
Programming Assignment 5 (100 points)

Due date: August 1, 2016 at 11:59 PM

Overview

This assignment will give you experience with dictionaries and the use of lists, as well as more practice with file I/O.

Part 1: World Series Winners [50 points]

The file *WorldSeriesWinners.txt* contains a chronological list of the World Series winning teams from 1903 through 2009. (The first line in the file is the name of the team that won in 1903, and the last line is the name of the team that won in 2009. Note that the World Series was not played in 1904 or 1994.)

Write a program that reads the contents of the *WorldSeriesWinners.txt* file into a list. When the user enters the name of a team, the program displays the number of times that team has won the World Series in the time period from 1903 through 2009.

1. You must create and use at least 2 meaningful functions (your choice).
2. Prompt for the input file. Your program must check if the file exists. If it does not, your program should output a "file not found" message and keep asking until a correct file is entered.
3. Name the source code file "*Teams.py*"

Sample run:

```
Here is a sample run of the program:
Enter the name of a team: New York Yankees
The New York Yankees won the world series 26 times between 1903 and 2009.
```

Part 2: Employee Management System

This part assumes that you have created the Employee class for Programming Assignment 4. Create a program that stores Employee objects in a dictionary. Use the employee ID number as the key. The program should present a menu that lets the user perform the following actions:

- Look up an employee in the dictionary
- Add a new employee to the dictionary
- Change an existing employee's name, department, and job title in the dictionary
- Delete an employee from the dictionary
- Quit the program

You must create and use at least 4 meaningful functions (your choice).

Name the source code file "*EmployeeSystem.py*"

Sample run:

```
Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 2
Enter employee name: Susan Meyers
Enter employee ID number: 47899
Enter employee department: Accounting
Enter employee title: Vice President
The new employee has been added.

Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 2
Enter employee name: Mark Jones
Enter employee ID number: 39119
Enter employee department: IT
Enter employee title: Programmer
The new employee has been added.

Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 2
Enter employee name: Joy Rogers
Enter employee ID number: 8174
Enter employee department: Manufacturing
Enter employee title: Engineer
The new employee has been added.
```

```
Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 3
Enter employee ID number: 47899
Enter the new name: Helen
Enter the new department: Accounting
Enter the new title: President
Employee information updated.

Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 1
Enter an employee ID number: 39119
Name: Mark Jones
ID number: 39119
Department: It
Title: Programmer

Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 9
The choice you entered is invalid. Please enter a valid choice: 4
Enter employee ID number: 444849
The specified ID number was not found.
```

```
Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 4
Enter employee ID number: 39119
Employee information deleted.

Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 1
Enter an employee ID number: 39119
The specified ID number was not found

Menu
----------------------------------------
1. Look up an employee
2. Add a new employee
3. Change an existing employee
4. Delete an employee
5. Quit the program

Enter your choice: 5
```

Extra Credit: Game - tic-tac-toe [25 points]

Write a program that plays tic-tac-toe. The tic-tac-toe game is played on a 3 × 3 grid as in the photo at right. The game is played by two players, who take turns. The first player marks moves with a circle, the second with a cross. The player who has formed a horizontal, vertical, or diagonal sequence of three marks wins. Your program should draw the game board, ask the user for the coordinates of the next mark, change the players after every successful move, and pronounce the winner.

Name the source code files "Game.py"

Sample run:

```
   |   |
---+---+---
   |   |
---+---+---
   |   |
Player O, make your move:
  row: 1
  col: 1
   |   |
---+---+---
   | O |
---+---+---
   |   |
Player X, make your move:
  row: 0
  col: 1
   | X |
---+---+---
   | O |
---+---+---
   |   |
Player O, make your move:
  row: 0
  col: 2
   | X | O
---+---+---
   | O |
---+---+---
   |   |
Player X, make your move:
  row: 2
  col: 1
   | X | O
---+---+---
   | O |
---+---+---
   | X |
Player O, make your move:
  row: 2
  col: 0
   | X | O
---+---+---
   | O |
---+---+---
 O | X |
Player O won!
```

```
   |   |
---+---+---
   |   |
---+---+---
   |   |
Player O, make your move:
  row: 1
  col: 1
   |   |
---+---+---
   | O |
---+---+---
   |   |
Player X, make your move:
  row: 0
  col: 1
   | X |
---+---+---
   | O |
---+---+---
   |   |
Player O, make your move:
  row: 0
  col: 2
   | X | O
---+---+---
   | O |
---+---+---
   |   |
Player X, make your move:
  row: 2
  col: 1
   | X | O
---+---+---
   | O |
---+---+---
   | X |
Player O, make your move:
  row: 2
  col: 0
   | X | O
---+---+---
   | O |
---+---+---
 O | X |
Player O won!
```

Submission instructions:

1. README.doc (you must edit this and insert your own screen shot or a sample run of each program)
2. Include the standard program header at the top of your Python files.
3. Please be sure to use the specified file name.
4. You need to label your assignment with your first name initial, last name, and the name of the assignment. Example: hibrahim_assignment5.zip
5. Zip the files to upload to Canvas (hibrahim_assignment5.zip).
6. Submit the zipped file containing the following files:
    a. Teams.py
    b. EmployeeSystem.py
    c. Game.py (extra credit)
    d. README.doc

Standard program header

Each programming assignment should have the following header, with italicized text appropriately replaced.

Note: You can copy and paste the comment lines shown here to the top of your assignment each time. You will need to make the appropriate changes for each assignment (assignment number, due date, and description).

```
'''
 * Program #: Insert assignment name
 * Programmer: Insert your name
 * Due: Insert due date
 * CS 21A, summer 2016
 * Description: (Give a brief description for Assignment 5)
'''
```