Write programs with the following Files Opening Modes:

r, w, a, r+, w+, a+, rb, wb, ab, rb+, wb+, ab+

Writing in a file

```
In [114…   with open('data.txt', 'w') as f:
               f.write('This is a data written using python program in a text file.\n')

In [ ]:
```

Reading the file

```
In [115…   with open('data.txt', 'r') as f:
               print(f.read())
```

```
This is a data written using python program in a text file.
```

```
In [ ]:
```

Append content in a file

```
In [ ]:

In [116…   data_to_append = "She had been told time and time again that the most important

In [117…   data_to_append = list(map(lambda text: text+'\n',data_to_append))

In [118…   data_to_append
```

```
Out[118]:  ['She had been told time and time again that the most important steps were the
           first and the last\n',
            'It was something that she carried within her in everything she did, but then
           he showed up and disrupted everything\n',
            'He told her that she had it wrong\n',
            "The first step wasn't the most important\n",
            "The last step wasn't the most important\n",
            'It was the next step that was the most important.\n']
```

```
In [119…   with open('data.txt', 'a') as f:
               f.writelines(data_to_append)

In [ ]:

In [120…   with open('data.txt', 'r') as f:
               print(f.read())
```

```
This is a data written using python program in a text file.
She had been told time and time again that the most important steps were the fi
rst and the last
It was something that she carried within her in everything she did, but then he
showed up and disrupted everything
He told her that she had it wrong
The first step wasn't the most important
The last step wasn't the most important
It was the next step that was the most important.
```

In [ ]:

r+ mode

In [121...
```python
with open('data.txt', 'r+') as f:   #Perform read and write operation on the file
    print(f.readline())
    f.write('Content added with r+ mode in between the file\n')
    f.seek(0)
    print(f.read())
```

```
This is a data written using python program in a text file.

This is a data written using python program in a text file.
She had been told time and time again that the most important steps were the fi
rst and the last
It was something that she carried within her in everything she did, but then he
showed up and disrupted everything
He told her that she had it wrong
The first step wasn't the most important
The last step wasn't the most important
It was the next step that was the most important.
Content added with r+ mode in between the file
```

In [ ]:

w+ mode

In [122...
```python
with open('+data.txt', 'w+') as f: #First truncates the file and we can perform
    f.writelines(data_to_append)
    f.seek(0)
    print(f.read())
```

```
She had been told time and time again that the most important steps were the fi
rst and the last
It was something that she carried within her in everything she did, but then he
showed up and disrupted everything
He told her that she had it wrong
The first step wasn't the most important
The last step wasn't the most important
It was the next step that was the most important.
```

In [ ]:

a+ mode

In [123…
```python
with open('+data.txt', 'a+') as f:
    f.writelines(data_to_append) #Pointer starts at the end of the file
    f.seek(0)
    print(f.read())
```

```
She had been told time and time again that the most important steps were the fi
rst and the last
It was something that she carried within her in everything she did, but then he
showed up and disrupted everything
He told her that she had it wrong
The first step wasn't the most important
The last step wasn't the most important
It was the next step that was the most important.
She had been told time and time again that the most important steps were the fi
rst and the last
It was something that she carried within her in everything she did, but then he
showed up and disrupted everything
He told her that she had it wrong
The first step wasn't the most important
The last step wasn't the most important
It was the next step that was the most important.
```

In [124…
```python
import pickle
```

In [125…
```python
data_for_binary = 'This is a data written using python program in a text file.\r
```

In [126…
```python
data_for_binary = {
    'name': 'Amit',
    'age': 23,
    'location': 'Mumbai',
}
```

wb mode

In [144…
```python
with open('data_binary.txt', 'wb') as f:
    pickle.dump(data_for_binary, f)
```

In [ ]:

rb mode

In [145…
```python
with open('data_binary.txt', 'rb') as f:
    print(f.read())
```

```
b'\x80\x04\x95/\x00\x00\x00\x00\x00\x00\x00}\x94(\x8c\x04name\x94\x8c\x04Amit\x
94\x8c\x03age\x94K\x17\x8c\x08location\x94\x8c\x06Mumbai\x94u.'
```

Above content is in binary format which is in machine readable format we can perform operation using pickle module to read the file

```python
with open('data_binary.txt', 'rb') as f:
    f_read = pickle.load(f)

    print(f_read)
```

```
{'name': 'Amit', 'age': 23, 'location': 'Mumbai'}
```

ab mode

```python
with open('data_binary.txt', 'ab') as f:
    f.seek(0)
    pickle.dump(data_to_append,f)
```

```python
with open('data_binary.txt', 'rb') as f:
#     f_read = pickle.load(f)
    lst = []
    while True:
        try:
            f_read = pickle.load(f)
            lst.append(f_read)
        except Exception:
            break

    for data in lst:
        if type(data) == dict:
            for k,v in data.items():
                print(f"Key: {k}, Value: {v}")

        if type(data) == list:
            for item in data:
                print(item)
```

```
Key: name, Value: Amit
Key: age, Value: 23
Key: location, Value: Mumbai
She had been told time and time again that the most important steps were the fi
rst and the last

It was something that she carried within her in everything she did, but then he
showed up and disrupted everything

He told her that she had it wrong

The first step wasn't the most important

The last step wasn't the most important

It was the next step that was the most important.
```

In [ ]:

rb+ mode

In [149…

```python
with open('data_binary.txt', 'rb+') as f:   #Perform read and write operation on
    f_read = pickle.load(f)
    print(f_read)
#     pickle.dump('Content added with r+ mode in between the file\n',f)
    f.seek(0)
    lst = []
    while True:
        try:
            f_read = pickle.load(f)
            lst.append(f_read)
        except Exception:
            break

    for data in lst:
        if type(data) == dict:
            for k,v in data.items():
                print(f"Key: {k}, Value: {v}")

        elif type(data) == list:
            for item in data:
                print(item)

        else:
            print(data)
```

```
{'name': 'Amit', 'age': 23, 'location': 'Mumbai'}
Key: name, Value: Amit
Key: age, Value: 23
Key: location, Value: Mumbai
```
She had been told time and time again that the most important steps were the fi
rst and the last

It was something that she carried within her in everything she did, but then he
showed up and disrupted everything

He told her that she had it wrong

The first step wasn't the most important

The last step wasn't the most important

It was the next step that was the most important.

In [ ]:

wb+ mode

In [152...
```python
with open('data_binary.txt', 'wb+') as f: #First truncates the file and we can p
    pickle.dump(data_to_append,f)
    f.seek(0)
    f_read = pickle.load(f)
    for data in f_read:
        print(data)
```

She had been told time and time again that the most important steps were the fi
rst and the last

It was something that she carried within her in everything she did, but then he
showed up and disrupted everything

He told her that she had it wrong

The first step wasn't the most important

The last step wasn't the most important

It was the next step that was the most important.

In [ ]:

ab+ mode

In [153...
```python
with open('data_binary.txt', 'ab+') as f:
    pickle.dump(data_to_append, f) #Pointer starts at the end of the file
    f.seek(0)
    lst = []
    while True:
        try:
            f_read = pickle.load(f)
```

```python
            lst.append(f_read)
        except Exception:
            break

    for data in lst:
        if type(data) == dict:
            for k,v in data.items():
                print(f"Key: {k}, Value: {v}")

        elif type(data) == list or type(data) == tuple:
            for item in data:
                print(item)

        else:
            print(data)
```

She had been told time and time again that the most important steps were the first and the last

It was something that she carried within her in everything she did, but then he showed up and disrupted everything

He told her that she had it wrong

The first step wasn't the most important

The last step wasn't the most important

It was the next step that was the most important.

She had been told time and time again that the most important steps were the first and the last

It was something that she carried within her in everything she did, but then he showed up and disrupted everything

He told her that she had it wrong

The first step wasn't the most important

The last step wasn't the most important

It was the next step that was the most important.

In [ ]:

In [ ]: