# ch_10_assignment

April 3, 2023



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[ ]:
```
from IPython.core.interactiveshell import InteractiveShell
InteractiveShell.ast_node_interactivity = 'all'
```

## 1 Reading and Writing Files

### 1.1 Opening a File

[ ]:
```
file = open('file_example.txt','r')
contents = file.read()
file.close()
print(contents)
```

```
First line of text
Second line of text
Third line of  text
```

#### 1.1.1 The with statement

[ ]:
```
with open('file_example.txt', 'r') as file:
    contents = file.read()
print(contents)
```

```
First line of text
Second line of text
Third line of  text
```

#### 1.1.2 How Files Are Organized on Your Computer

my path = /Users/Kim_Tein/INU/inu_data/physics_programming/assignment/Ch_10/file_example.txt

### 1.1.3 Specifying Which File You Want

[ ]:
```
import os
os.getcwd()
```

[ ]: '/Users/Kim_Tein/INU/inu_data/physics_programming/assignment/Ch_10'

[ ]:
```
os.chdir('/Users/Kim_Tein/Desktop')
os.getcwd()
```

[ ]: '/Users/Kim_Tein/Desktop'

## 1.2 Techniques for Reading Files

[ ]:
```
# Function readlines works much like function read, except that it splits up␣
 ↪the lines into a list of strings.
with open('file_example.txt', 'r') as example_file:
    lines = example_file.readlines()
print(lines)
```

```
['First line of text\n', 'Second line of text\n', 'Third line of  text\n']
```

### 1.2.1 Printing backward

[ ]:
```
with open('planets.txt','r') as planets_file:
    planets = planets_file.readlines()
planets
for planet in reversed(planets):
    print(planet.strip())
```

[ ]: ['Mercury\n', 'Venus\n', 'Earth\n', 'Mars\n']

```
Mars
Earth
Venus
Mercury
```

### 1.2.2 Printing alphabetically

[ ]:
```
with open('planets.txt','r') as planets_file:
    planets = planets_file.readlines()
planets
for planet in sorted(planets):
    print(planet.strip())
```

[ ]: ['Mercury\n', 'Venus\n', 'Earth\n', 'Mars\n']

```
Earth
Mars
Mercury
Venus
```

### 1.3 The "For Line in File" Technique

[ ]:
```
with open('planets.txt','r') as data_file:
    for line in data_file:
        print(len(line))
```

```
8
6
6
5
```

[ ]:
```
with open('planets.txt','r') as data_file:
    for line in data_file:
        print(len(line.strip()))
```

```
7
5
5
4
```

### 1.4 The Readline Technique

[ ]:
```
with open('hopedale.txt', 'r') as hopedale_file:
    hopedale_file.readline()
    data = hopedale_file.readline().strip()
    while data.startswith('#'):
        data = hopedale_file.readline().strip()

    total_pelts = int(data)

    for data in hopedale_file:
        total_pelts = total_pelts + int(data.strip())
print("Total number of pelts:", total_pelts)
```

[ ]:
```
'Colored fox fur production, HOPEDALE, Labrador, 1834-1842\n'

Total number of pelts: 373
```

### 1.5 Writing Files

[ ]:
```
with open('topics.txt', 'w') as output_file:
    output_file.write('Computer Science \n')
with open('topics.txt', 'a') as output_file:
    output_file.write('Software Engineering \n')
with open('topics.txt','r') as output_file:
    data = output_file.readlines()
data
```

[ ]:
```
18
```

[ ]:
```
22
```

[ ]:
```
['Computer Science \n', 'Software Engineering \n']
```

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Reference * Title: Physics Programming Lecture Note (INU) * Author: Jeongwoo Kim, Ph.D. * Availability: https://sites.google.com/view/jeongwookim

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