

ITEC-425 / SENG-425: Python Programming Lab

Lab 6: Working with Files I/O

NOTE:

In the following tasks, for the sake of convenience, your Python code and the text files it is referencing (reading or writing) should be in the same directory.

For the tasks in this lab, create and save a file called `data.txt` by copying and pasting the following content. Save the file `data.txt` in the same folder/directory as your Python code.

`data.txt`

Python supports multiple programming paradigms, including object-oriented, imperative and functional programming or procedural styles. It features a dynamic type system and automatic memory management and has a large and comprehensive standard library. The best way we learn anything is by practice and exercise questions. We have started this section for those (beginner to intermediate) who are familiar with Python.

Task 1

Write a program that reads a text file, and prints it line by line but in ALL CAPS.

```
In [1]: # Open the file
fhandle = open("data.txt")

# Get each line,
# remove any whitespaces from both ends,
# and change to upper case
for line in fhandle:
    print(line.strip().upper())

# Close the file
fhandle.close()
```

PYTHON SUPPORTS MULTIPLE PROGRAMMING PARADIGMS, INCLUDING OBJECT-ORIENTED, IMPERATIVE AND FUNCTIONAL PROGRAMMING OR PROCEDURAL STYLES. IT FEATURES A DYNAMIC TYPE SYSTEM AND AUTOMATIC MEMORY MANAGEMENT AND HAS A LARGE AND COMPREHENSIVE STANDARD LIBRARY. THE BEST WAY WE LEARN ANYTHING IS BY PRACTICE AND EXERCISE QUESTIONS. WE HAVE STARTED THIS SECTION FOR THOSE (BEGINNER TO INTERMEDIATE) WHO ARE FAMILIAR WITH PYTHON.

Task 2

Write a program that reads a file a text file, and counts the number of words in the file.

```
In [2]: # Open the file
fhandle = open("data.txt")

# Read the entire content of the file
```

```

data = fhandle.read()

# Split the text into words; returns a list of words
words = data.split()

# Print the length of the above list
print("Number of words in the file: ", len(words))

# Close the file
fhandle.close()

```

Number of words in the file: 59

Task 3

Write a program that counts the number of lines in a text file.

In [3]:

```

# Open the file
f = open('data.txt')

# Read the file contents
data = f.read()

# Split the content into lines; returns a list of lines
lines = data.splitlines()

# To get the number of lines, find the length of the above list
print("The number of lines in the file: ", len(lines))

```

The number of lines in the file: 7

Task 4

Write a program that asks the user for a filename and a message. The program creates a new file and saves the message in the file.

In [4]:

```

fname = input("Enter new file name: ")
msg = input("Enter your message: ")

f = open(fname, 'w')
f.write(msg)
f.close()

print("Your file has been created and your message is saved in the file.")

```

Enter new file name: newfile.txt
Enter your message: hello world
Your file has been created and your message is saved in the file.

Task 5

Write a program that repeatedly asks the user for a to-do item, and appends it to a file called `todos.txt`. When the user enters `quit` the program ends.

In [5]:

```

f = open('todos.txt', 'a')

while True:
    todo = input("Enter your to-do item (or enter quit to stop): ")

```

```
    if todo.lower() == 'quit':  
        break  
    f.write(todo + '\n')  
  
    # Make sure to close the file  
    f.close()  
  
print("All your todo items are saved in the file: todos.txt")
```

```
Enter your to-do item (or enter quit to stop): fix computer  
Enter your to-do item (or enter quit to stop): complete assignment  
Enter your to-do item (or enter quit to stop): buy tickets  
Enter your to-do item (or enter quit to stop): pay bills  
Enter your to-do item (or enter quit to stop): quit  
All your todo items are saved in the file: todos.txt
```