt')
9       f1 = lines[1 : v]
10      f2 = lines[v + 1: ]
11      for i in range(len(f1)):
12          if i != len(f1) - 1:
13              f1[i] += '\n'
14      for i in range(len(f2)):
15          if i != len(f2) - 1:
16              f2[i] += '\n'
17
18      with open('version_1.txt', 'w') as f:
19          f.writelines(f1)
```

```
20        with open('version_2.txt', 'w') as f:
21            f.writelines(f2)
22
23  if __name__ == '__main__':
24      write()
25      solution()
```

Test cases

Public

Input	Output

`version_1.txt`
 	
`a`
`b`
`c`
`d`
`e`
`f`
`g`
`h`
`version_2.txt`
`a`
`b`
`c`
`dd`
`e`
`f`
`gg`
	`2`

`version_1.txt`
`def fib(n):`
`if n == 0:`
`return 0`
`if n == 1:`
`return 1`
`return fib(n-1) + fib(n-2)`
 	
`version_2.txt`
`def fib(n):`
`if n == 0: # base case`
`return 0`
`if n == 1: # base case`
`return 1`
`return fib(n-1) + fib(n-2) # recursive case`
	`3`

`version_1.txt`
`2`
`3`
`4`
 	
`version_2.txt`
`1`
`2`
`3`
`4`
	`1`

Input	Output

`version_1.txt`
 `Alpha`
 `Beta`
 `Gamma`
 `Delta`
 `Epsilon`
 `Zeta`
 `Eta`
 `Theta`
 `Iota`
 `Kappa`
 `Lambda`
 `Mu`
 `Nu`
 `Xi`
 `Omicron`
 `Pi`
 `Rho`
 `Sigma`
 `Tau`
 `Upsilon`
 `Phi`
 `Chi`
 `Psi`
 `Omega`
 	
 `version_2.txt`
 `alpha`
	`24`

`version_1.txt`
 `12`
 	
 `version_2.txt`
 `1`
 `2`
 `3`
 `4`
	`4`

Input	Output
`version_1.txt` `1` `2` `3` `4` `version_2.txt` `1` `2` `3` `4`	`0`
`version_1.txt` `4` `version_2.txt` `4`	`0`