```python
# DWAYNE FRASER
# PROBLEM 4

import pandas as pd

top_gross = pd.read_csv('imdb-top-grossing.csv') # READ CSV
top_gross.columns =['Rank', 'Title', 'Year', 'USA Box Office']
top_rated = pd.read_csv('imdb-top-rated.csv') # READ CSV
top_rated.column = ['Rank', 'Title', 'Year', 'IMDB Rating']
cast = pd.read_csv('imdb-top-casts.csv', header = None) # READ CSV
cast.columns = ['Title', 'Year', 'Director', 'Actor1', 'Actor2', 'Actor3', 'Actor4', 'Actor5'] # READ CSV

# PART A
def display_top_collaborations():
    """ displays the ranking of tuples (director, first
    billed actor (i.e. Actor1), and number of movies) for movies in which the director and actor worked
    together also listed in the top rated movie list.
    """
    data = dict()  # DICTIONARY DECLARATION
    Results = []

    for index, row in top_rated.iterrows(): # LOOP

        Title = row['Title'] # TITLE ROW ASSIGNMENT
        MovieTitle = cast.loc[cast['Title'] == Title]  # MOVIE TITLE ASSIGNMENT

        if ((MovieTitle.iloc[0]['Director'],MovieTitle.iloc[0]['Actor1']) in data): # IF ACTOR & DIRECTOR IN MOVIE THEN...
            data[(MovieTitle.iloc[0]['Director'],MovieTitle.iloc[0]['Actor1'])] =
data[(MovieTitle.iloc[0]['Director'],MovieTitle.iloc[0]['Actor1'])] + 1 # ASSIGNMENT OPERATION
        else:
            data[(MovieTitle.iloc[0]['Director'],MovieTitle.iloc[0]['Actor1'])] = 1

    for key, value in data.items(): # LOOP
        a, b = key
        Results.append((a, b, value))    # LIST TUPLE APPEND

    Results = sorted(Results, key = lambda i: i[2] ) # SORT
    print("\nMovies in which the director and actor worked together also listed in the top top_rated movie list\n")

    for i in range(50): # LOOP
        print(Results[i]) # PRINT

    return

# PART B
def display_top_directors():
    """ displays the ranking of movie directors from the
    top grossing list ordered by the total box office money they produced.
    """

    data = dict()  # DICTIONARY DECLARATION
    Results = []
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    for index, row in top_gross.iterrows(): # LOOP
        Title = row['Title']  # TITLE ROW ASSIGNMENT
        top_gross_income = row['USA Box Office'] # TOP GROSS INCOME ROW ASSIGNMENT
        Movie_Name = cast.loc[cast['Title'] == Title]     # MOVIE NAME ASSIGNMENT

        if (Movie_Name.iloc[0]['Director'] in data): # IF DIRECTOR IN MOVIE THEN...
            data[Movie_Name.iloc[0]['Director']] = data[Movie_Name.iloc[0]['Director']] + top_gross_income #
ASSIGNMENT OPERATION
        else:
            data[Movie_Name.iloc[0]['Director']] = top_gross_income

    for key, value in data.items(): # LOOP
        Results.append((key, value))        # LIST TUPLE APPEND

    Results = sorted(Results, key = lambda i: i[1]) # SORT
    print("\nThe ranking of movie directors from the top top_grossing list ordered by the total box office money they
produced.\n")

    for i in range(50): # LOOP
        print(Results[i])

    return

# PART C
def main():

    display_top_collaborations()
    display_top_directors()

main()
```

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In [1]: runfile('C:/Program Files (x86)/Work/Python/Python Dwayne Solutions/HW 2/Homework 2/p4_Fraser_Dwayne.py', wdir='C:/Program Files (x86)/Work/
Python/Python Dwayne Solutions/HW 2/Homework 2')
C:\Program Files (x86)\Work\Python\Python Dwayne Solutions\HW 2\Homework 2\p4_Fraser_Dwayne.py:9: UserWarning: Pandas doesn't allow columns to be
created via a new attribute name - see https://pandas.pydata.org/pandas-docs/stable/indexing.html#attribute-access
  top_rated.column = ['Rank', 'Title', 'Year', 'IMDB Rating']

Movies in which the director and actor worked together also listed in the top top_rated movie list

('Frank Darabont', 'Tim Robbins', 1)
('Francis Ford Coppola', 'Al Pacino', 1)
('Quentin Tarantino', 'Tim Roth', 1)
('Sergio Leone', 'Eli Wallach', 1)
('Sidney Lumet', 'Martin Balsam', 1)
('Steven Spielberg', 'Liam Neeson', 1)
('Peter Jackson', 'Noel Appleby', 1)
('David Fincher', 'Edward Norton', 1)
('Irvin Kershner', 'Mark Hamill', 1)
('Peter Jackson', 'Alan Howard', 1)
('Milos Forman', 'Michael Berryman', 1)
('Christopher Nolan', 'Leonardo DiCaprio', 1)
('George Lucas', 'Mark Hamill', 1)
('Robert Zemeckis', 'Tom Hanks', 1)
('Andy Wachowski', 'Keanu Reeves', 1)
('Peter Jackson', 'Bruce Allpress', 1)
('Fernando Meirelles', 'Alexandre Rodrigues', 1)
('Sergio Leone', 'Claudia Cardinale', 1)
('Jonathan Demme', 'Jodie Foster', 1)
('David Fincher', 'Morgan Freeman', 1)
('Michael Curtiz', 'Humphrey Bogart', 1)
('Bryan Singer', 'Stephen Baldwin', 1)
('Frank Capra', 'James Stewart', 1)
('Alfred Hitchcock', 'Anthony Perkins', 1)
('Luc Besson', 'Jean Reno', 1)
('Tony Kaye', 'Edward Norton', 1)
('Christopher Nolan', 'Guy Pearce', 1)
('Steven Spielberg', 'Tom Hanks', 1)
('Charles Chaplin', 'Virginia Cherrill', 1)
('Stanley Kubrick', 'Peter Sellers', 1)
('Ridley Scott', 'Tom Skerritt', 1)
('Hayao Miyazaki', 'Daveigh Chase', 1)
('Alfonso Cuarón', 'Sandra Bullock', 1)
('Robert Zemeckis', 'Michael J. Fox', 1)
('Roberto Benigni', 'Roberto Benigni', 1)
('Roman Polanski', 'Adrien Brody', 1)
('Orson Welles', 'Joseph Cotten', 1)
('Stanley Kubrick', 'Jack Nicholson', 1)
('Fritz Lang', 'Peter Lorre', 1)
('Stanley Kubrick', 'Kirk Douglas', 1)
('Olivier Nakache', 'François Cluzet', 1)
('Sam Mendes', 'Kevin Spacey', 1)
('Quentin Tarantino', 'Jamie Foxx', 1)
('Ridley Scott', 'Russell Crowe', 1)
('Frank Darabont', 'Tom Hanks', 1)
('James Cameron', 'Sigourney Weaver', 1)
('Billy Wilder', 'Fred MacMurray', 1)
('Martin Scorsese', 'Diahnne Abbott', 1)
('Andrew Stanton', 'Ben Burtt', 1)
('Florian Henckel von Donnersmarck', 'Martina Gedeck', 1)
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The ranking of movie directors from the top top_grossing list ordered by the total box office money they produced.

('Tom Hooper', 148775460)
('Jonathan Mostow', 150350192)
('George P. Cosmatos', 150415432)
('Michael Patrick King', 152637269)
('Clyde Geronimi', 153000000)
('Raja Gosnell', 153288182)
('Cameron Crowe', 153620822)
('Jimmy Hayward', 154529187)
('Tim Story', 154695569)
('Tim Johnson', 155019340)
('Rupert Sanders', 155111815)
('Adrian Lyne', 156645693)
('Keenen Ivory Wayans', 156997084)
('Peter Segal', 158115031)
('George Roy Hill', 159600000)
('Lee Tamahori', 160201106)
('Bibo Bergeron', 160762022)
('Steve Martino', 161317423)
('Frank Coraci', 161487252)
('Gabriele Muccino', 162586036)
('Quentin Tarantino', 162804648)
('Louis Leterrier', 163192114)
('Robert Wise', 163214286)
('Anne Fletcher', 163947053)
('Jennifer Yuh', 165230261)
('Kevin Reynolds', 165500000)
('Martin Campbell', 167007184)
('Leonard Nimoy', 167780960)
('Walt Becker', 168213584)
('Tate Taylor', 169705587)
('Ethan Coen', 171031347)
('Chris Buck', 171085177)
('Joseph Kosinski', 172051787)
('Barry Levinson', 172825435)
('Peter Faiman', 174635000)
('Chris Wedge', 176387405)
('Bobby Farrelly', 176483808)
('Harald Zwart', 176591618)
('Rupert Wyatt', 176740650)
('Andy Tennant', 177575142)
('Gavin Hood', 179883016)
('Brian De Palma', 180965237)
('Kenneth Branagh', 181015141)
('Randal Kleiser', 181360000)
('Nancy Meyers', 182805123)
('David Silverman', 183132370)
('Steven Soderbergh', 183405771)
('Andrew Davis', 183875760)
('Joel Schumacher', 184031112)
('Kevin Costner', 184208848)

In [2]:
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