

Exercises

- 1) Import the datetime module and use the timedelta function to create a time difference of 1 hour.
- 2) Import the os module and use the listdir function to list all files in a directory.
- 3) Import the time module and use the strftime function to format a datetime object as a string.
- 4) Import the calendar module and use the isleap function to check if a year is a leap year.
- 5) Import the statistics module and use the median function to calculate the median of a list of numbers.
- 6) Import the re module and use the sub function to replace a pattern in a string with another string.
- 7) Import the json module and use the dump function to write JSON data to a file.
- 8) Import the urllib module and use the parse function to parse a URL into its components.
- 9) Import the csv module and use the writer function to write data to a CSV file.
- 10) Import the gzip module and use the decompress function to decompress a gzip-compressed string.

Exercises and solution

- 1) Import the datetime module and use the timedelta function to create a time difference of 1 hour.

```
import datetime
```

```
time_diff = datetime.timedelta(hours=1)
```

- 2) Import the os module and use the listdir function to list all files in a directory.

```
import os
```

```
files = os.listdir('/path/to/directory')
```

- 3) Import the time module and use the strftime function to format a datetime object as a string.

```
import time
```

```
now = time.time()
```

```
time_string = time.strftime('%Y-%m-%d %H:%M:%S',  
time.localtime(now))
```

- 4) Import the calendar module and use the isleap function to check if a year is a leap year.

```
import calendar
```

```
year = 2022
```

```
is_leap_year = calendar.isleap(year)
```

- 5) Import the statistics module and use the median function to calculate the median of a list of numbers.

```
import statistics

data = [1, 3, 5, 7, 9]
median = statistics.median(data)
```

- 6) Import the re module and use the sub function to replace a pattern in a string with another string.

```
import re

text = 'Hello, World!'
new_text = re.sub('Hello', 'Hi', text)
```

- 7) Import the json module and use the dump function to write JSON data to a file.

```
import json

data = {'name': 'John', 'age': 30}
with open('data.json', 'w') as f:
    json.dump(data, f)
```

- 8) Import the urllib module and use the parse function to parse a URL into its components.

```
import urllib.parse

url = 'https://www.example.com/path/to/page?param=value'
parsed_url = urllib.parse.urlparse(url)
```

- 9) Import the csv module and use the writer function to write data to a CSV file.

```
import csv
```

```
import csv
```

```
# data to be written to CSV file
```

```
data = [['Name', 'Age', 'Gender'],  
        ['John', '25', 'Male'],  
        ['Sarah', '32', 'Female'],  
        ['Michael', '45', 'Male']]
```

```
# open file for writing
```

```
with open('example.csv', 'w', newline='') as file:  
    writer = csv.writer(file)
```

```
# write data to file row by row
```

```
for row in data:  
    writer.writerow(row)
```

- 10) Import the gzip module and use the decompress function to decompress a gzip-compressed string.

```
import gzip
```

```
# gzip-compressed data as bytes
```

```
compressed_data =  
b'\x1f\x8b\x08\x00\xce\xffB`\x02\xffs\xca\xccIU\x04\x00N\xc2\xf8W\x03\x00\x00\x00'
```

```
# decompress the data
```

```
decompressed_data = gzip.decompress(compressed_data)
```

```
# convert bytes to string
```

```
decompressed_data_str = decompressed_data.decode('utf-8')
```

```
print(decompressed_data_str)
```