Orange County Community College

Computer Science and Technology Department

csc 138 - Scripting

Laboratory Exercise 7

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Date: _____

Objectives:

- Pair programming

Pair programming is an agile software development technique in which two programmers work together at one workstation. One, the *driver*, writes code while the other, the *observer* or *navigator*,[1] reviews each line of code as it is typed in. The two programmers switch roles frequently.

While reviewing, the observer also considers the "strategic" direction of the work, coming up with ideas for improvements and likely future problems to address. This is intended to free the driver to focus all of their attention on the "tactical" aspects of completing the current task, using the observer as a safety net and guide.

https://en.wikipedia.org/wiki/Pair_programming

Find a partner to pair up with. Then complete the lab as a pair to accomplish the following.

Python CSV File Reading and Writing

Use the attached csv file. You can copy and paste it to a simple text file for reading

1. Write a Python program to read each row from a given csv file and print a list of strings.

```
import csv

# open the CSV file
with open('birthplace_2018_census.csv', newline='') as file:
    # create a reader var to iterate over rows
```

```
    reader = csv.reader(file)

    # loop over each row
    for row in reader:
        # print row as list of strings
        print(list(row))
```

2. Write a Python program to read a given CSV file as a list.

```
import csv

# open the CSV file
with open('birthplace_2018_census.csv', newline='') as file:
    # create reader to iterate over rows
    reader = csv.reader(file)

    # convert reader to a list
    rows = list(reader)

    # print the list of rows
    print(rows)
```

3. Write a Python program to read a given CSV file as a dictionary.

```
import csv

# open the CSV file
with open('birthplace_2018_census.csv', newline='') as file:
    # create a reader to iterate over rows
    reader = csv.DictReader(file)

    # convert the reader to a list of dictionaries
    rows = list(reader)
```

```
    # print the list of dictionaries
    print(rows)
```

4. Write a Python program to read a given CSV files with initial spaces after a delimiter and remove those initial spaces.

```
import csv

# open CSV file
with open('birthplace_2018_census.csv', newline='') as file:
    # create reader to iterate over rows
    reader = csv.reader(file)

    # loop over each row
    for row in reader:
        # remove initial spaces
        row = [element.strip() for element in row]

        # print the modified row
        print(row)
```

5. Write a Python program that reads a CSV file and remove initial spaces, quotes around each entry and the delimiter.

```
# open the CSV file
with open('birthplace_2018_census.csv', newline='') as file:
    # create reader to iterate over rows
    reader = csv.reader(file)
   # loop over each row
    for row in reader:
        # remove initial spaces
        row = [element.strip() for element in row]
```

```
    # remove quotes
    row = [element.replace('"', '') for element in row]

    # join row elements into a single string
    row = ''.join(row)

    # print the modified row
    print(row)
```

6. Write a Python program to read specific columns of a given CSV file and print the content of the columns.

```
import csv

# open the CSV file
with open('birthplace_2018_census.csv', newline='') as file:
   # create reader to iterate over rows
   reader = csv.reader(file)

   # get the headers
   headers = next(reader)

   # get the index's of the columns to print

   cc_index = [2]

   # loop over each row in the file
   for row in reader:
      # get the values of the specified columns
    c_values = [row[a] for a in cc_index]
```

```
    # print the column values
    print(c_values)
```

7. Write a Python program that reads each row of a given csv file
and skip the header of the file. Also print the number of rows and the field names.

```
import csv

with open('birthplace_2018_census.csv', newline='') as file:

    reader = csv.reader(file)

    # Skip header row
    next(reader, None)

    # Print field names
    print(f"Field names: {', '.join(next(reader))}")

    # Count rows
    count = sum(1 for row in reader)
    print(f"Number of rows: {count}")
```

8. Write a Python program to write and iterate over
the rows to print the values.

```
import csv
# Write data to file
with open('birthplace_2018_census.csv', 'w', newline='') as file:
    writer = csv.writer(file)
    writer.writerow(['Name', 'Age', 'Gender'])
    writer.writerow(['Alice', 25, 'Female'])
    writer.writerow(['Bob', 30, 'Male'])
    writer.writerow(['Charlie', 40, 'Male'])
```

```
# Read data from file and print values
with open('birthplace_2018_census.csv', newline='') as file:
    reader = csv.reader(file)
    for row in reader:
        print(', '.join(row))
```

9. Write a Python program to write a Python list of lists to a csv file.

After writing the CSV file read the CSV file and display the content.

```
import csv

# Define list of lists
data = [
    ['Name', 'Age', 'Gender'],
    ['Alice', 25, 'Female'],
    ['Bob', 30, 'Male'],
    ['Charlie', 40, 'Male']
]

# Write list of lists to CSV file
with open('birthplace_2018_census.csv', 'w', newline='') as file:
    writer = csv.writer(file)
    for row in data:
        writer.writerow(row)

# Read CSV file and display content
with open('birthplace_2018_census.csv', newline='') as file:
    reader = csv.reader(file)
    for row in reader:
        print(', '.join(row))
```

10. Write a Python program to write a Python dictionary to a csv file.

After writing the CSV file read the CSV file and display the content.

```
import csv

# Define dictionary
data = [
    {'Name': 'Alice', 'Age': 25, 'Gender': 'Female'},
    {'Name': 'Bob', 'Age': 30, 'Gender': 'Male'},
    {'Name': 'Charlie', 'Age': 40, 'Gender': 'Male'}
]

# Write dictionary to CSV file
with open('birthplace_2018_census.csv', 'w', newline='') as file:
    fieldnames = ['Name', 'Age', 'Gender']
    writer = csv.DictWriter(file, fieldnames=fieldnames)
    writer.writeheader()
    for row in data:
        writer.writerow(row)

# Read CSV file and display content
with open('birthplace_2018_census.csv', newline='') as file:
    reader = csv.DictReader(file)
    for row in reader:
        print(row)
```