**Lesson 9 External Data**

**Sending Out**

Type in this program and run it. Annotate this sheet to try to explain what you think it is doing.

**New Commands**

**write()**
sends data to a file – must use the file handle set by the open() function.

#Procedure to write data

def write\_data(data\_to\_write):

File = open(“data.txt”,“w”)

File.write(data\_to\_write+“\n”)

File.close()

print(data\_to\_write,“has been stored.\n”)

#Main Program

choice = “”

while choice != “Q”:

 print(“Main Menu\n”)

 print(“1 Write data”)

 print(“2 Read data”)

 print(“3 Change data”)

 print(“Q Quit”)

 choice = input(“Please enter your choice: ”)

if choice == “1”:

 data\_to\_write = input(“What do you want to store? ”)

 write\_data(data\_to\_write)

**So, Let’s Explain**

Before you can do anything with a file you have to open it and create a *file handle*. This is done using the open() function. In this you say which file you are going to open and what you are going to do with it (“w” means “write” i.e. send data to the file; “r” means “read” i.e. get data from the file).

The result of the open() function is sent to a variable and this is used throughout to refer to the file.

The write() command sends data to the file. There is a “\n” added at the end so that, if you want to add another line later, the cursor is on the next line.

At the end you should close the file connection using the close() function.

** Over to You**

Add another function called changedata(). This will read in the data.txt file and display its contents. Then it will ask what text you would like to replace it with and store this new data in the file. **Careful – you will need to open the file using “r” in the open() function, close it and open it again using “w” to write over it.**

You will need to add an elif line on the end of the program for when choice == 3.

The output on the screen will look something like this:

Main Menu

1 Write data

2 Read data

3 Change data

Q Quit

Please enter your choice: 3

At the moment the file says Hello World

What would you like to change it to?: Goodbye Everybody

The file has been changed.

**Where did that file go?**

If you just leave it to, Python will quite happily overwrite any file you have already saved. If you set the file to be written to and it already exists, the program will simply wipe out the old data. It would be good if you could be warned about this.

To do this you will need to import another external code course into your Python program. This one is called os.path. It includes a function called exists() which checks to see if a file exists or not. It returns a Boolean value, True if the file already exists, False if it doesn’t.

Type in the program over the page.

import os.path

option = “y”

while option == “y”:

 data\_to\_write = input(“Enter text to go into file: “)

 filename = input(“Enter filename: “)

 if os.path.exists(filename):

 #If the file does exist, check whether to overwrite it

 print(“File already exists.”)

 overwrite = input(“Do you want to overwrite it? (y/n):”)

 if overwrite == “y”:

 #If the answer is “y” then overwrite the file …

 File = open(filename,”w”)

 File.write(data\_to\_write+”/n”)

 File.close()

 else:

 #…otherwise don’t overwrite

 print(“File not written”)

 else:

 #If the file didn’t exist already go ahead and save it

 File = open(filename,”w”)

 File.write(data\_to\_write+”/n”)

 File.close()

 option = input(“Again? (y/n):”)

** Over to You**

Adapt the program you wrote earlier so that it will check whether you want to overwrite the file. If the user says no it should ask for a new filename and save to there.

The output on the screen will look something like this:

Main Menu

1 Write data

2 Read data

3 Change data

Q Quit

Please enter your choice: 3

At the moment the file says Hello World

What would you like to change it to?: Goodbye Everybody

The file data.txt already exists.

Would you like to save it to a new file (y/n): y

Enter name of new file: newdata.txt

File saved