Chapter - 7: File Processing

Open a Binary File

To work with a binary file, we can use the "**b**" with the access mode – "rb", "wb", "ab".

Example

```
# To Open a Binary File with Write Mode
    f = open('app.txt, 'wb', encoding = 'utf-8')
    f = open('app.txt, 'wb', ')

# To Open a Binary File with Read Mode
    f = open('app.txt, 'rb', encoding = 'utf-8')
    f = open('app.txt, 'rb', ')

# To Open a Binary File with Append Mode
    f = open('app.txt, 'ab', encoding = 'utf-8')
    f = open('app.txt, 'ab', ')
```

Pickle Module

- This module can be used to store any kind of object in file.
- This module provides the dump( ) and load( ) methods, to write and read data from a binary file.
- Python provided read ( ) and write( ) methods works with string parameters and will not directly work with binary files. Conversion of data at the time of reading and writing is required.

Syntax

- dump(object , file_handler) - used to write any object to the binary file.
- Object=load(file_handler) - used to read object from the binary file.

Example

```
import pickle
# This will write the object List into the file .
x=[1,2,3,4,5]
pickle.dump(x,f)

# This will read the object from the file and store in variable.
x=pickle.load(f)
print(x)
```

Writing the Binary File

Example

```
import pickle
f=open("abc.bin","wb")

# writing a string to file
x="Hello 1"
pickle.dump(x, f)

# writing a list to file
x=[1,2,3,4,5]
pickle.dump(x, f)

# writing a Dictionary to file
x={"Name":"Ajay", "Age":15,"Class":9}
pickle.dump(x, f)
f.close()
```

Reading the Binary File

Example -1

```
#pickle.load( ) needs to be called as many times dump( ) used.
import pickle
f=open("abc.bin","rb")

x=pickle.load(f)
print(x)

x=pickle.load(f)
print(x)

x=pickle.load(f)
print(x)
f.close()
```

Output

```
Hello 1
[1, 2, 3, 4, 5]
{'Name': 'Ajay', 'Age': 15, 'Class': 9}
```

Example -2

```
#pickle.load( ) with loop to read data.
import pickle
f=open("abc.bin","rb")

try:
    while True:
        x=pickle.load(f)
        print(x)
except:
    f.close()
```

Output

```
Hello 1
[1, 2, 3, 4, 5]
{'Name': 'Ajay', 'Age': 15, 'Class': 9}
```

Example -3

```
import pickle

#Create a Binary File with 4 records of students
f=open("abc.bin","wb")

x={"Name":"Ajay", "Age":15,"Class":9}
pickle.dump(x,f)

x={"Name":"Sanjay", "Age":14,"Class":8}
pickle.dump(x,f)

x={"Name":"Vikas", "Age":15,"Class":9}
pickle.dump(x,f)

x={"Name":"Ajit", "Age":13,"Class":7}
pickle.dump(x,f)

f.close()

#count and print the students of Class-9
f=open("abc.bin","rb")
try:
      count=0
      while True:
            x=pickle.load(f)

            if x["Class"]==9 :
               count=count+1
except:
     f.close()
print("Total student of Class- 9 : ",count)
```

Output

```
Total student of Class- 9 :  2
```

Example -4 Program to print the Frequency of Each Class

```
import pickle

#Create a Binary File with 4 records of students
f=open("abc.bin","wb")

x={"Name":"Ajay", "Age":15,"Class":9}
pickle.dump(x,f)

x={"Name":"Sanjay", "Age":14,"Class":8}
pickle.dump(x,f)

x={"Name":"Vikas", "Age":15,"Class":9}
pickle.dump(x,f)

x={"Name":"Ajit", "Age":13,"Class":7}
pickle.dump(x,f)

f.close()

#Read the file and count the Frequency
f=open("abc.bin","rb")

try:
  count={}
  while True:
      dic=pickle.load(f)
       x=str(dic["Class"])
       if x in count :
            count[x]=count[x]+1
      else:
            count[x]=1
except:
  f.close()

print("Frequency of Class :",count)
```

Output

```
Frequency of Class : {'9': 2, '8': 1, '7': 1}
```