


# HW Connections Answers

For this homework, youse the movies1000 spreadsheet and the movies.py, bacon.py, and floyd.py files.

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```
In [1]: import sys
sys.path.append('c:/rcpay/documents/college/Fall 2020/cds 411')
import bacon, floyd
import movies3 as mov
f1 = 'movies1000.xlsx'
movies, actors, isin = mov.ReadData(f1)
```

## Problem 1

Write a python script that returns the *aid* value for Kim Crosby?

```
In [2]: # your code and answer
aidValue = mov.AidFromName(actors,"Kim","Crosby")
print(aidValue)
```

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## Problem 2

Write a Python script that returns the *mid* values for the movies with Amy Irving?

```
In [3]: # yoru code and answer
aidAmy = mov.AidFromName(actors,"Amy","Irving");
mids = mov.MidsFromAid(isin,aidAmy);
print(mids)
```

[242 6 243 994]

## Problem 3

Write a Python script that returns the titles of the movies Lena Horne is in.

```
In [4]: # your code and answer
aidLena = mov.AidFromName(actors,"Lena","Horne");
mids = mov.MidsFromAid(isin,aidAmy);
titles = mov.TitlesFromMids(movies,mids);
print(titles)

['Yentl', 'An American Tail: Fievel Goes West', 'Who Framed Roger Rabbit',
'I'm Not Rappaport']
```

## Problem 4

Write a Python script that returns the names of the actors that are in the movie named *Inherit the Wind* .

```
In [5]: # your code and answer
mid = mov.MidFromTitle(movies,"Inherit the Wind");
aIDs = mov.AidsFromMid(isin,mid);
names = mov.NamesFromAids(actors, aIDs);
print(names)

[('Spencer', 'Tracy'), ('Gene', 'Kelly'), ('Harry', 'Morgan'), ('Norman', 'Fell')]
```

## Problem 5

What are the 'aid' values in the shortest path from Spencer Tracy to Lena Horne?

```
In [6]: # your code and answer
Graph = bacon.MakeG(isin)
G,P = bacon.RunFloyd(Graph);

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800
```

```
In [7]: SpencerAid = mov.AidFromName(actors,"Spencer","Tracy");
LenaAid = mov.AidFromName(actors,"Lena","Horne");
path = floyd.FindPath(P,SpencerAid,LenaAid)
print(path)
for i in path:
    print(mov.NameFromAid(actors,i))
```

```
[363, 55, 25, 455, 826, 827]
('Spencer', 'Tracy')
('Linda', 'Hamilton')
('Rip', 'Torn')
('James', 'Brown')
('Gene', 'Kelly')
('Lena', 'Horne')
```

## Problem 6

What are the names of the movies that are in the shortest path from Aidan Quinn to Anthony Quinn

```
In [8]: # your code and answer
aidanAid = mov.AidFromName(actors,"Aidan","Quinn");
anthAid = mov.AidFromName(actors,"Anthony","Quinn");
path = floyd.FindPath(P,aidanAid,anthAid)
print(path)
for i in path:
    print(mov.NameFromAid(actors,i))
```

```
[14, 12, 168]
('Aidan', 'Quinn')
('Christopher', 'Lloyd')
('Anthony', 'Quinn')
```

## Problem 7

What is the longest path for Kevin Bacon? Your answer needs to include the actor names and movie titles grouped so we know which actors are in which movies.

```
In [12]: # your code and answer
kevinBacon = mov.AidFromName(actors,"Kevin","Bacon");
kevinBacon
kevinDist = (G[kevinBacon]<999999)*G[kevinBacon]
print("Longest Path: ",kevinDist.max())
index = 0;

for i in range(len(list(P[kevinBacon]))):
    if list(P[kevinBacon])[i] == 5.0:
        index = i;
        break;
path = floyd.FindPath(P,kevinBacon,index);
print(path)
for i in path:
    actor = mov.NameFromAid(actors,i)
    inMovies = mov.MidsFromAid(isin,i);
    actorMovies = mov.TitlesFromMids(movies, inMovies);
    print(actor,"is in",actorMovies);
```

```
Longest Path:  5.0
[143, 142, 212, 5, 390]
('Kevin', 'Bacon') is in ['The Air I Breathe', 'Tremors', 'Apollo 13', 'Plane
s, Trains and Automobiles', 'Mystic River', 'JFK']
('Forest', 'Whitaker') is in ['The Air I Breathe', 'Phenomenon', 'The Last Ki
ng of Scotland', 'Bird', 'Mr. Holland's Opus', 'Stakeout']
('Barry', 'Corbin') is in ['WarGames', 'No Country for Old Men', 'Monte Wals
h']
('F. Murray', 'Abraham') is in ['Amadeus', 'Last Action Hero', 'The Big Fix']
('Grace', 'Kelly') is in ['Rear Window', 'To Catch a Thief', 'Dial M for Murd
er']
```

## Problem 8

Mentioned in the lectures is that most actors are connected. Thus, there is one big collection of connected actors, and a few that are not. Leonardo DiCaprio is one of the actors in this big connection. How many actors are in this group?

```
In [32]: # your code and answer
dicaprio = mov.AidFromName(actors,"Leonardo","DiCaprio");
dicaprioPaths = P[dicaprio].nonzero()[0];
print(len(dicaprioPaths),"actors")
```

801 actors

## Problem 9

Mads Mikkelsen has been identified as an actor that is a chain of 7 handshakes with another actor. How many chains of length 7 is he in?

```
In [45]: # your code and answer
MadsMikkel = mov.AidFromName(actors,"Mads","Mikkelsen")
MadsPaths = [];
count = 0;
for i in range(len(actors)):
    path = floyd.FindPath(P,MadsMikkel,i);
    if len(path) >= 7:
        count += 1;
        MadsPaths.append(path);
print(count,"paths of 7 handshakes")
for i in MadsPaths:
    for j in i:
        print(mov.NameFromAid(actors,j),end="");
    print(end="\n")
```

3 paths of 7 handshakes

```
('Mads', 'Mikkelsen')('Timothy', 'Dalton')('Charles', 'Durning')('John', 'Belushi')('John', 'Turturro')('Bill', 'Pullman')('Timothy', 'Hutton')
('Mads', 'Mikkelsen')('Timothy', 'Dalton')('Kevin', 'Kline')('Patricia', 'Clarkson')('Leo G.', 'Carroll')('Humphrey', 'Bogart')('Barbara', 'Stanwyck')
('Mads', 'Mikkelsen')('Timothy', 'Dalton')('Kevin', 'Kline')('Patricia', 'Clarkson')('Leo G.', 'Carroll')('Humphrey', 'Bogart')('Ronald', 'Reagan')
```

In [ ]: