BIOS 60318 Francisco Huizar Assignment 8

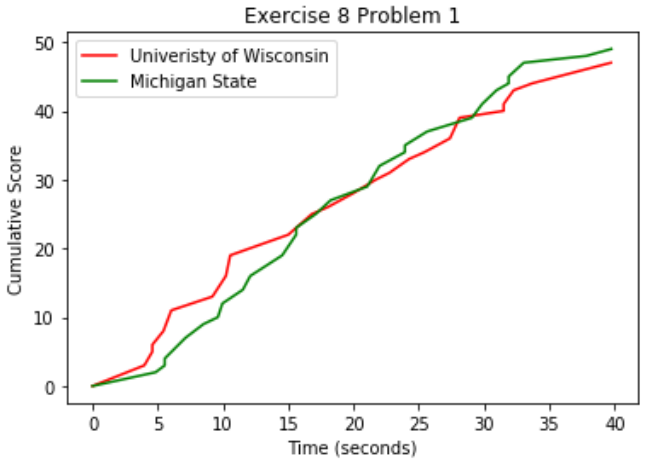
$Problem\ 1$

In [1]:
```
# Import necessary packages and data
import csv
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
import os.path

# Let's load the sports data
sportsData = pd.read_table('UWvMSU_1-22-13.txt', header = 0, sep="\t")
```

In [2]:
```
# Let's get the information for Univesity of wisconsin
UWdata = sportsData[sportsData['team'].str.contains('UW')]
nRows = len(UWdata.index)
nCols = len(UWdata.columns)

# Initialize empty arrays
UWtime = [0]
UWscore = [0]
UWcumul = [0]

# Loop over the rows to add time and calculaute cumulative score
for i in range(0, nRows):
    UWtime.append(UWdata.iloc[i, 0])
    UWscore = UWdata.iloc[i, 2]
    UWcumul.append(UWcumul[i] + UWscore)
```

In [3]:
```
# Let's get information for Michigan Stae
MSUdata = sportsData[sportsData['team'].str.contains('MSU')]
nRows = len(MSUdata.index)
nCols = len(MSUdata.columns)

# Initialize empty arrays
MSUtime = [0]
MSUscore = [0]
MSUcumul = [0]

# Loop over the rows to add time and calculaute cumulative score
for i in range(0, nRows):
    MSUtime.append(MSUdata.iloc[i, 0])
    MSUscore = MSUdata.iloc[i, 2]
    MSUcumul.append(MSUcumul[i] + MSUscore)
```

In [4]:
```
# Use MATLAB plot tools
plt.plot(UWtime, UWcumul, 'r-', label="Univeristy of Wisconsin")
plt.plot(MSUtime, MSUcumul, 'g-', label="Michigan State")
plt.xlabel('Time (seconds)')
plt.ylabel('Cumulative Score')
plt.title('Exercise 8 Problem 1')
plt.legend()
plt.show()
```



Problem 2

In [5]:
```
# Set seed for reproducibility
np.random.seed(seed = 1)
numberTries = 0

print('I am thinking of a number between 1 and 100. . .')

# Generate the random number
randomNumber = np.random.randint(1,100,1)

print('How many guesses do you think you need?\n')

# Set the maximum number of guesses
maxGuesses = int(input())

# While attempts less than maxguesses, play the game
while numberTries < maxGuesses:
    print('\nTake a guess at the number!')
    guess = int(input())
    numberTries += 1

    if guess < randomNumber:
        print('\nYour guess is too low')
    elif guess > randomNumber:
        print('\nYour guess is too high')
    elif guess == randomNumber:
        break

if guess == randomNumber:
    print('\nYou guessed correctly with:', numberTries, 'attempts')
else:
    print('\nYou exceeded the maximum number of guesses')
    print('Sorry, I was thinking of the number', randomNumber[0])
```

```
I am thinking of a number between 1 and 100. . .
How many guesses do you think you need?

10

Take a guess at the number!
1

Your guess is too low

Take a guess at the number!
12

Your guess is too low

Take a guess at the number!
75

Your guess is too high

Take a guess at the number!
50

Your guess is too high

Take a guess at the number!
38

You guessed correctly with: 5 attempts
```