

CSI31 Introduction to Computer Programming I

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Topics

- More on strings
- File input and output using objects

Control characters in strings

- Newline character `'\n'`
- `str1 = "Hello!\nHow are you?"`
- Look at the difference between evaluating `str1` and printing `str1`
- Tab character `'\t'` is used to align text

File processing

- A program can get its input from a file stored in secondary memory.
- A program can write its output to a file.
- Associate the file to an object variable in the program by opening the file.
- Once the program is finished using the file, close the file .

Input from a text file

- Open the file for reading.
 - `<variable> = open(<filename>, "r")`
 - The file should be created beforehand with a text editor.
- Example: `infile = open("names20.txt", "r")`
 - The file object is named `infile`. This variable refers to the file within the program.

Input from a text file object infile

- Ways of reading from a file:
 - `infile.read()`: returns the entire remaining contents of the file as a single string
 - `infile.readline()`: returns the next line of the file, up to and including the next newline character
 - `infile.readlines()`: returns a list of the remaining lines in the file. Each item in the list is a single line, as a string, with the newline character at the end.

Input from a text file object infile

- Ways of reading from a file:
 - Loop through the lines in a file
 - for line in infile
- Python treats infile as if it were a list of lines

Examples with file names20.txt

- Open the file. Read the whole file into into a variable. Close the file.
- Open the file. Read the first line of the file.
- Read the remainder of the file into a list
- Close the file.

Writing output to a text file

- Open the file to write output – 'w'
 - `<variable> = open(<filename>, "w")`
 - The file with name filename will be created, if it doesn't exist. If a file of that name exists, it will be deleted and a new empty file will be created.
- Example:
 - `outfile = open("data.txt", "w")`
 - `print('text', file = outfile)`
 - `outfile.close()` – be sure to close the file so that output is written to the file

Write a program that creates usernames.

- On a certain computer system, a username is the first letter of the first name of the user followed by the first seven letters of the user's last name. If the last name has fewer than seven letters, then the entire last name is used.
- Write a program that creates usernames from a text file of names. The format of the file is first name, then space, then last name, one per line.
- Save the usernames in a file, one per line.