Hyperiondev

TASK

Working with External Data Sources — Output

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Introduction

WELCOME TO THE OUTPUT TASK!

Until now, the Python code you've been writing has only received input in one manner and has only displayed output in one way — you type input using the keyboard and its results are displayed on the console. But what if you want to read information from a file on your computer and write that information to another file? This process is called file I/O (the "I/O" stands for "input/output") and Python has some built-in functions that handle this for you.

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Connect for support

Remember that with our courses, you're not alone! You can contact an expert code reviewer to get support on any aspect of your course.

The best way to get help is to login to Discord at **https://discord.com/invite/hyperdev** where our specialist team is ready to support you.

Our team is happy to offer you support that is tailored to your individual career or education needs. Do not hesitate to ask a question or for additional support!

A note from the
Hyperion Team

Based on the success of our previous article on 10 types of software development, we've decided to build on that to share 5 more types of what you could be doing as a software engineer in the field!

1. Front-End Web Development
2. Product Management
3. Site Reliability Engineer
4. Machine Learning Developer
5. Natural Language Processing Developer

Here is a link to a more in-depth explanation of these 5 types of a software engineer.

WRITING DATA TO A TEXT FILE

First of all, let's recap file access modes. Last time we focussed on reading, and this time we are going to focus on writing.

Mode	Description
r	Opens the file for reading only. Throws I/O error if the file does not exist.
r+	Opens the file for both reading and writing. Throws I/O error if the file does not exist.
w	Opens the file for writing only. It will create a file if the file doesn't exist. For the existing files, the data is overwritten.
w+	Opens the file for reading and writing. It will create a file if the file doesn't exist. For the existing files, the data is overwritten.
a	Opens the file for writing only, creating the file if it doesn't exist. Any data being written will be inserted at the end (appended, thus 'a'), after the existing data.

a+	Opens the file for reading and writing, creating the file if it isn't there. Any data being written will be inserted at the end (appended, thus 'a'), after the existing data.

Now, let's see how to create a new text file and write data to it using the 'w' access mode:

```
name = input("Enter name: ")

with open('output.txt', 'w') as f:
    f.write(name+"\n")
```

We create a new file called **output.txt** (it doesn't exist yet) in write mode. Python will automatically create this file in the directory/folder that our program is in. We ask the user for their name. When they enter it, it is stored as a string in the variable called *name*. You then use the *write()* method in order to write to a file. The final line of code above will write the string value stored in the variable called *name* and a newline (\n) to the file that has been opened.

You must run this Python file for the file **output.txt** to be created with the output from this program in it.

We write to the file again, but the current contents of the file will not be overwritten. Instead, it will be written on the 2nd line of the text file:

```
f.write("My name is on the line above in this text file.")
```

If you open the file again, it will be over written, if the file is still open you can add to it by writing more to the file. This is important to remember when editing files.

Don't forget to close the file if you're not using ***with/as***! See example.py

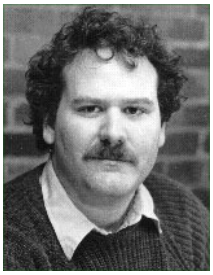
```
open_file.close()
```

A note from our coding mentor

Ridhaa

Sorry to interrupt but have you heard about Fred Cohen? He was the first person to create a computer virus. In 1983 he designed a hidden program that could infect a computer, copy

itself and then infect other computers through the use of a floppy disk. He did not just create problems for millions of users in the future but he was the pioneer of computer virus defence techniques.



Instructions

First, read **example.py**. Open it using VS Code or Anaconda.

- **example.py** should help you understand some simple Python. Every task will have example code to help you get started. Make sure you read all of **example.py** and try your best to understand.
- You may run **example.py** to see the output. Feel free to write and run your own example code before doing the Task to become more comfortable with Python.

Compulsory Task 1

Follow these steps:

- We will write a program called **student_register.py** that allows students to register for an exam venue.
- First, ask the user how many students are registering.
- Create a *for loop* that runs for that amount of students
- Each time the loop runs it needs to ask the next student to enter their ID number.
- Write each of the ID numbers to a Text File called **reg_form.txt**

- Include a dotted line to sign because this document will be used as an attendance register which the students will sign when they arrive at the exam venue.

Compulsory Task 2

Follow these steps:

- Create a new Python file in this folder called **combined.py**
- Create a text file called **numbers1.txt** that contains Integers which are sorted from smallest to largest.
- Create another text file called **numbers2.txt** which also contains Integers that are sorted from smallest to largest.
- Write the numbers from both files to a third file called **all_numbers.txt**
- All the numbers in **all_numbers.txt** should be sorted from smallest to largest.

If you are having any difficulties, please feel free to contact our specialist team **on Discord** for support.

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