

7 File Handling

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To edit text files in Python, we write a function that assigns the content of a file to a variable as a string.

```
1 \KeywordTok{def}\NormalTok{ file\_reader(path : }\}\BuiltInTok{str}\NormalTok{) }\OperatorTok{{-}}\textgreater{}\}\BuiltInTok{str}\NormalTok{::}

2
3     \ControlFlowTok{with} \BuiltInTok{open}\NormalTok{(path, mode}\}\OperatorTok{{=}}\StringTok{"r"}\textgreater{}\}\NormalTok{,
4     encoding}\}\OperatorTok{{=}}\StringTok{"utf-8"}\textgreater{}\StringTok{"e"}\}\NormalTok{ }\ImportTok{as}\NormalTok{ f\::}
5
6     \NormalTok{f} \textgreater;\textgreater; text }\OperatorTok{{=}}\NormalTok{ f.read()\}
7
8     \ControlFlowTok{return}\NormalTok{ text}
```

To write encrypted or decrypted text to a file in Python, we write a function that writes a string to a file.

```
1 \KeywordTok{def}\NormalTok{ file\_writer(path : }\}\BuiltInTok{str}\NormalTok{, text : }\}\BuiltInTok{str}\NormalTok{) }\NormalTok{::}

2     \NormalTok{i} \OperatorTok{{=}}\DecValTok{0}
3
4     \NormalTok{i} grouped\_text }\OperatorTok{{=}}\StringTok{""}
5     \ControlFlowTok{for}\NormalTok{ c }\KeywordTok{in}\NormalTok{ text:\}
6         \NormalTok{i} \OperatorTok{{+=}}\DecValTok{1}
7
8         \ControlFlowTok{if}\NormalTok{ i }\OperatorTok{{%}}\DecValTok{50}
9             \OperatorTok{==}\DecValTok{0}\NormalTok{::}
10            grouped\_text }\OperatorTok{{+=}}\NormalTok{ c
11        \operatorname{grouped\_text} }\OperatorTok{{+=}}\StringTok{"}\CharTok{\textbackslash}n\StringTok{"}
12
13        \ControlFlowTok{elif}\NormalTok{ i }\OperatorTok{{%}}\DecValTok{5}
14            \OperatorTok{==}\DecValTok{0}\NormalTok{::}
15            grouped\_text }\OperatorTok{{+=}}\NormalTok{ c
16        \operatorname{grouped\_text} }\OperatorTok{{+=}}\StringTok{" "}
17
18        \ControlFlowTok{else}\NormalTok{::}
19            grouped\_text }\OperatorTok{{+=}}\NormalTok{ c}
```

```

12      \ControlFlowTok{with} \BuiltInTok{open}\NormalTok{(path, mode)\OperatorTok{|}\StringTok{\textquotesingle{}\textquotingle{}w\textquotesingle{}\textquotingle{}}\NormalTok{,
13      Tok{=}\StringTok{\textquotesingle{}\textquotingle{}utf{-}8\textquotesingle{}\textquotingle{}}\NormalTok{,
14      encoding}\OperatorTok{|}\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{) }\ImportTok{as}\NormalTok{ f:\}
15      \NormalTok{f.write(grouped\_text)}

```

To ensure that texts consist exclusively of ASCII uppercase letters, we write a function that converts all lowercase letters to uppercase and converts all umlauts to their equivalent letters. All other characters are removed.

To have all methods for processing strings available, the string module must first be imported.

```

1 \ImportTok{import}\NormalTok{ string}

1 \KeywordTok{def}\NormalTok{ text\_cleaning(text : }
2     \BuiltInTok{str}\NormalTok{}) \OperatorTok{|}\textgreater{}\textless{}\NormalTok{)
3     \NormalTok{clean }\OperatorTok{|}\NormalTok{ text.upper()
4     }\OperatorTok{|}\textbackslash\textbackslash{}\NormalTok{)
5     \NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}Ä\textquotesingle{}\textquotingle{}}\NormalTok{,
6     }\StringTok{\textquotesingle{}\textquotingle{}Æ\textquotesingle{}\textquotingle{}}\NormalTok{)
7     }\OperatorTok{|}\textbackslash\textbackslash{}\NormalTok{)
8     \NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}Ö\textquotesingle{}\textquotingle{}}\NormalTok{,
9     }\StringTok{\textquotesingle{}\textquotingle{}Œ\textquotesingle{}\textquotingle{}}\NormalTok{)
10    }\OperatorTok{|}\textbackslash\textbackslash{}\NormalTok{)
11    \NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}Ü\textquotesingle{}\textquotingle{}}\NormalTok{,
12     }\StringTok{\textquotesingle{}\textquotingle{}œ\textquotesingle{}\textquotingle{}}\NormalTok{)
13     }\OperatorTok{|}\textbackslash\textbackslash{}\NormalTok{)
14     \NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}ß\textquotesingle{}\textquotingle{}}\NormalTok{,
15     }\StringTok{\textquotesingle{}\textquotingle{}ss\textquotesingle{}\textquotingle{}}\NormalTok{)
16     }\OperatorTok{|}\textbackslash\textbackslash{}\NormalTok{)
17     \NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
18     }\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
19     }\NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
20     }\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
21     }\NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
22     }\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
23     }\NormalTok{.replace()\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
24     }\StringTok{\textquotesingle{}\textquotingle{}}\NormalTok{)
25     \NormalTok{.cleaned\_text }\OperatorTok{|}\textless{}\textgreater{}\NormalTok{)
26     \StringTok{\textquotesingle{}\textquotingle{}}\textless{}\textgreater{}\NormalTok{)
27     \ControlFlowTok{for}\NormalTok{ c }\KeywordTok{in}\NormalTok{ cleaned:\}
28         \ControlFlowTok{if}\NormalTok{ c.\isalpha():}
29         \NormalTok{cleaned\_text }\OperatorTok{|}\textless{}\textgreater{}\NormalTok{)
30         \NormalTok{c}

```

```
14  
15 \ControlFlowTok{return}\NormalTok{\_cleaned\_\_text}
```